

Part 4-A:

Model Road Safety Strategy



Erewhon City Council

Road Safety Strategy



This strategy has been developed in conjunction with the following road safety partners:

Erewhon City Council, Land Transport New Zealand, Eastland Regional Council, Transit New Zealand, Erewhon Hospital Board, Automobile Association, Cycle Safe, Walk for Life and public consultation.

1. Vision

“The safest roads in New Zealand”

2. Road Safety Issues

Road crashes are an ongoing cost to the residents of Erewhon City. Between 1999 and 2003 there have been 21 fatalities, 145 serious injuries and 440 minor injuries. This level of cost is unacceptable to the community and actions need to be taken to improve the situation.

Analysis of the crashes in Erewhon City have identified the main types of crashes; these are:

- Pedestrian
- Cyclist
- Intersections
- Loss of control

3. Goals

To achieve the vision of “the safest roads in New Zealand” the key road safety issues have been addressed with the following goals. The goals in this strategy are consistent with the regional land transport strategy and the national road safety strategy. These goals will contribute to achieving the national targets of 300 fatalities and 4,500 hospitalisations by 2010 (Road Safety to 2010).

Goal 1 – Improving the safety of pedestrians

Pedestrians are particularly vulnerable road users, actions need to be taken to remove them from hazardous situations or to minimise the amount of time they are exposed to conflict with vehicles. Pedestrians also need to be aware of their responsibilities as road users so that they do not place themselves at risk.

Goal 2 – Improving the safety of cyclists

Cyclists share the roadway with vehicles but have none of their physical protection. They are vulnerable when drivers of other vehicles fail to see them. Cyclists need their own space on the road and it is also part of the councils cycling strategy to encourage cycling as a viable transport option.

Goal 3 – Reduction in failed to Give Way or Stop crashes

The central city contains a large number of intersections. The crashes at these intersections are often happening when drivers fail to give way to approaching traffic sometimes this is a result of them failing to see the approaching vehicle. Drivers need to be made aware of intersections and be prepared to give way.

Goal 4 – Keeping vehicles on the roadway

Severe crashes are occurring when a vehicle leaves the roadway and either rolls or comes in contact with a roadside hazard. We need to guide vehicles along the roadway and also reduce the harm that will occur if a vehicle does stray. The drivers of vehicles also need to ensure that they are able to drive safely, especially when they are fatigued or have consumed alcohol.

4. Targets

Specific measurable targets are used to achieve the Road Safety Strategy goals. Each goal can be associated with one or more targets. Measurement against these targets will be done to see what progress has been made towards achieving the vision of Erewhon City Council to have, “*the safest roads in New Zealand*”.

Targets associated with Goal 1 – Improving the safety of pedestrians

Target 1.1	Achieve a reduction in the 5 year average number of pedestrian casualties, by 2007
Target 1.2	Achieve an annual reduction in the injury severity of pedestrian casualties

Targets associated with Goal 2 – Improving the safety of cyclists

Target 2.1	Achieve a reduction in the 5 year average number of cycle casualties, by 2007
Target 2.2	Achieve an annual reduction in the injury severity of cyclist casualties

Targets associated with Goal 3 – Reduction in failure to Give Way or Stop crashes at Intersections

Target 3.1	Achieve an annual reduction in the number of failed to Give Way or Stop crashes
Target 3.2	Achieve an annual reduction in the number of crashes where drivers had poor observation factors

Targets associated with Goal 4 – Keeping vehicles on the roadway

Target 4.1	Achieve a reduction of 5 percent in the 5 year average number of loss of control crashes, by 2007
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5. Interventions

To achieve the targets that have been set actions have been allocated to various road safety stakeholders. These actions or interventions fall into five basic areas 1. engineering and design improvements, 2. regulatory controls, 3. enforcement, 4. education and communication and 5. land use activities. Each intervention may impact on more than one target, the table below shows the relationship between the targets and the interventions.

The following interventions are scheduled to be completed before the review of this strategy

Target/s	Intervention	Who is responsible	To be completed by
1.1 1.2	Identify dangerous pedestrian locations and provide engineering countermeasures	Land Transport NZ Council	2006
1.1 1.2	Enforcement of traffic laws at pedestrian crossings	Police	Annually
1.1. 1.2	Promote pedestrian safety through media campaigns	Council	Annually
2.1 2.2	Develop and extend cycle way network	Council Transit NZ	Annually
2.1 2.2	Promote safe cycling through media campaigns	Council	Annually
3.1 3.2	Audit intersection layouts whole network	Council Transit NZ	2006
3.1 3.2	Identify intersections with significant crash numbers and determine intersection problems, design and implement solutions	Council Transit NZ Land Transport NZ	Annually
4.1	Check that signs and markings at loss of control crashes meet required standards	Council	2005
4.1	Targeted alcohol enforcement at key sites to reduce numbers of drunk drivers	Police	Annually
4.1	Promote fatigue awareness through media campaigns	Council Land Transport NZ	Annually
4.1	Promote drink driving awareness through media campaigns	Council Land Transport NZ	Annually

6. Monitoring

The performance of this strategy will be evaluated through monitoring progress towards the set targets. Progress towards the targets will be monitored annually by the Erewhon Road Safety Coordinating Committee

The following table shows the targets and measures. This table will be updated annually by 31 August and reported to the Works and Services committee.

Target	Source Data	2003 (Baseline)	2004	Target achieved (Reduction over 03) (Yes / No)	2005	Target achieved (Reduction over 03/04) (Yes / No)	2006	Target achieved (Reduction over 03/04/05) (Yes / No)
1.1 Achieve a reduction in the 5 year average number of pedestrian casualties, by 2007	LTNZ RSR Fig 18a	8.2						
1.2 Achieve an annual reduction in the severity of pedestrian casualties (Fatal and severe injury / all casualties)	LTNZ CAS	0.15						
2.1 Achieve a reduction in the 5 year average number of cycle casualties, by 2007	LTNZ RSR Fig 19a	8.4						
2.2 Achieve an annual reduction in the severity of cyclist casualties (Fatal and severe injury / all casualties)	LTNZ CAS	0.29						
3.1 Achieve an annual reduction in the number of failed to Give Way or Stop crashes (Urban Roads)	LTNZ RSR Fig 35a	14.6						
3.2 Achieve an annual reduction in the number of crashes where drivers had poor observation factors	LTNZ RSR Fig 35b	22						
4.1 Achieve a reduction of 5 percent in the 5 year average number of loss of control crashes, by 2007 (Rural Roads)	LTNZ RSR Fig 32a	13.8						

7. Review Date

This strategy is current for the period 2004 to 2007. Review of this strategy should commence in 2006 to be completed in February 2007.

Appendix 1

Erewhon City Council - Road Safety Performance 1999 - 2003

The following tables and graphs show the road safety performance of Erewhon City over the last five years. This provides a baseline to assess the performance of the Road Safety Strategy.

Crashes

	1999	2000	2001	2002	2003	Total	%
Fatal crashes	5	0	4	3	5	17	4%
Serious crashes	17	34	24	19	20	114	29%
Minor crashes	49	51	58	51	53	262	67%
Total injury crashes	71	85	86	73	78	393	100%
Non-injury crashes	205	198	190	195	221	1009	

Casualties

	1999	2000	2001	2002	2003	Total	%
Fatal casualties	5	0	5	3	8	21	3%
Serious casualties	28	36	30	26	25	145	24%
Minor casualties	99	84	96	83	78	440	73%
Total casualties	132	120	131	112	111	606	100%

INSERT- Pedestrian Casualties Graph (1999-2003) [inc. ALL NZ comparison]

INSERT- Cycle Casualties Graph (1999-2003) [inc. ALL NZ comparison]

INSERT- Failure to Give Way / Stop Crash Factor Graph (1999-2003) [inc. ALL NZ comparison]

INSERT- Poor Observation Crash Factor Graph (1999-2003) [inc. ALL NZ comparison]

INSERT- Loss of Control Crash Graph (1999-2003) [inc. ALL NZ comparison]

NOTE: This appendix should be added to annually to allow comparison of 5-year period data during the life of the Road Safety Strategy.

Part 4-B: Document Control Examples



Document Control Example-1

Background

Hodges Bay District Council (HBDC) SMS is developed and adopted by Council.

Joan Smith, HBDC's Roading Manager is the SMS champion, and in this case also the '**document controller**'.

The SMS 'Safety Management Team', comprises HBDC's Roading Manager, HBDC's network consultant, HBDC's Maintenance contractor, HBDC's Road Safety Co-ordinator, NZ Police OIC STU and Land Transport NZ Engineer.

The SMS 'Safety Management Team', plus the communications manager of Council form the '**review team**', for the SMS. The '**review team**' meet every six months.

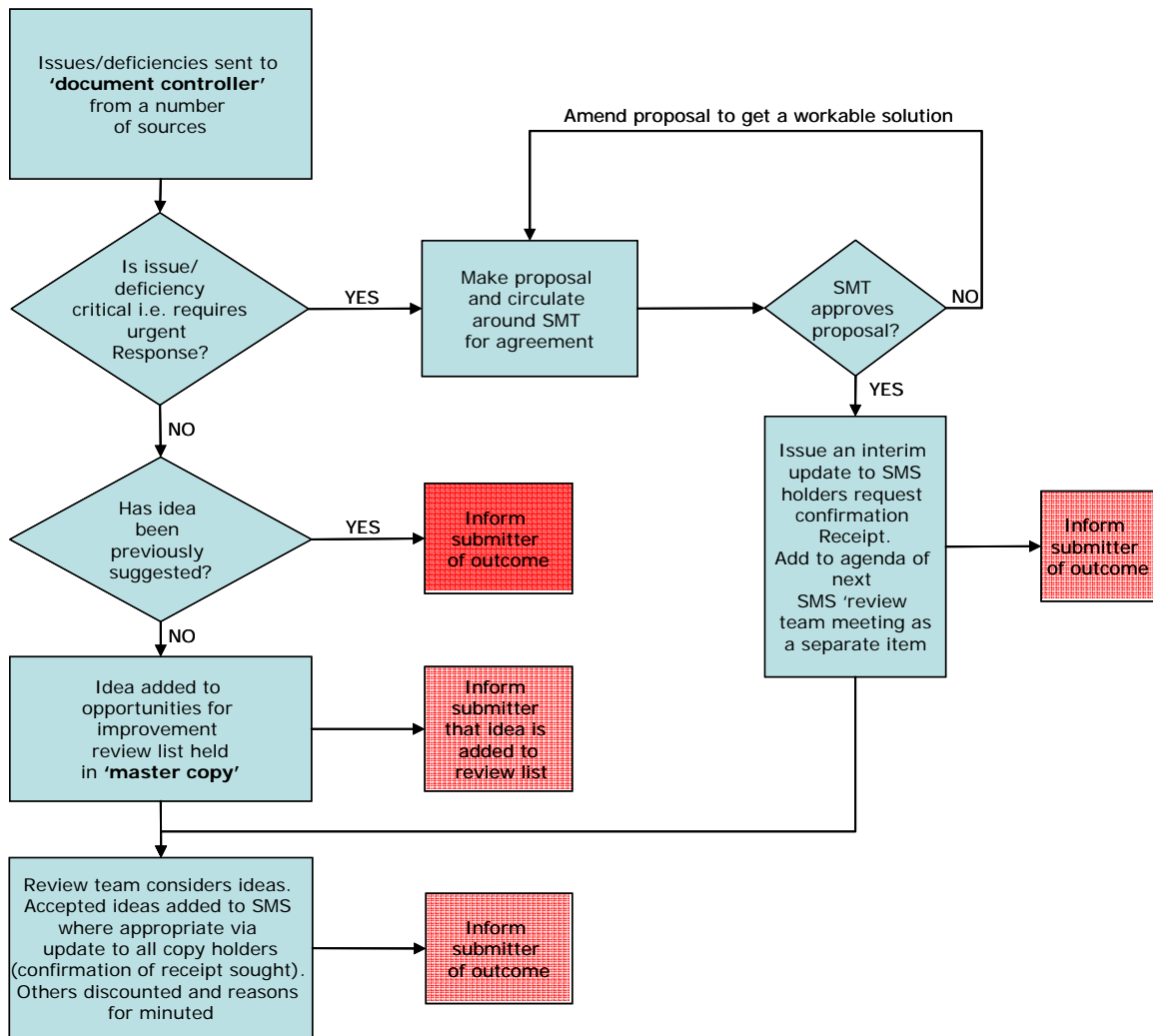
Including the '**master copy**' there are seven hard copies of HBDC's SMS in circulation each with a unique identifier commencing HBDC_01, then HBDC_02, etc. The document controller stores this info on a sheet within the front of the '**master copy**' in the following format:

Official distribution list for Hodges Bay SMS (example)

SMS ID	Held	Holder	Designation
HBDC_01 (<i>master copy</i>)	HBDC - roading dept	Joan Smith	Roading Manager (document controller)
HBDC_02	HBDC-comms section	Mike Jones	Comms Manager
HBDC_03	HBDC-community section	Helen Hughes	Road safety Co-ordinator
HBDC_04	Good Consultants	Harry Stevens	Design Manager
HBDC_05	Fast Contractors	Jill Scott	Construction Manager
HBDC_06	NZ Police - Hodges Bay	Alan Duncan	Senior Sergeant (STU)
HBDC_07	Land Transport NZ-Central	Bill McDonald	Senior Engineer

All parties know that Joan Smith is the document controller and as such all suggestions for improvement or identified gaps in the document are channelled through Joan via the following process that is agreed and documented within the SMS.

Suggestions for improvement to SMS Process



An example of the list of **suggestions for SMS improvement** is:

Item #	Description	Outcome from review meeting
1	No activity sheet for stock crossings.	Develop policy for stock crossings and stock racing.
2	Roles and qualification system needs to be expanded to include more key players.	Expand section to include....
3	Etc	-

An example of the **SMS Opportunity for Improvement list** is as follows:

Item	Description	Action	Due date	Responsibility
1	No activity sheet for stock crossings.	Develop policy for stock crossings and stock driving.	Aug 06	J. Smith
2	Roles and qualification system needs to be expanded to include more key players.	Expand section to include....	Jan 06	M. Jones

Document Control Example-2

Part 12: Changes and Development of the S M S.

OBJECTIVE

To ensure the Safety Management System remains current and appropriate.

12.1 Policy

The City Streets Safety Management System shall be subject to a process of continuous improvement. Any changes or developments shall be undertaken in a manner that both encourages staff participation and is methodical.

12.2 Purpose

An emphasis on making continual improvements to all aspects of the safety system will ensure that it increases in effectiveness and efficiency to the benefit of both the Council and Christchurch City. It is important however that any changes are made in a systematic manner.

12.3 Scope and Responsibilities

This part of the document describes the methods used to make any changes, developments of documents or systems used in the safety system and allied documents. Changes, modifications and development of documents or systems may be initiated by any staff member. The request for change or development shall be made directly to the relevant Team Leader. A copy of form FC/D shall accompany any request. Any change or development shall only be permitted after gaining the approval of the Safety Management System (Internal) Team

12.4 Procedures

Refer flow chart following .

Change and development requests shall be included on the SMS (Internal) Team meeting agenda (Form FQM).

12.5 Identifying Document Changes

An amendment to a document shall be identified by a 'change bar' as illustrated. The original text shall be deleted and replaced by the amended version.

Original

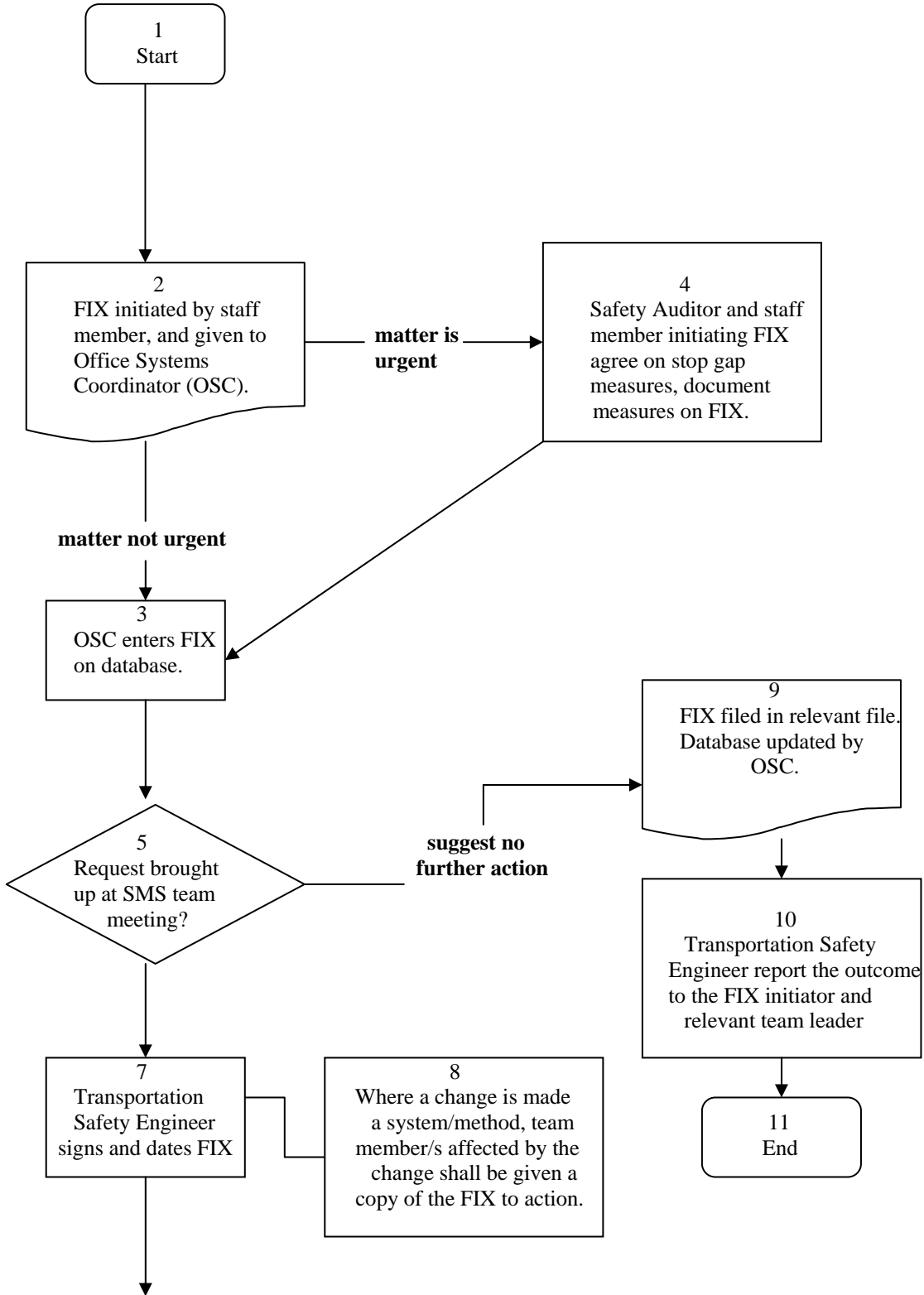
Now is the time for all good men.

Amended Version

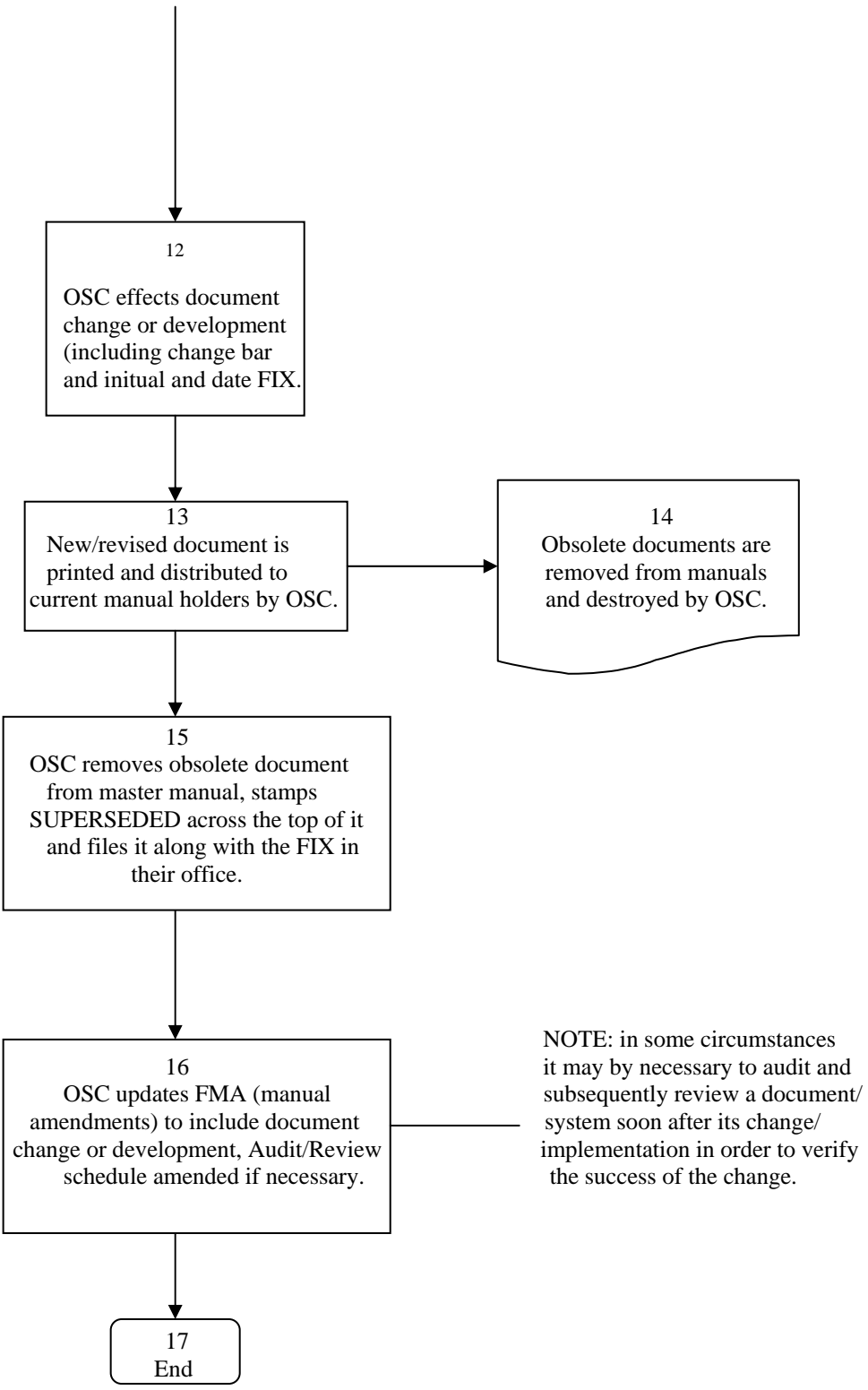
Now is the time for all good persons.

A change bar only indicates the most recent change (ie change bars from Previous amendments shall be deleted when another amendment is made to the same page/document).

Document Control Example-2
 CHANGES AND DEVELOPMENT
 OF DOCUMENT OR SYSTEM



CHANGES AND DEVELOPMENT
OF DOCUMENT OR SYSTEM



FIA
INTERNAL AUDIT
(DOCUMENT/SYSTEM)

Document/System: _____

(Check that document /system to be audited is the most recent)

Date: _____

Head Auditor: _____ Assistant: _____

Findings:

(continue on reverse if required)

Corrective action required

(continue on reverse if required)

Corrective Action

By whom: _____

Date to be completed: _____

Signed Transportation Safety Engineer: _____

Review of Corrective Action *(one month after audit)*

Corrective Action completed *(invalid documents destroyed where appropriate)*

Signed Head Auditor: _____ Date: _____

**FFB
FEEDBACK FORM**

- Ideas
- Customer Feedback
- Change to Safety Management System

- Corrective Action
- Problems
- Change to Team Documents

NO:
Office use only

Date & Time _____	Your Name _____	SMS Lead Document Change Yes/No
_____	_____	Team Document Change Yes/No
Describe the problem/suggestion		Phone No

What action do you think is necessary? (include any action you have already taken)		

SMS (Internal) Team Meeting (Date)	Copy to Team Leaders effected	Feedback to originator			Code
ACTION REQUIRED	By Whom	When	Verified (Initial)	Date Completed	
REVIEW: was the action/change successful?					
All necessary action/documentation completed.					
Transportation Safety Engineer Signature:				Date:	

Document Control Example-2

Part 12: Changes and Development of the S M S.

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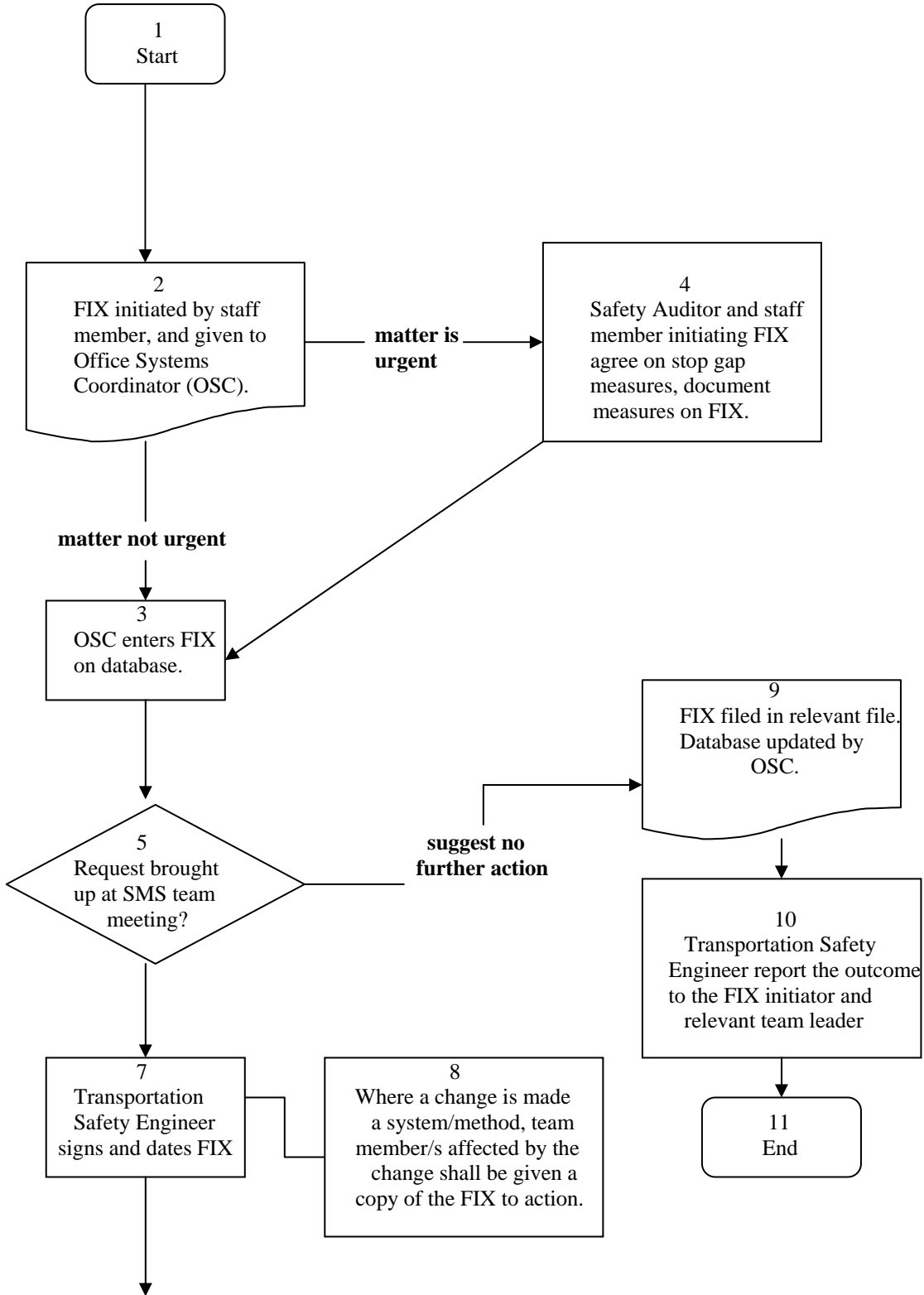
Now is the time for all good men.

Amended Version

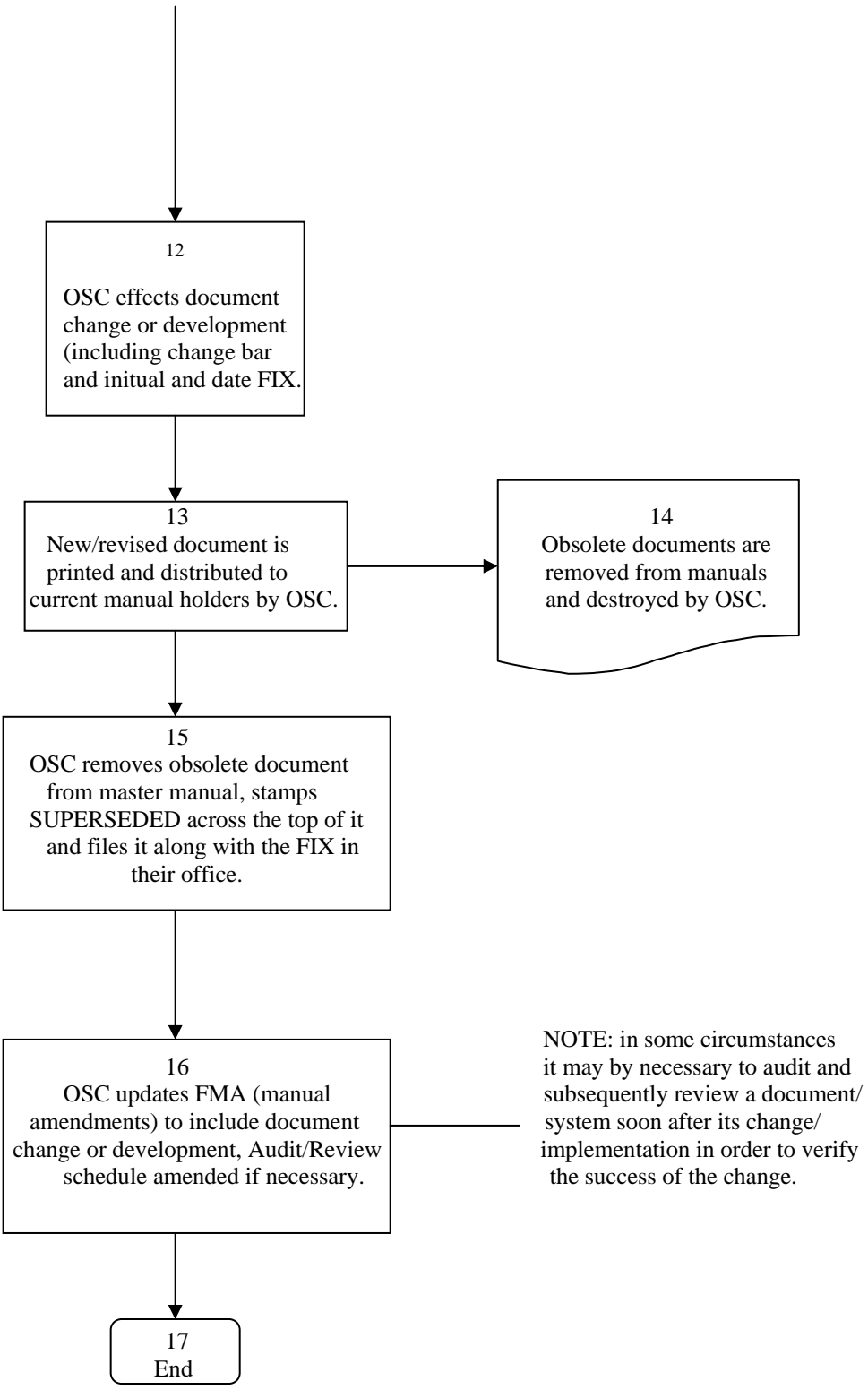
Now is the time for all good persons.

A change bar only indicates the most recent change (ie change bars from Previous amendments shall be deleted when another amendment is made to the same page/document).

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 CHANGES AND DEVELOPMENT
 OF DOCUMENT OR SYSTEM



CHANGES AND DEVELOPMENT
OF DOCUMENT OR SYSTEM



FIA
INTERNAL AUDIT
(DOCUMENT/SYSTEM)

Document/System: _____

(Check that document /system to be audited is the most recent)

Date: _____

Head Auditor: _____ Assistant: _____

Findings:

(continue on reverse if required)

Corrective action required

(continue on reverse if required)

Corrective Action

By whom: _____

Date to be completed: _____

Signed Transportation Safety Engineer: _____

Review of Corrective Action *(one month after audit)*

Corrective Action completed *(invalid documents destroyed where appropriate)*

Signed Head Auditor: _____ Date: _____

**FFB
FEEDBACK FORM**

- Ideas
- Customer Feedback
- Change to Safety Management System

- Corrective Action
- Problems
- Change to Team Documents

NO:
Office use only

Date & Time _____	Your Name _____	SMS Lead Document Change Yes/No
_____	_____	Team Document Change Yes/No
Describe the problem/suggestion		Phone No

What action do you think is necessary? (include any action you have already taken)		

SMS (Internal) Team Meeting (Date)	Copy to Team Leaders effected	Feedback to originator			Code
ACTION REQUIRED	By Whom	When	Verified (Initial)	Date Completed	
REVIEW: was the action/change successful?					
All necessary action/documentation completed.					
Transportation Safety Engineer Signature:				Date:	

Part 4-C: Rangitikei/Ruapehu/Wanganui SMS

Rangitikei Ruapehu Wanganui Roads Safety Management System

May 2005



Land Transport NZ
Ikiiki Whenua Aotearoa

Rangitikei Ruapehu Wanganui Roads Safety Management System

Version 1

May 2005

This is an agreement between Land Transport New Zealand and the Rangitikei, Ruapehu and Wanganui District Councils to certify that this Safety Management System is endorsed by all parties as being in accordance with the LTSA Guidelines for Developing a Safety Management System.

Signed on behalf of Rangitikei District Council
by:

Leigh Halstead
Chief Executive

Date:

Signed on behalf of Land Transport New Zealand by:

Darryl Harwood
Regional Manager - Safety

Date:

Signed on behalf of Ruapehu District Council by:

Chris Ryan
Chief Executive
Date:

Signed on behalf of Wanganui District Council by:

Colin Whitlock
Chief Executive
Date:

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Preface

The 2003 LTSA Road Safety Issues reports for Rangitikei, Ruapehu and Wanganui Districts show that there were 83 fatal and 364 serious injury crashes within the three Districts over the previous five years, with 24 and 103 of these being on District road networks. The social cost of crashes on District roads was \$22 million in 2003. Particular concerns in the Rangitikei, Ruapehu and Wanganui Districts include Loss of Control, Speed, Alcohol, Intersections, Vulnerable Road Users, Fatigue, and Road or Environmental factors.

Government's 2010 Road Safety Strategy puts responsibility on individual Road Controlling Authorities to contribute to national goals for reducing fatality and hospitalisation numbers by 2010. Developing and implementing a Safety Management System (SMS) is a key component of the Strategy. An SMS should define the procedures to be used for improving the safety of the roading network, and how stakeholders can contribute to achieving safety targets.

This SMS document has been developed cooperatively by the Rangitikei, Ruapehu and Wanganui District Councils and covers the three "Local Roads" networks. It excludes State Highways, which are the responsibility of Transit New Zealand.

It's goal is to improve the level of inherent safety on the network, with a consequential and ongoing reduction in both the road crash rate and crash severity.

The SMS is regarded as a key policy document by all three authorities. It encourages a safety culture to focus the efforts of all stakeholders on achieving road safety objectives and targets. It:

- Lists the Policies, Standards, Procedures, Guidelines and Codes of Practice used to improve the safety of the local roading networks.
- Identifies the engineering expertise and culture needed to deliver safety.
- Outlines the Management System which ensures that the necessary standards and expertise are developed and used to deliver safety outcomes
- Includes an audit regime to ensure ongoing compliance with the SMS
- Includes a review process to ensure that "best and current practice" is maintained.

The SMS is dynamic and subject to continuous improvement. It represents a partnership between the three RCA's and Land Transport NZ. It will be updated annually by the combined Safety Management Team as a new version to reflect changing road safety priorities. Significant changes of a legislative or procedural nature will be made on an as required basis.

Record of Amendments

AMENDMENT NO.	SUBJECT	UPDATED BY	DATE

Distribution List

<i>INDIVIDUAL</i>	<i>ORGANISATION</i>	<i>COPIES</i>	<i>DATE OF DISTRIBUTION</i>
Bill Greenwood	Land Transport New Zealand	1	
David Curson	Land Transport New Zealand	1	
Barry Strichen	Rangitikei District Council	1	
Roger Coles	Rangitikei District Council - GHD	1	
Bruce Dobson	Ruapehu District Council	1	
John Jones	Wanganui District Council	2	
Charl Alberts	GHD Consultants	1	
Jim Moore	Opus Consultants	1	
<i>vacancy</i>	Road Safety Coordinator (MW region)	1	
Anne Redgrave	Horizons Regional Council	1	
Neil Wynne / Nick Dobson	NZ Police (Central Districts Regional Commander)	1	
Sam Hoyle	NZ Police (Area Commander Wanganui)	1	
Dave Scott	NZ Police (Area Commander Rangitikei)	1	
Steve Mastrovich	NZ Police (Area Commander Ruapehu)	1	
Roger McLay	Transit New Zealand	1	
Mark Gordon	Maunsell	1	

Glossary of Terms

TERM	DESCRIPTION
AA	Automobile Association
ACC	Accident Compensation Corporation
AMP	Activity / Asset Management Plan
Audit	A planned or programmed check of documentation and activity that examines compliance with established standards or best practice requirements. An audit consists of Review, Monitor and Evaluation stages and generally leads to a full report on compliance with best practice and provides recommendations and/or corrective actions if necessary.
Austrroads	The association of Australian and New Zealand (Transit) road transport and traffic authorities whose purpose is to contribute to the achievement of improved Australian and New Zealand transport related outcomes
CAS	Crash Analysis System
CDEM	Civil Defence and Emergency Management
COP	Code of Practice
CRS	Crash Reduction Study
Evaluation	An assessment of a RCA road safety outcome on the road against expected results to determine level of attainment and whether the RCA SMS is appropriate.
GIS	Geographic Information System
LATMS	Local Area Traffic Management Scheme
LOS	Levels of Service
Land Transport NZ	Land Transport New Zealand, formed in 2004 from the merger of the Land Transport Safety Authority (LTSA) and Transfund New Zealand.
LTCCP	Long Term Council Community Plan, a requirement under the Local Government Act 2002.
Monitoring	A formal process by which operational activity is overseen and checked. Its purpose is to increase knowledge and determine any variation or pattern, in order to identify and recommend future action.
NAASRA	National Association of Australian State Road Authorities, superseded by Austrroads
Review	A reconsideration or revisiting of an SMS document or component to assess

	relevance and appropriateness to a requirement or a desired best practice outcome.
RAMM	Roading Assessment and Maintenance Management software system
RLTS	Regional Land Transport Strategy
RTPP	Risk Targeted Patrol Plan
RCA	Road Controlling Authority - the organisation responsible for the management of the roading network within a defined geographical area.
RLTC	Regional Land Transport Committee, a statutory committee of the regional council
RSS	Road Safety Strategy - a general framework, which provides guidance, rationale and direction for actions to be taken (and, at the same time, is shaped by the actions to be taken), based on a clear and broad understanding of the desired Road Safety goals, targets and interventions.
RSP	Road Safety Plan - an activity-based plan, which sets out the specific actions to be taken, as well as responsibilities and timelines for activity. It should be clearly linked to the Road Safety Strategy.
SIP	Safety Intervention Plan - provides guidance to maintenance contractors for prompt detection of deficiencies to allow early intervention so that a safe, efficient and “no surprises” roading network is achieved.
SMP	Safety Management Plan - defines responsibilities of network managers to document the methodology for the collection, analysis and management of safety deficiencies to achieve stated safety outcomes.
SMS	Safety Management System - a documented system that helps road controlling authorities to have consistent strategies, policies, standards and procedures in place to ensure that safety is a central consideration in every decision made about construction, maintenance and management of road networks.
SMT	Safety Management Team
SCRIM	Sideway Force Coefficient Routine Investigation Machine – measures road surface skid resistance
TLA / TA	Territorial Local Authority
TMP	Traffic Management Plan – a document recording the methods of controlling traffic and managing safety at road works sites or other events involving the temporary disruption of traffic
VPD	Vehicles per day – a measure of traffic volume

Introduction

1.1 Purpose and Philosophy

The Government has stated its commitment to reducing the impact and trauma of road crashes in New Zealand. "Road Safety to 2010" presents the Government's direction for road safety and sets specific targets, recognising the key roles of engineering, education and enforcement.

One of the key actions that can be taken by a Road Controlling Authority is taking a systematic approach to road safety.

Safety Management Systems are designed to assist RCA's to better manage the safety of their roading networks, and ensure that consistent strategies, policies, standards and procedures are in place. The SMS is therefore an effective way to improve the safety of road networks, and forms an integral part of the "total management system" for a road network.

Benefits of a safety management system

The systematic approach to managing the safety of a road network using an SMS helps to ensure that:

- safety is considered in decisions about construction, maintenance, planning and management of the road network
- implementation of road management procedures is consistent and efficient
- risk management is documented, providing protection from litigation
- road safety knowledge and expertise needs are documented
- methods to address any gaps are in place
- documentation provides clear guidance for all staff and can be used for training new employees
- development and auditing of the roading network are undertaken in a systematic way
- safety is improved for **all** road users.

Structure of a safety management system

The role of the SMS is to provide a policy document giving direction for a systems based approach to road safety on the local roads networks of the Rangitikei, Ruapehu and Wanganui Districts. The structure of this SMS is shown in Figure 0.1 below.

RCA's road safety strategy

Reference to or inclusion of current safety strategy and action plan.

Policies, standards, procedures and guidelines

Reference to or inclusion of current policies, standards, procedures and guidelines for all safety related roading functions.

Roles and responsibilities

RCA's staff structure, roles and associated expertise, qualifications and experience requirements

Management system

Processes used and responsibilities for the safety strategy and SMS

Audit regime

Performance targets, review, monitoring and evaluation processes



Figure 0.1: Structure of the Rangitikei Ruapehu Wanganui Safety Management System

The SMS is therefore the primary reference document for all “road safety” issues associated with the management of the three networks.

Firstly, the **Safety Strategy (Direction)** for the three RCA's is outlined. This includes:

- Road Safety Vision
- Road Safety Problems and Issues
- Road Safety Goals and Targets
- Monitoring and Measuring Road Safety Performance
- Key Stakeholders and Relationships

The Safety Strategy is linked to the government's national goals for continuous improvement in road safety.

The Safety Strategy is supported by the **Means of Delivery**. This includes:

- Definition of the road safety “components”, each of which has relevant policies, standards, guidelines and procedures.
- The organisational expertise needed of the RCA’s and their service suppliers.
- Reference to the Safety Management Plan and Safety Intervention Plan – these being supporting processes for network managers and maintenance contractors.

Below this is the **Management System (Control)** level. This section defines management responsibilities within the system to ensure that:

- The procedures and standards will deliver consistency and desired improvements in road safety.
- The SMS is used by those who have a responsibility for road safety issues on the road network, or adjacent to any road if the activity may have a safety impact on that road.
- Responsibility for key SMS functions is assigned, with a view to ensuring continuous improvement of the system and all related documents with respect to any road safety issues.
- An improvement plan is in place for safety management practices and the implementation and further development of the SMS.

The final section of the Safety Management System below this is the **Audit Regime (Review)**. This section defines the procedures for regular review and audits of the:

- The SMS itself.
- Progress towards road safety targets.
- Use of and compliance with the requirements of the SMS.

1.2 SMS Model for Rangitikei, Ruapehu and Wanganui Roads

This SMS covers the local road networks of the following RCA’s:

- Rangitikei District Council
- Ruapehu District Council
- Wanganui District Council

While the state highway network passes through all of these Districts, these roads are not formally part of this SMS as they are managed by Transit New Zealand. Transit is however a key stakeholder as there are many points of interaction between the networks. A close collaboration is essential in maximising potential safety benefits, and it may be possible in the future to consider a joint SMS which includes the SH’s in the area.

A single SMS has been developed for the three local road networks, referred to as the “Rangitikei Ruapehu Wanganui Roads Safety Management System”. This reflects a desire to work collaboratively in managing and improving road safety across the three networks.

Differences in levels of service between the three Districts are noted and dealt with in the various SMS components in **Appendix IV**.

The SMS is an important implementation tool within each RCA's Activity (or Asset) Management Plan, as shown in **Figure 0.2**.

The SMS also cross-references other documents, such as Standards, Guidelines, Codes of Practice, and Contract Specifications, rather than duplicating information in them.

1.3 Network Description

Maps of each RCA network are included in **Appendix I**. Physical details for these networks are summarised in Table 0.1 below.

<i>District Network</i>	<i>Total Length (kms)</i>	<i>Length Unsealed (kms)</i>	<i>Length Sealed (kms)</i>	<i>Length Urban (kms)</i>	<i>Length Rural (kms)</i>	<i>No of Bridges</i>
<i>Rangitikei</i>	1238	483	755	92	1146	221
<i>Ruapehu</i>	1335	880	455	121	1214	335
<i>Wanganui</i>	834	301	533	216	618	89
TOTAL	3407	1664	1743	418	3051	645

Table 0.1: Rangitikei Ruapehu Wanganui Local Rooding Networks Physical Characteristics

The main characteristic of the Rangitikei and Ruapehu networks is that over 90% of the roads are rural with speed limits greater than 70 km/h. This influences the type and nature of crashes occurring in these two districts, with those involving loss of vehicle control or excessive speed being the most common.

Much of Ruapehu's network in particular was developed through seal extensions on unsatisfactory alignments, and this has resulted in a rural network which has a lack of prominent safety features and inadequate design standards.

Wanganui's rooding network is more urban in nature and 64% of all injury crashes in the district occur on urban roads. This is also reflected in the fact that 41% of all injury crashes occur at intersections.

1.4 Strategic Linkages

The SMS is driven by legislation and by key Plans and Strategies at the National, Regional and District level, as shown in **Figure 0.2**.

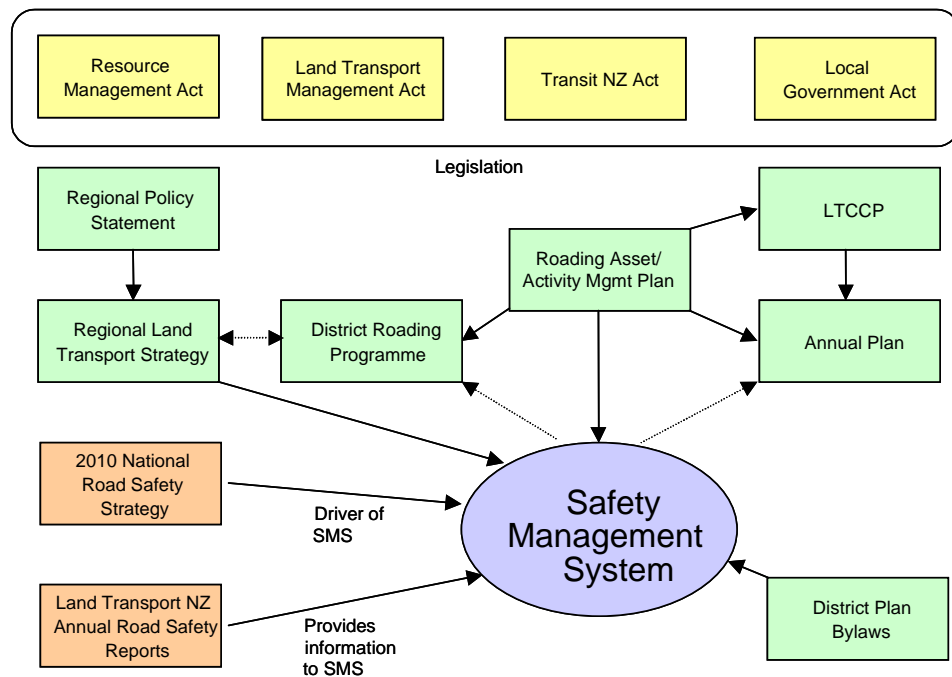


Figure 0.2: Relationship of SMS with Legislation and Other Key Planning Documents

1.5 Operational Linkages

The SMS targets a systematic approach, not only within each local authority, but also for externally contracted agencies – consultants and contractors. It is primarily focussed on Engineering operations, but is also relevant to Enforcement and Education. **Figure 0.3** illustrates these linkages.

Consultants and contractors engaged in both network management and physical works activities have responsibilities under the SMS. This is important, as the system will only be successful if it is “owned and actioned” not only by Council staff but also by these parties.

District Council asset management staff have a responsibility to establish and monitor the safety performance of their local roading networks. The network manager’s role is to manage safety on a day-to-day basis, this includes management of maintenance contracts and a number of other specific activities as agreed with the client.

The roles and responsibilities of network managers and maintenance contractors is to be further developed and documented in the **Safety Management Plan** and **Safety Intervention Plan** respectively. These are further described in Section 3.

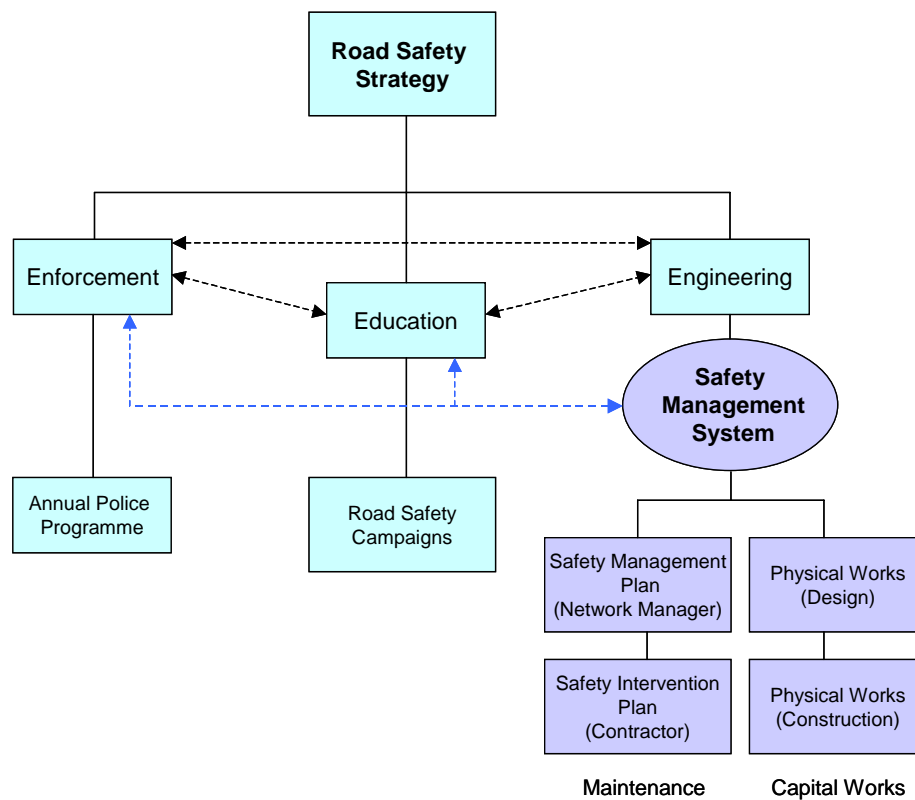


Figure 0.3 : SMS Operational Linkages

Road Safety Coordination

There are strong working relationships between roading staff and road safety coordinators in each District. Coordinators are employed by Horizons Regional Council, one for each District with the Wanganui position being senior and also responsible for regional projects. Reporting is through the Regional Land Transport Committee. Each Council is represented on the RLTC, and the regional Road Safety Committee¹. Each Council also participates in a local Road Safety Coordinating Committee, and this ensures an exchange of information about safety initiatives and concerns.

Activities often cross District boundaries, requiring the coordinators to work closely together.

The overall objective is to increase the combined effectiveness of the three E's, to be achieved by continuing to develop appropriate mechanisms.

¹ Road Safe Central – includes representatives of 7 TLA's, ACC, AA, Police and other key road safety agencies.

Police

Police report regularly to the District Councils with meetings being held at each of the three Councils. Achievements in relation to the S(A)P, enforcement and hours are discussed. The S(A)P is confirmed annually, with the opportunity for input by each Council.

The current status of communication and liaison on the Road Safety Action Plan within each District is summarised below:

<i>District Council</i>	<i>Police Area</i>	<i>Communication and Road Safety Action Plan Status</i>
Rangitikei	Wanganui	Quarterly meetings, and RSAP is discussed and agreed.
Ruapehu	Ruapehu	Informal liaison. Not specific about the RSAP.
Wanganui	Wanganui	Quarterly reporting by Police to Committee. Not specific about the RSAP.

Close working relationships between each RCA and the Police are to be developed and maintained. The Road Safety Action Plan is to be discussed and monitored at quarterly meetings of each RCA, Land Transport NZ and the Police.

Communication will include information on crash factors.

This process must be ongoing, and where it is not working well attention is to be given by the RCA and Land Transport NZ to developing a stronger working relationship with the Police. This is to include identification of enforcement priorities and hours and sharing knowledge on road safety problems and initiatives. Efforts to increase the level of communication and reporting on Police achievements within each RCA area are to be promoted.

Transit New Zealand

Transit is responsible for the State Highway network, and there are many points of interaction with the Local Roads networks and with community interests. This requires a close working relationship between each RCA and Transit, with regular communication about matters of mutual interest on the networks.

A Transit NZ representative will be invited to participate in future Safety Management Team meetings (*Imp't plan action*).

Road Safety Strategy (RSS)

1.6 Introduction

Currently there is no specific road safety strategy in place for any of the three Councils. This RSS therefore provides direction for the SMS. The RSS is to be reviewed after one year in consultation with key stakeholders.

This section shows how the RSS relates to national and regional strategies, reviews historical crash trend data, defines future road safety targets for each District, and identifies key stakeholders.

1.7 Road Safety Vision

The first step in developing the RSS is to confirm a clear, achievable road safety Vision for the three networks.

National Vision

The government's transport vision is that *"by 2010 New Zealand will have an affordable, integrated, safe, responsive and sustainable transport system"*.

Regional Vision

The Manawatu-Wanganui region covers all of the Districts in this SMS, and extends to Tararua and Horowhenua in the south-east. The safety component of the long-term vision is for a *"land transport system in the Region whichis the safest possible..."*. This must be balanced against other competing needs, and the RLTS includes 6 objectives, one of which relates to safety.

District Outcomes

Each Council has produced a Long Term Council Community Plan and Asset Management Plan, which include desired outcomes in relation to transportation and safety:

District Council	LTCCP Outcomes relating to Road Safety	Other Goals relating to Road Safety
Rangitikei	na	AMP purpose includes – <i>"providing a road network that meets generally accepted standards"</i> .
Ruapehu	<i>"Safe, reliable, efficient road, air and rail transportation"</i>	AMP Strategic goal – <i>"the land transport network provides for the safety of its users"</i> .
Wanganui	<i>"A safe and healthy community"</i>	Rural Roads Strategy – <i>"to provide road users with a sustainable, safe, and cost-effective roading system..."</i>

Vision for the “Three Networks”

“The transport network is safe for all road users”

1.8 Key Road Safety Issues and Problem Analysis

From analysis of five-year crash data and trends from 1999 to 2003 for each RCA, the major road safety issues in the Rangitikei, Ruapehu and Wanganui Districts compared with national trends are summarised below:

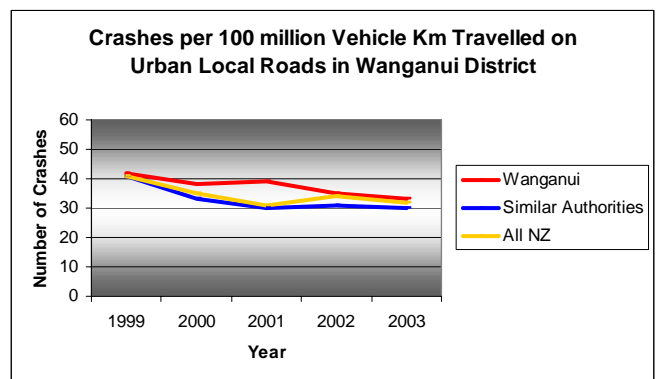
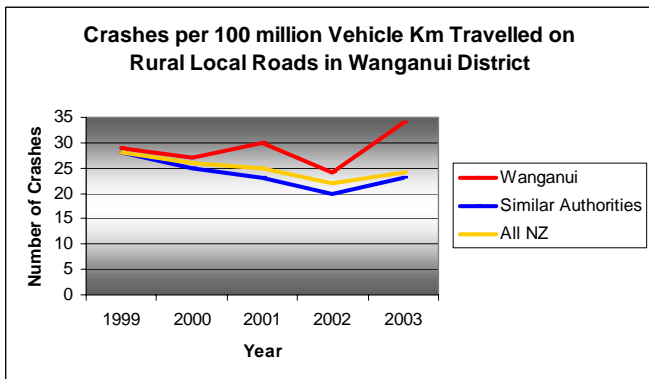
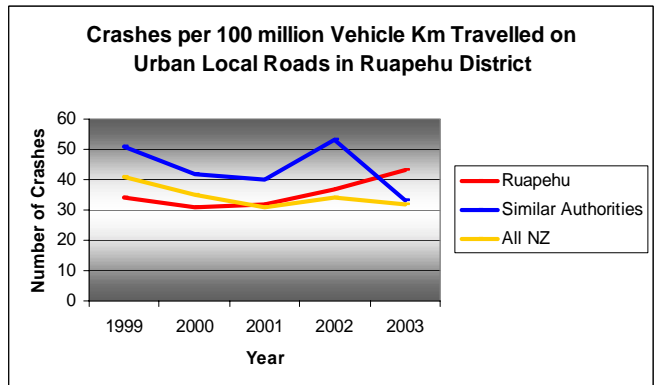
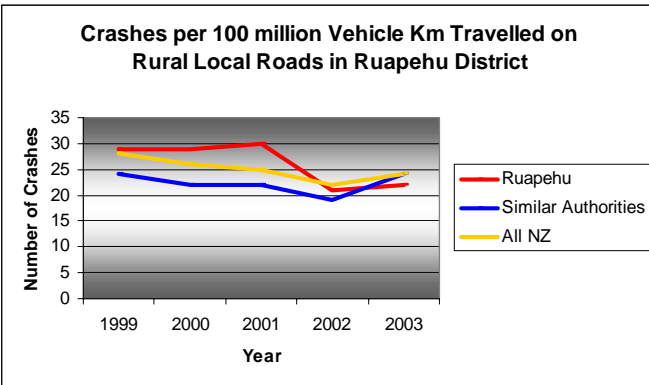
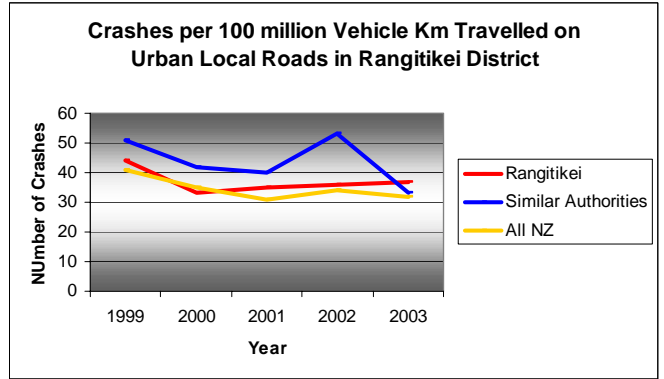
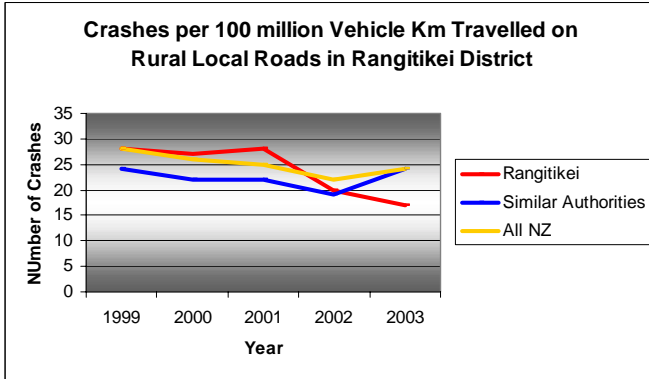
Issue	RaDC	RuDC	WDC	National
Alcohol			*	*
Fatigue	*			
Intersections			*	
Loss of Control	*	*	*	
Road/ environmental factors		*		
Speed	*	*		*
Vulnerable Road Users			*	

Table 0.1: Rangitikei, Ruapehu and Wanganui’s Major Road Safety Issues

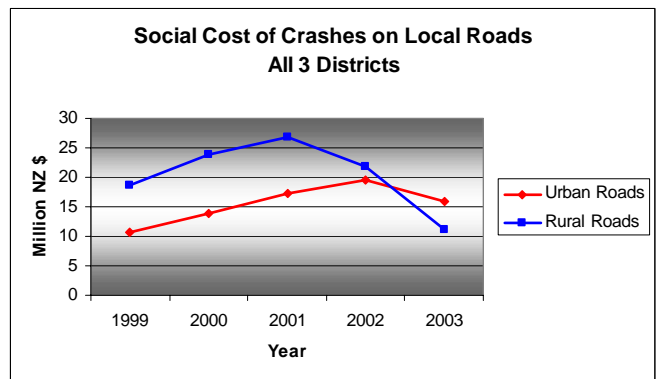
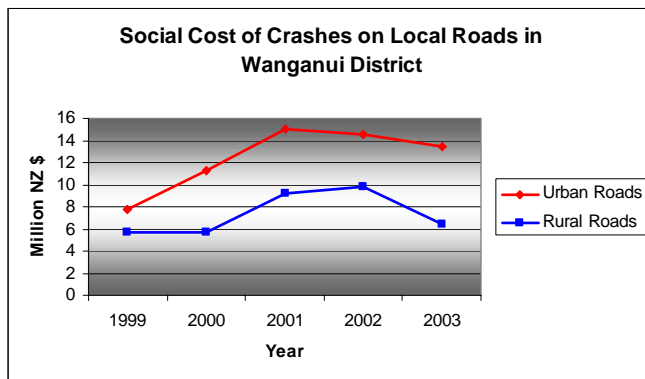
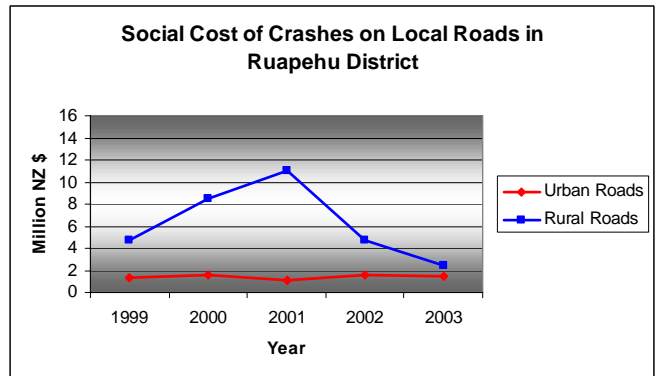
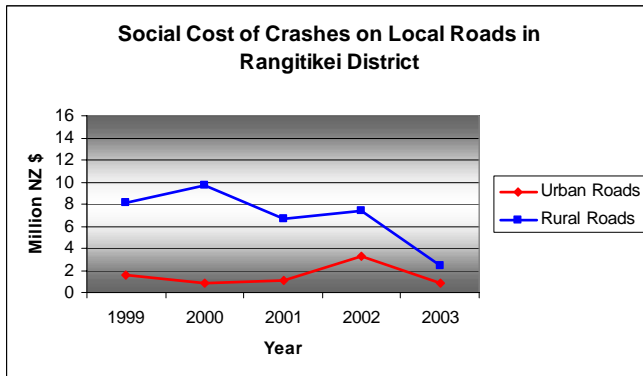
Note that these issues, and the Road Safety to 2010 goals and targets, include both State Highways and Local Roads. However, this SMS is only concerned with Local Road networks.

Crash rates for the three Local Roads networks are shown below, compared with national and “similar group” trends. These indicate the “relative exposure level” in relation to the total distances travelled on each network. Of particular note is the increase for urban roads in Wanganui District, while other trends are generally similar to national or “similar group” RCA’s.

The RLTS, which was last updated in June 2000, notes an overall downward trend in road crashes in the region. Forestry, tourism, freight volumes, and an increasing demand for travel are all factors likely to affect road safety in the future.



The social costs of crashes on the Local Roads networks are based on the economic costs of fatal, serious and minor urban and rural crashes, with an allowance for unreported crashes and non-injury crashes. The following graphs show quite different trends between districts, and between urban and rural roads.



The number and dispersal of crashes throughout the rural networks in particular highlights the random nature of crash events and the need to understand the underlying causes. For example, the proximity of crashes to State Highway intersections and the extent to which these are a factor.

The major safety issues and suggested mitigation actions are further discussed for each District in **Appendix III**, and a number of these actions involve engineering interventions. Addressing these issues is expected to have a significant effect in achieving the safety targets.

This information has been sourced from the 2003 LTSA “Road Safety Issues” reports and most recent statistics for each RCA.

1.9 Road Safety Goals and Targets

1.9.1 National and Regional Goals

The national goal of the Road Safety to 2010 strategy is to reduce the number of road deaths per year to no more than 300 and hospitalisations to no more than 4,500 by 2010. This will enable the country’s road safety performance to be closer to that of countries with the best safety records.

There are no specific road safety goals in the RLTS, however safety related policies include:

- *“promote a safer roading network*
- *encourage a coordinated approach to road safety*
- *promote the development of systems that improve the reporting, recording and investigation of road crashes*
- *improve safety for cyclists and pedestrians”.*

Note that the RLTS has no specific safety targets or performance measures.

Other regional policies in the RLTS, such as the promotion of road network upgrading and provision for cyclists and pedestrians within the roading network, are also relevant to the SMS. This SMS is consistent with these policies and is a means of giving effect to them.

1.9.2 RSS Goal

Between 2000 and 2004 the average annual figures for fatalities and serious casualties on roads within the Rangitikei, Ruapehu and Wanganui Districts (State Highways and Local Roads) were:

- Fatalities 18
- Serious Casualties 70

The specific goal of the Road Safety Strategy for the three Districts is to:

“Annually reduce the number of fatalities and the number of serious casualties resulting from road crashes within the group of three RCA’s in line with the RLTS and Road Safety to 2010 Strategy targets”.

1.9.3 District Targets

Road Safety to 2010 sets regional targets for the maximum total number of deaths and hospitalisations for 2004 and 2010. Hospitalisation data is not currently available for each of the Districts, so serious casualties trends have been used instead. This Strategy has set the following target outcomes for deaths and serious casualties for each District, using on average a target reduction level of 25%² from the 3 year average. The reduction in fatalities is higher, reflecting the need to reverse an increasing trend over the last few years in some Districts. As these targets include Local Roads and State Highways, they are to be regarded as guidelines pending the development of Local Roads network targets (*Improvement Plan action*). It is also to be noted that the SMS is only one of several initiatives influencing road safety.

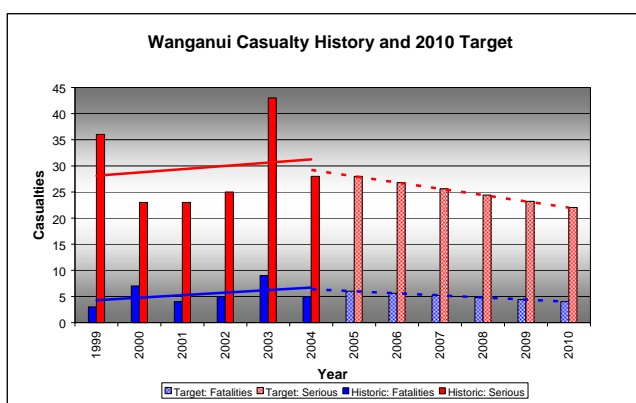
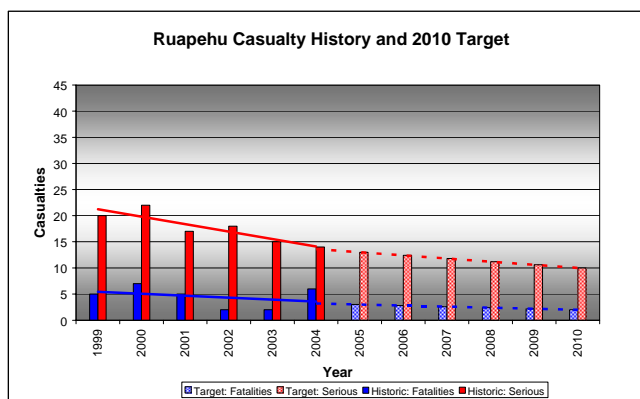
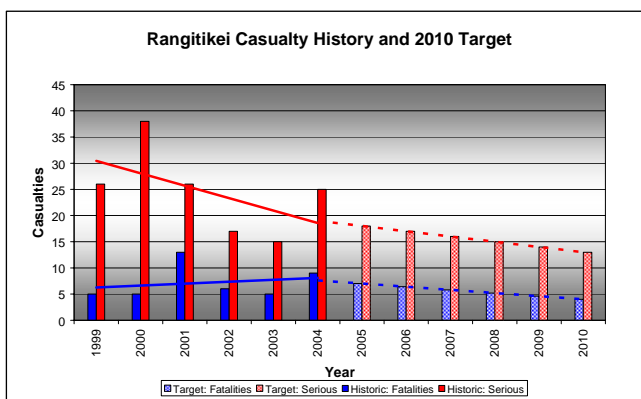
The following table lists the targets for 2005 and 2010. Between 2002 and 2003 the reporting rate of serious injuries to hospital admissions was 63% for the Manawatu-Wanganui region. This is slightly lower than the

² This is consistent with the national strategy

67% reporting rate for the whole of New Zealand. Hospitalisation data will need to be obtained from health agencies for future monitoring purposes.

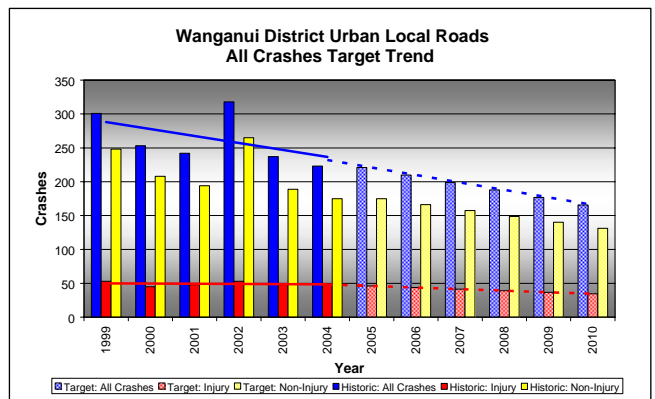
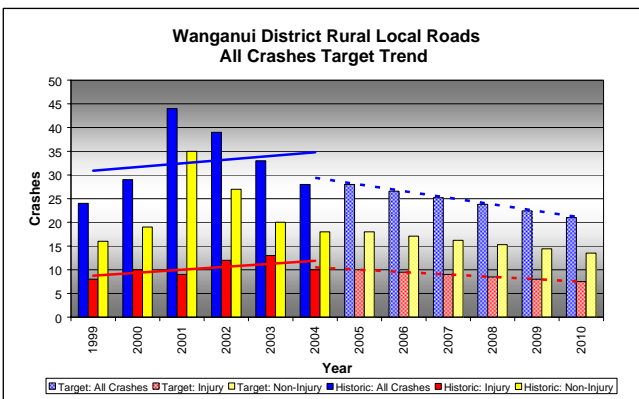
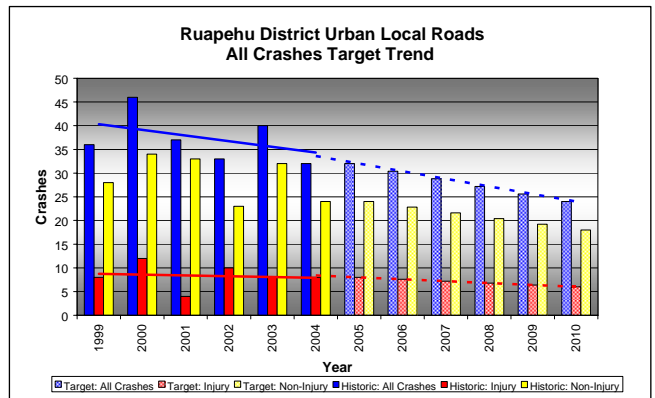
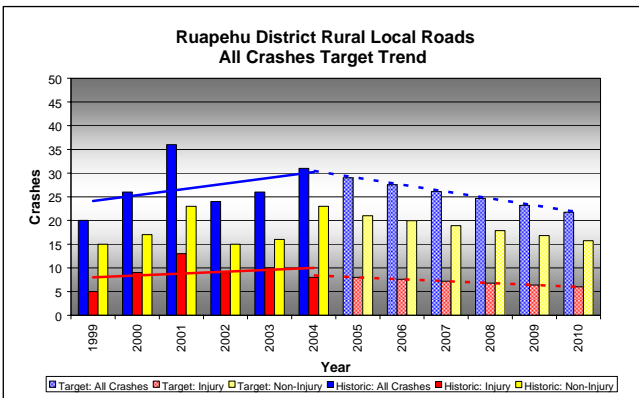
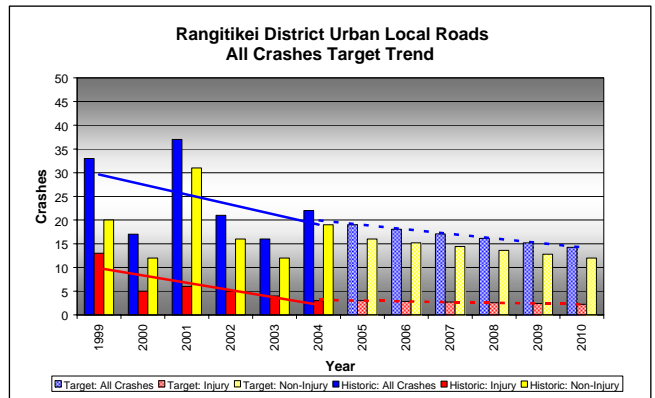
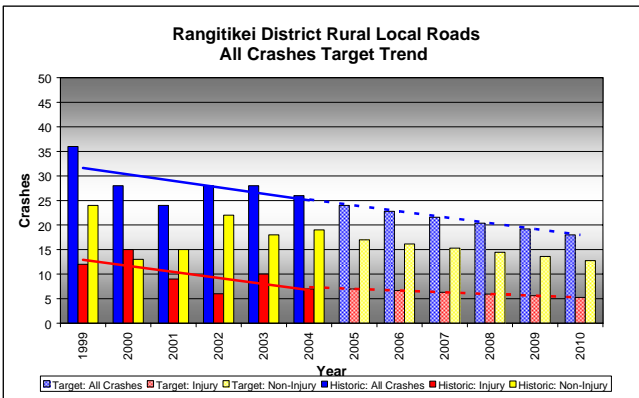
	2005 Deaths	2005 Serious Casualties	2005 Total	2010 Deaths	2010 Serious Casualties	2010 Total
Rangitikei	7	18	25	4	13	17
Ruapehu	3	13	16	2	10	12
Wanganui	6	28	34	4	22	26
All Districts	16	59	75	10	45	55
New Zealand				300		

Historic fatality and serious casualty trends and the above targets are shown graphically below.



Note that these targets include crashes on both State Highways and Local Roads.

Similar targets for crash numbers on the local roads networks are shown separately below. Monitoring these will enable the impact of initiatives on the Local Roads networks to be better assessed.



Generally, historical trends over the last 5-6 years have been downward. In the case of Wanganui, the longer term trend (ie since 1990) has been reducing, with low figures in the late 1990's tending to mask this trend.

Note that some of the reported crashes above may occur off the local roads network, and therefore lie outside the direct control of the Council.

1.10 Safety Action Programmes

This SMS, along with the Safety (Administration) Programme, Road Safety Action Plan, and the potential actions listed in Appendix III, provides the basis for a number of activities and tasks to be programmed and implemented in a structured and coordinated manner – in order to achieve the goals and targets in the RSS.

Each RCA will therefore be actively involved in the safety planning process, identifying and monitoring the performance of programmed actions.

1.11 Monitoring Road Safety Performance

The objective of the SMS is to increase the level of safety of the Local Roads networks.

Monitoring of the target trends will be undertaken as part of the annual review of the SMS and the achievement of its goals.

In addition, RCA's establish levels of service (LOS) and performance measures for safety in asset / activity management plans, and these are also to be reviewed in the evaluation of the effectiveness of the RSS.

All of these trends can be influenced by actions taken in engineering, education and enforcement.

1.11.1 Three E's Indicators

“Engineering” is the responsibility of the individual RCA's with the support of other organisations such as Land Transport NZ.

“Educational” programmes may be national or local. Land Transport NZ manages national campaigns. Education and promotion activities may also be delivered by local agencies, and coordinated by local road safety coordinators.

“Enforcement” is the responsibility of the NZ Police.

While responsibility for delivery differs in each of these three areas, there is significant interaction between them. Regular meetings and communication are needed to coordinate activities, such as through the Road Safety Action Plan process (this is included as part of the NZ Road Safety Programme process), along with Risk Targeted Patrol Plans – these are all important road safety planning components.

Typical measures, in addition to the target trends above, which RCA's may select from for annual reporting are noted below.

Engineering

- Value of Minor Safety Works undertaken per year, for example as triggered through the SMS
- Actions undertaken specifically as a result of the SMS (eg with reference to the SMS Improvement Plan)
- Results of specific investigations or crash reduction studies in relation to the effectiveness of remedial measures undertaken – typically reported by Land Transport NZ
- Number of injury crashes in which a “local road” was a contributory factor.

Education³

- Outcomes of campaigns on community behaviour, attitudes and culture.
- Numbers of road safety educational campaigns run per year.
- Evaluation and reporting results for specific campaigns.

Enforcement

- NZ Police under-reporting rate as defined by Land Transport NZ.
- Number of infringement notices issued for key offences, such as drink / driving, lack of restraint, speeding and failure to give way
- Time spent on key enforcement activities, such as drink driving, lack of restraint, speeding and failure to give way
- Targeted enforcement through use and deployment of RTPP’s developed through the RSAP process

1.12 Road Safety Stakeholders

A number of agencies will be involved in implementing the RSS or have an interest in it, and some have a role in implementing the SMS, as shown in Table 0.2 below. This list forms the basis for consultation on future reviews of the RSS.

³ typically, these sorts of measures are reported on by Road Safety Coordinators to the RLTC, with the information being reported to the RCA’s for information.

<i>Agency / Sector</i>	<i>Specific Organisations / Sector Groups</i>	<i>Key SMS User</i>
<i>Rangitikei, Ruapehu and Wanganui RCA's⁴</i>		<i>Yes</i>
<i>Network Managers</i>		<i>Yes</i>
<i>Consultants</i>		<i>Yes</i>
<i>Contractors – maintenance (key)</i>		<i>Yes</i>
<i>Contractors – projects</i>		<i>Awareness</i>
<i>NZ Police & Emergency services</i>		<i>Awareness</i>
<i>Land Transport New Zealand</i>		<i>Advisor/Sponsor</i>
<i>Transit New Zealand</i>		<i>Awareness</i>
<i>Utility Services</i>		<i>Yes</i>
<i>Road Safety Coordinators</i>		<i>Awareness</i>
<i>Regional Councils</i>		<i>Awareness</i>
<i>Health Authorities</i>	<i>Good Health Wanganui</i>	<i>Awareness</i>
	<i>Waikato Health</i>	<i>Awareness</i>
<i>Accident Compensation Corporation</i>		<i>Awareness</i>
<i>Road User Groups</i>	<i>Public</i>	<i>No</i>
	<i>Automobile Association</i>	<i>No</i>
	<i>NZ Road Transport Association</i>	<i>No</i>
	<i>Heavy Haulage Association</i>	<i>No</i>
<i>Sectors</i>	<i>Dairy Industry</i>	<i>No</i>
	<i>Forestry Companies</i>	<i>No</i>
	<i>Ski Industry</i>	<i>No</i>
	<i>Tourism</i>	<i>No</i>

Table 0.2: Road Safety Stakeholders

⁴ Users within RCA's will include engineering staff, in-house utilities, Parks and Reserves staff, and potentially front-line customer staff

Policies, Standards, Procedures and Guidelines

1.13 Introduction

This section outlines the framework by which RCA's manage road safety on each network. It refers to the SMS procedure components in **Appendix IV**, each of which incorporates reference to specific Policies, Standards and Guidelines. The list has been derived from the components in the "Guidelines for developing a Safety Management System" (LTSA).

Two tools that require further development in implementing this SMS are the **Safety Management Plan** and **Safety Intervention Plan**. These define the safety related roles and responsibilities of network consultants / managers and maintenance contractors, and provide a basis for defining future contractual requirements for managing safety. Support for developing these tools will be sought from Land Transport NZ.

Another tool is the AS/NZS 4360 risk management framework, which is to be used for the identification and rating of road safety risks on the network, and prioritisation of the SMS components. This framework is consistent with that used in Asset and Activity Management Plans.

1.14 Road Safety Activity Components

The SMS procedures described in **Appendix IV** cover a wide range of activities carried out within the road reserve, and are to be used by Council staff, Consultants and Contractors as is appropriate to the activity. The SMP and SIP when developed will link to these activity sheets.

It is important that judgement be used when applying standards and guidelines. Where a departure is considered to be necessary, it must be recorded and the Asset Manager notified. In situations where there is no appropriate documented standard or guideline, users should refer to and use others as contained in **Appendix II** with the approval of the Asset Manager.

1.14.1 Categories

A brief outline of the SMS activity component categories follows:

Planning

These components provide guidance with network and planning controls in relation to specific safety planning activities, and will largely be used by asset management staff and planners.

Capital Works

These components provide guidance for activities relating to the design of new assets, and will be used largely by asset managers, project designers and contractors.

Traffic Data

Provide guidance to the collection and utilisation of roading and traffic data for safety planning purposes.

Safety Operations

Provide guidance across a range of activities, including speed, network inspections / auditing, crash reduction studies, deficiencies, etc, leading to the development of safety programmes.

External Agencies

Provide guidance for temporary traffic control and relationships with other organisations which can impact on safety.

User Services

Provide guidance for dealing with applications for specific services or activities on road reserve.

Assets

These components provide guidance for activities relating to specific asset groups (which should be consistent with those in the AMP), to be used largely by network consultants / managers and maintenance contractors.

Maintenance

These components provide guidance for the development and review of maintenance contracts and emergency response procedures.

1.14.2 SMS Procedures

For each road safety component, procedures are typically grouped from the following headings:

- Inspection / Monitoring – inspecting or monitoring of an activity, contractor performance, asset condition or performance, or any other factor that may affect safety
- Planning Procedures – for establishing and implementing safety requirements in the District Plan
- Development Standards – definition of the standards to which the roading network is to be developed, particularly subdivisions, but also applicable to new works.
- Operational Procedures – practices and processes relating to safety planning and assessment.
- Emergency Maintenance – procedures and levels of service for urgent work, key response times, etc, impacting on safety
- Routine Maintenance – procedures and levels of service for maintenance activity which impact on safety
- Capital Works – procedures for capital projects, including design and construction standards, which impact on safety
- Audit Requirement – specific safety auditing practices, such as network, capital works, road openings and maintenance

- Review, Monitor and Evaluation Requirements – for assessing and improving a procedure / component and its impact on road safety

1.15 Safety Management Plan

From the Guidelines for Implementing a Safety Management System (LTSA), “a *Safety Management Plan (SMP)* is a document which 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 purpose of the SMP will therefore be to formalise and document the specific safety related responsibilities of the network manager where this role is fulfilled by an external consultant. An SMP is therefore to be developed for each of the Wanganui and Rangitikei networks by each Council and their network manager (refer *Improvement Plan*). It will then form part of the SMS. Ruapehu District manages its network internally, and will therefore focus on SMS based implementation activity.

The SMP will document:

- Council and Consultant responsibilities – including SMS training, intervention levels, communications, and requirements for managing contractors
- How safety issues, concerns, and deficiencies are to be identified and recorded
- Managing and reporting on the Safety Deficiency Database
- Managing and reporting on the Safety Hazard Register
- Network safety inspections (day and night) and existing road safety audits
- Network safety deficiency analysis which shall include, where relevant:
 - Crash review, analysis and reporting
 - Fatal and serious crash reporting
 - Crash reduction and prevention studies
 - Black spot studies
 - Grey spot studies
- Safety issue prioritisation, which shall be based on risk analysis / risk profiling
- Programming of the proposed safety treatments
- Development and implementation with the network maintenance contractor of the Safety Intervention Plan (SIP)

Figure 0.1 shows how these elements are to be integrated so that:

- All relevant safety information is brought together for assessment and analysis, and
- Safety management tasks can be defined and scheduled within each area
- Works programmes include prioritised safety treatments

The inputs to the process shown in this diagram are incorporated in the SMS activity sheets in **Appendix IV**.

Activities are linked, for example, pavement surface skid resistance is to be considered where loss of control crashes occur – initial guidance for site identification for testing / investigation is provided in **Appendix V**.

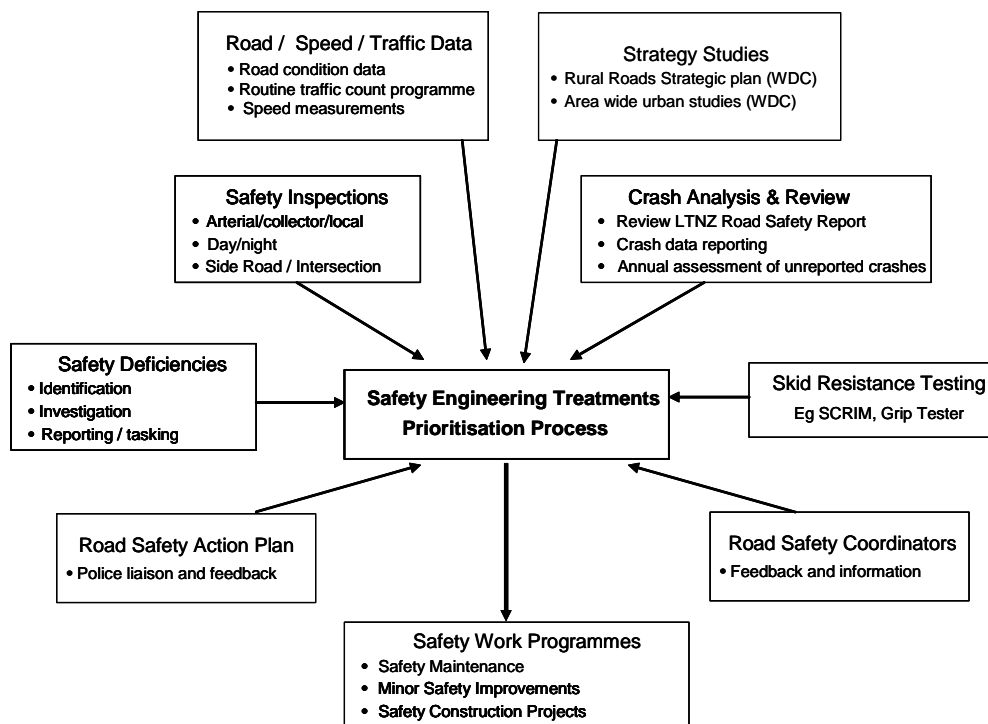


Figure 0.1: Safety Planning Integration

1.16 Safety Intervention Plan

From the Guidelines for Implementing a Safety Management System, this plan “provides the network contractor(s) with a system of works based on acceptable level specifications for road assets, including surface, drainage, marking and signage. When the condition of an asset falls below the acceptable level, intervention is usually required by way of repairs or renewal”.

The SIP therefore provides guidance to maintenance contractors to enable the prompt detection of deficiencies, allowing early intervention so that a safe, “no surprises” roading network is achieved.

The SIP is also expected to raise the level of safety consciousness of all staff involved in road maintenance.

It achieves this by:

- Providing guidance on the programming of safety related maintenance work

- Providing a basis for the development of internal systems to achieve safety related contract responsibilities
- Its coverage includes:
 - Inspections
 - Work prioritisation and programming
 - Treatment selection
 - Work execution
 - Monitoring and recording
 - Hazard register

For example, contract response times for different maintenance actions can have a significant safety impact.

The initial SIP will be developed jointly by the network manager / consultant and contractor, with joint reviews occurring on an annual basis (refer *Improvement Plan*). Reviews will target operational procedures and ensure that they capture current safety related best practice. The SIP may relate to contractual performance measures. Review outputs will provide feed-back to the SMS.

1.17 Safety Planning Related Activities

Wanganui

A Rural Roads Strategic Plan was developed in 2001 in response to concerns about future growth in forestry traffic, winding hilly roads, and the conflicts with local use.

It included a review of standards and levels of service, and defined a large number of objectives and policies relating to safety, such as:

- To undertake crash-reduction studies, safety management strategies, and safety audits to identify possible safety improvements
- To generally improve the safety of the rural roads system, in particular by addressing crash blackspots

Priorities, many of which can be implemented through the Minor Safety Works programme, include:

- alignment improvements, especially in high crash areas
- “no surprises” road environment – target speed environment anomalies,
- better visibility – eg sight distances on narrow winding roads
- improved safety and traffic management at work-sites
- more passing opportunities

The Strategy is to be reviewed every 3-5 years.

Two other studies have since been initiated, and also two route based studies.

In parallel with a 2003 Crash Reduction Study, Wanganui DC has developed an area wide investigatory approach to safety in urban areas, beginning with the Laird Park area – a part of the network characterised by a grid layout, wide streets, and a high intersection crash rate. This study identified extensive safety related issues, which require more investigation to identify appropriate solutions. Solutions could include, for example, the programmed narrowing of overly wide low volume roads to NZS 4404 standards to reinforce the roading hierarchy.

About one study is carried out each year, with the intent of eventually covering the whole city. The Police complement study findings with targeted enforcement.

Study results feed into lists of works for justification and prioritisation.

1.18 Identification of Safety Deficiencies

An important aspect in managing safety is the identification of safety deficiencies, and defining how they will be mitigated or corrected.

Figure 0.2 illustrates the general procedure for identifying, recording and treating safety deficiencies on the network. The management systems needed to implement this procedure are to be recorded in the SMP and SIP by the network manager and Contractor respectively. This will need to include clear criteria and responsibilities for deciding whether the issue is safety related or not.

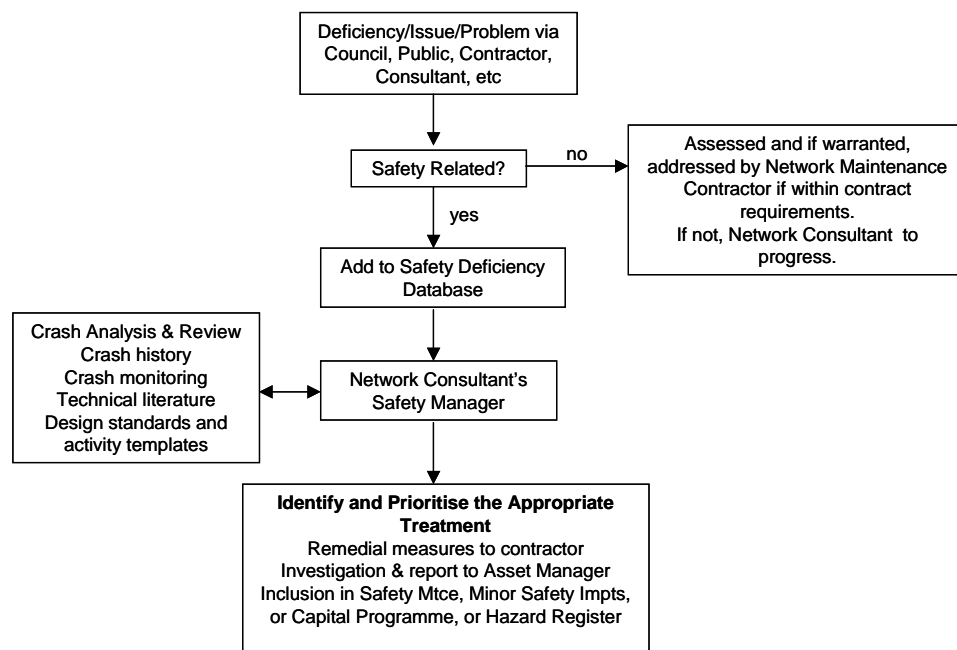


Figure 0.2 : Safety Deficiency Process

The safety deficiency database is to be developed. This will draw on national work being undertaken by Land Transport NZ, which has reviewed existing systems in use and is developing appropriate practice for different types of authority.

1.19 Risk Identification, Evaluation and Management

The following framework, which is consistent with AS/NZS 4360 and current best practice asset management planning, is included to provide a basis for:

- Prioritising specific road safety activity components to be included in the SMS
- Assessing the risk exposure of safety deficiencies / hazards identified on the network, and prioritising remedial measures

Asset management plans currently deal with risk management as follows:

- Rangitikei – includes a more detailed risk analysis process for safety, a risk register is maintained for each asset group (eg roading), and this includes safety.
- Ruapehu –
- Wanganui – risk is included in the AMP, however this is not specific to safety.

The SMS has been developed on the basis that:

- All items identified in the LTSA's "Guidelines for the Developing a SMS for RCA's - Version 2", with a "Must be included" ranking have been included.
- All significant risk items identified to date have appropriate systems, procedures, policies, standards and guidelines currently in place to ensure effective safety management.
- Other components included in the activity sheets relate to a perceived High or Medium risk as defined by the following Risk Evaluation Matrix.

Risk Evaluation Matrix – Risk Exposure Level

Likelihood Severity	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic	High	High	High	High	Medium
Critical	High	High	High	Medium	Medium
Major	High	High	Medium	Medium	Low
Minor	High	Medium	Medium	Low	Low
Negligible	Medium	Medium	Low	Low	Low

Hazard Severity

Severity	Definition/Description
Catastrophic	Will cause multiple fatalities
Critical	Likely to cause a fatality
Major	Could possibly cause a fatality
Minor	Could cause serious injury
Negligible	Not likely to cause serious injury

Hazard Probability

Likelihood	Definition/Description
Frequent	Likely to occur frequently (once/year)
Probable	Likely to occur occasionally (once/5 years)
Occasional	Likely to occur at some time (once/10 years)
Remote	Will rarely occur (> 10 years)
Improbable	Unlikely that the occurrence may ever be experienced

Table 0.1: Risk Evaluation Assessment

1.20 Crash Reporting

State Highway Crashes

Many crashes in rural Districts occur on State Highways, and it is useful for each RCA to have good information on whether crashes are occurring on State Highways or Local Roads so that resources can be appropriately targeted.

In the case of Ruapehu District the Council receives many complaints from residents about crash related issues on SH's. However, the Council does not have access to SH crash information and is often unable to assist residents. A better understanding of the SH network in the Ruapehu District is needed, and a number of measures are proposed to help achieve this, including (*Improvement Plan action*):

- Sharing of crash information between RCA's
- Safety issues included as an agenda item in regular liaison meetings
- Use CAS to enquire about SH crashes
- Obtain copies of engineering reports from fatal crashes on the SH network

Unreported Crashes

Crash reporting rates vary throughout the country, depending on factors such as Police presence and remoteness.

There are likely to be many sites in remote rural areas which are crash-prone and for which there are few recorded (albeit minor or non-injury) crashes. There is merit in improving knowledge about non-reported crash sites, as any site with a non-injury crash record has the potential for a more serious crash. This however does need to be balanced with the available level of resources to enquire and investigate, and given the often very low levels of traffic it may be considered un-economic to capture unreported crash data.

Ruapehu has high numbers of unreported crashes and intends to capture better data. This will involve the development of procedures for obtaining non-reported crash data and assessing sites for potential treatment (*Improvement Plan action*).

Wanganui has a number of key areas that are monitored by locals, however there is a desire to improve the process (*Improvement Plan action*).

Roles and Responsibilities

1.21 Introduction

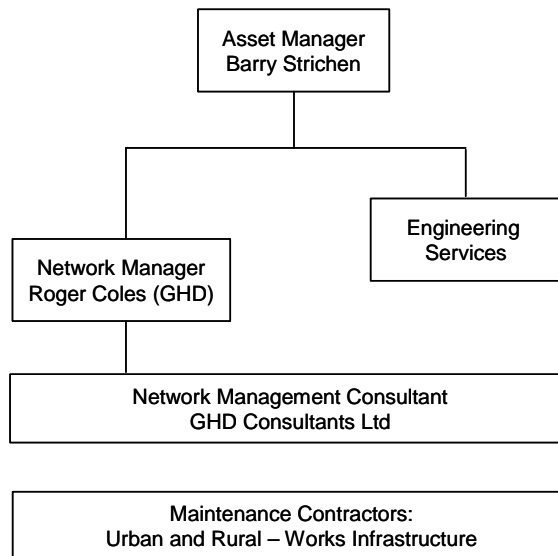
This Section describes the safety responsibilities, roles and desirable levels of expertise of roading personnel engaged in activities that contribute to safety on the Local Roads networks. The safety related experience of staff from Council, consultants and contractors should be reviewed annually and training records maintained to confirm their ongoing competency.

1.22 Organisational Structures

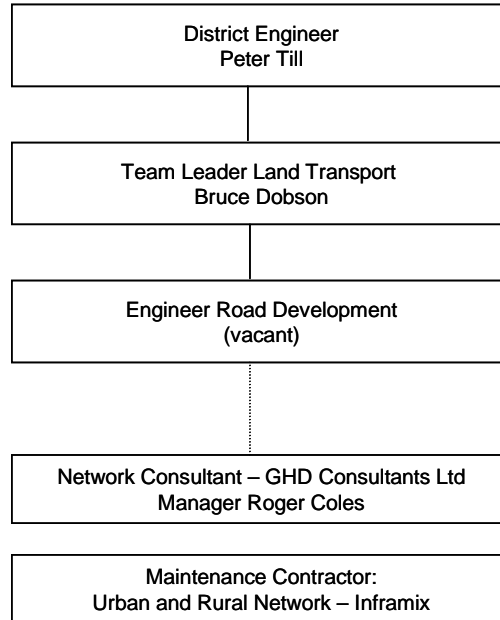
The following diagrams illustrate the organisational structures within each RCA, including the provision of network management and maintenance contract services.

Also important are the safety related interactions with other internal departments within each Council. These are recorded in the detailed SMS procedure sheets in **Appendix IV**.

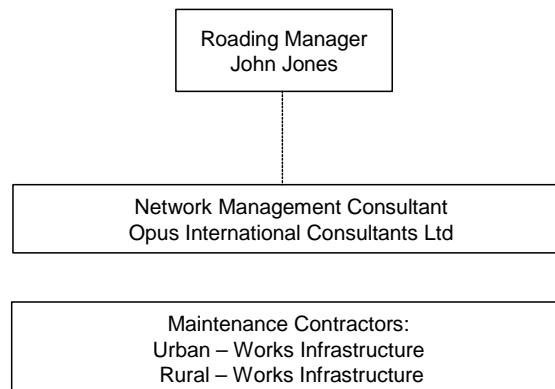
Rangitikei District



Ruapehu District



Wanganui District



1.23 Safety Management Team (SMT)

The establishment of a Safety Management Team, involving each key participating organisation in the SMS, will encourage ownership of network safety and foster a safety culture within each organisation. An indicative team structure is shown below.

Other key agencies who are involved in the delivery of safety, and with whom close working liaison will be needed by the SMS team, are shown in this diagram.

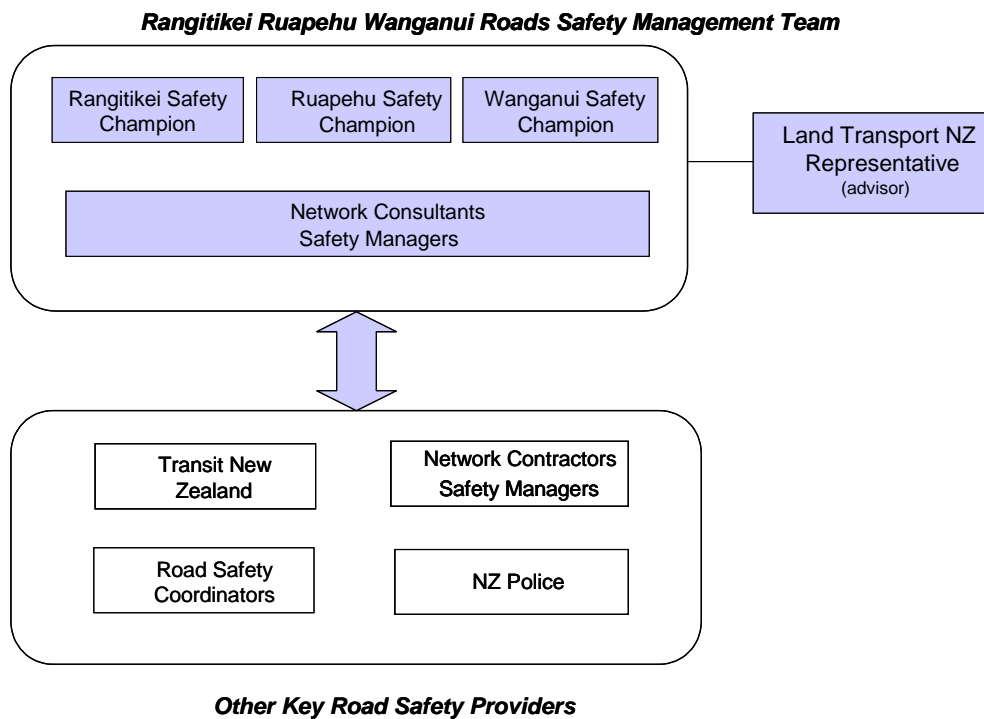


Figure 0.1: Safety Management Team Structure and Relationships

An SMS Team Leader is to be nominated by the SMT – this person will take responsibility for “championing” the SMS within the group and promoting a coordinated approach.

The present SMS Team Leader is Roger Coles of GHD Consultants.

1.24 Safety Managers / Safety Champions

This team structure identifies the need for a “safety manager / safety champion” role within each organisation. The role needs to be developed within Councils, network manager and maintenance contractor organisations – and is the key person responsible for the promotion of road safety. A key aspect is developing the road safety culture in the organisation, and ensuring buy-in and implementation of the SMS.

Network managers and contractors are expected to undertake training and development of this role within their organisations, and this is to be included in future tender proposals.

Safety Managers / Safety Champions are expected to have or gain an intimate knowledge of the safety issues within the RCA’s roading network through experience and over time.

The designated safety champions are:

- Rangitikei Barry Strichen
- Ruapehu Bruce Dobson
- Wanganui John Jones

Other staff who contribute to road safety also have a role to play in contributing to the successful outcomes of the safety teams within each organisation.

1.25 Safety Culture, Training and Development

The development of a safety culture within the SMT is critical to the effective successful implementation of the SMS. A strong safety culture should ensure that safety is a routine consideration in all day-to-day activities.

All staff contributing to safety should be trained and suitably skilled to deal with road safety issues which are expected to arise on the roading network. This will involve recruitment, and the training and development of staff.

Training levels for personnel involved in the SMS process shall be reviewed annually by the SMT. Particular safety related qualifications/training that could be considered for Council/consultant/contractor staff include:

- Training in Land Transport NZ's Crash Analysis System (CAS).
- Transit NZ's Temporary Traffic Management at Roadwork Sites.
- Land Transport NZ's Safety Audits of Existing Roads.
- Road Safety Engineering Course (covering crash reduction studies, safety auditing, etc) – Land Transport NZ, NZIHT

Furthermore, encouragement will be given to service authorities and commercial road occupiers to develop a safety culture and safety champion approach.

Wide distribution of the SMS and Road Safety Strategy within SMT organisations and key stakeholders will emphasise key road safety issues and promote greater safety awareness within them.

1.26 Safety Roles and Competence

The roles of SMT member organisations are defined as follows:

District Councils – audit and control the safety management process.

Network Manager / Consultant – manage the safety process on a day-to-day basis, including the identification of safety related deficiencies and monitoring of solutions. May be an external professional services provider or an in-house business unit.

Network Maintenance Contractor – maintain and improve the network. Minimise safety deficiencies through proactive intervention.

Suggested levels of competence are defined in Table 0.1 for each position for particular **safety management** functions on the road network. These should be used in Job Descriptions and in recruitment and training development.

Competence Level		Description of expected abilities
A	Appreciation	Recognises the purpose of the activity or infrastructure element. Knows who can help and what the likely processes are in responding to requests and notifications. Can assess the need for urgency.
U	Understanding	Understands the processes and decisions involved. Appreciates the impact of options available and can identify the appropriate response within readily available guidelines
C	Competence	Develops appropriate solutions without supervision, drawing on previous experience and training. Can identify when expert or specialist assistance is necessary.
E	Expertise	Provides specialist advice, training and supervision in the relevant field. Can develop guidelines for others to determine actions, assess the implications of trends and offer options for solution.

Table 0.1: Safety Competence Levels

Specific requirements for the levels of each position are defined below. Note that some individuals may have one or more roles in this table.

SMS Function / Component Grouping	DC Senior Eng'g Manager / Director	DC Road Asset Manager	DC Safety Champion	DC Utility Assets staff	DC Planning staff	Network Manager Team Leader	Network Manager Safety Champion	Network Manager Contract Mgmt	Network Maintenance Contractor Team Leader	Design Consultants	Construction Contractors	Utility Services (external)	Utility Services Contractors
PLANNING	A	C	U	U	E	U	U	U	A	U	A	U	A
CAPITAL WORKS	A	U	U	C	U	U	U	U	A	E	E	U	C
TRAFFIC DATA	A	U	C	U	A	C	C	C	C	C	C	C	C
SAFETY OPERATIONS	A	C	E	C	C	C	E	E	C	U	A	A	A
EXTERNAL AGENCIES	A	C	C	E	A	C	E	E	U	A	A	E	C
USER SERVICES	A	C	C	A	U	C	E	E	U	A	A	A	A
ASSETS	A	E	C	A	A	C	E	E	C	C	U	A	A
MAINTENANCE	A	E	C	U	A	C	E	E	E	U	U	U	U
SAFETY MANAGEMENT PLAN	A	U	C	A	A	C	E	E	E	A	A	A	A
SAFETY INTERVENTION PLAN	A	A	U	A	A	C	C	C	A	A	E	A	A

Table 0.2: Safety Roles and Expertise

Key positions from above within each organisation are currently as follows:

Position	Rangitikei	Ruapehu	Wanganui
Senior Manager / Director	Barry Strichen	Peter Till	John Jones
Road Asset Manager	Barry Strichen	Bruce Dobson	John Jones
Safety Champion	Barry Strichen	Bruce Dobson	John Jones
Network Mgmt Team Leader	Roger Coles	Ros McLachlan	John McGeorge
Network Mgmt Safety Champion	Roger Coles	Ros McLachlan	Jim Moore

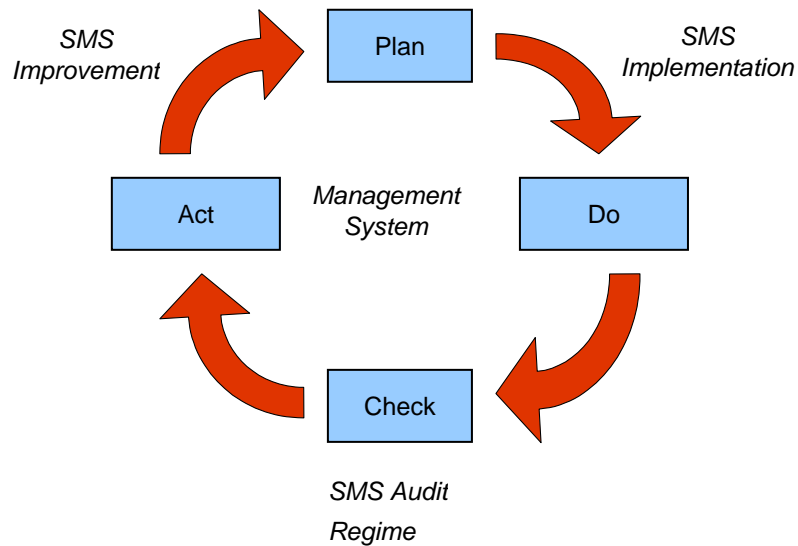
Network Mgm't Contract Manager	tbc	Carey Morris	Simon McSweeney (U) Graham Dhyrberg (R)
NM Contractor TL	Dave Nicholls	Brett Simpson	Glen Campbell
Design Consultants	GHD	GHD	Opus

Management System

1.27 Introduction

The Management System must ensure that all activities follow the appropriate SMS policies and procedures, and that they will contribute to the achievement of road safety goals for each District. The system is cyclic and has an annual review. This Section sets out the management responsibilities and systems necessary to achieve this objective. It also includes a continuous improvement plan.

The following diagram illustrates the overall management cycle.



1.28 Management Responsibilities

The following staff have overall responsibility for implementing, auditing, and improving the Safety Management System within each Council, in line with the overall framework above. These responsibilities may be delegated as appropriate.

Council	Management Responsibility		
	Implement SMS	Monitor SMS	Develop/improve SMS
Rangitikei	Roger Coles	Jointly undertaken by the 3 RCA's and Land Transport NZ Area Engineer	Barry Strichen
Wanganui	Jim Moore		John Jones
Ruapehu	Bruce Dobson		Bruce Dobson

All Council staff, network managers, and contractors are responsible for applying the SMS procedures to their activities. The adoption and day-to-day use of the SMS will require significant “buy in” from all of these organisations.

Network managers are to manage the safety process in terms of identifying deficiencies and the determination, actioning and monitoring of solutions.

Network contractors are required to maintain and improve the network.

A close working relationship between these two parties is critical in maximising the benefits of the SMS.

Acceptance of the SMS by other key stakeholders such as Land Transport NZ, NZ Police and the wider community is also important. Therefore a partnership approach is proposed, involving all relevant parties involved in engineering, education, and enforcement.

As SMS requirements change, the staff responsible above will discuss the necessary amendments with the various parties and determine how best to ensure compliance.

1.29 Integration of Systems within each Organisation

The SMS needs to be integrated with the management processes of each organisation to ensure maximum buy-in and effectiveness. These include:

- Human resource development – training, recruitment, performance management
- Asset management – AMPs, data collection, data analysis
- Financial planning – budgets, programme development (eg Minor Safety Improvements and 10 Year Forward Works Programmes)
- Management reporting – achievement against budgets and targets
- Information technology – applications relating to road safety

These linkages are to be strengthened within each organisation over time. In particular, this applies to SMS training and development needs and the performance management systems within each RCA, network manager, and maintenance contractor.

Levels of safety knowledge and expertise must be incorporated in job descriptions and training requirements.

1.30 SMS Continuous Improvement Plan

The continuing development of an SMS in terms of “best practice” relies on the identification, implementation and monitoring of improvement opportunities.

To ensure continuous improvement, the SMS Team Leader will maintain an Improvement Plan for the SMS.

All participants within the SMS team and their staff, in addition to Land Transport NZ liaison staff, are responsible for making suggestions for improvements as they arise. A partnership based approach is to be promoted.

The effectiveness of the Improvement Plan will be reviewed during the annual audit of achievements and the outstanding items updated for future action.

The 3 year Improvement Plan is scheduled below. This Plan includes actions identified during the preparation of this first SMS.

It also includes specific tasks which need to be undertaken in order to comply with the SMS.

SMS IP Ref	Improvement Description	Responsible	Resource Required	Date for Action	Date Completed
SMS Main Document					
S1.5	Transit NZ representative to be invited to participate on SMT	SM Team	internal	9/05	
S2.4	Review and update local road network targets for 2010 (fatalities and serious casualties)	SM Team	internal	annually	
S3.3	Develop Safety Management Plan (SMP) as part of SMS Implementation phase	Network managers (RangDC, WDC)	external	12/05	
S3.4	Develop Safety Intervention Plan (SIP) as part of SMS Implementation phase	Network managers (all)	external	6/06	
S3.8	Share information with Transit about crashes in the District	All RCA's	internal	ongoing	
S3.8	Improve local non-reported crash data capture procedures	RuapDC	internal	12/05	
SMS Activity Components					
SMS 1.1	Review road hierarchy and standards on completion of Land Transport NZ guideline (and consider impact on District Plans)	RuapDC WangDC	internal	12/05	
SMS 1.1	Review consistency of application of	WangDC	internal	ongoing	

SMS IP Ref	Improvement Description	Responsible	Resource Required	Date for Action	Date Completed
	road hierarchy development standards				
SMS 1.2	Review District Plan and other provisions for access control relating to land-use.	RuapDC	internal	12/05	
SMS 1.2	Ensure enforcement of non-compliant advertising signage	WangDC	internal	ongoing	
SMS 2.4	Develop, improve and document Project Safety Audits processes.	All RCA's	internal	9/05	
SMS 3.2	Review asset data capture and management needs (eg rationalise inventory, complete data capture)	All RCA's	internal	ongoing	
SMS 3.2	Monitor opportunity to link CAS system with GIS &/or RAMMS, provide training	All RCA's	internal	ongoing	
SMS 4.1	Formalise process for curve advisory speed signage, and use of 100kph vs de-restricted signage on rural roads.	RuapDc	internal Land Tpt NZ	12/05	
SMS 4.2	Develop LATMS implementation framework for Council approval	WangDC	internal	6/05	completed
SMS 4.3	Review the approach to and timing of crash reduction studies.	All RCA's	internal	ongoing	
SMS 4.4	Systematise and implement Network Safety Audits, and focus on key safety issues (eg delineation)	All RCA's	internal	12/05	
SMS 4.5	Develop / improve and implement deficiencies database inc data capture process	All RCA's	internal	ongoing	
SMS 4.7	Review, document and implement prioritisation process for Minor Safety Improvements	All RCA's	internal	ongoing	
SMS 5.1	Review and formalise operation of temporary traffic management site audit procedures	All RCA's	internal	9/05	
SMS 5.2	Coordination meetings with utilities to ensure TTM is effective	All RCA's	internal	ongoing	

SMS IP Ref	Improvement Description	Responsible	Resource Required	Date for Action	Date Completed
SMS 5.2	Improve and resource road opening notice management process to ensure compliance	WangDC	internal	ongoing	
SMS 5.4	Improve communication regime with TrackCo	All RCA's Land Tpt NZ	national	ongoing	
SMS 6.1	Tighten up the application process for over-weight vehicle permits (application lead in period needed)	RuapDC	internal	12/05	
SMS 7.2	Review new footpath safety expenditure programme needs	RuapDC	internal	ongoing	
SMS 7.4	Implement pavement surface friction assessment process	All RCA's	internal	12/05	
SMS 7.5	Review response times for pavement defects in relation to safety risk	WangDC	internal	12/05	
SMS 7.7	Develop systematic and consistent approach to delineation, including justification criteria.	All RCA's	internal	12/05	
SMS 7.7	Update data for Regulatory Controls.	RangDC	internal	12/05	
SMS 7.8	Strategic review of urban lighting levels and needs, and define criteria for rural flag-lighting	WangDC	internal	6/06	
SMS 7.9	Develop criteria for safety treatments at bridges (eg sealing of approaches, guard-rails, etc)	All RCA's	internal	6/06	
SMS 7.10	Review safety effects of deep road-side drains and develop management approach	WangDC	intenal	6/06	
SMS 7.11	Review safety issues relating to urban vegetation and street trees	WangDC	intenal	6/06	
SMS 7.12	Develop criteria for safety barriers, including compliance ratings for existing assets	All RCA's	internal	12/05	
SMS 8.1	Review and update safety provisions in maintenance contracts prior to re-tendering	All RCA's	internal	ongoing	

SMS IP Ref	Improvement Description	Responsible	Resource Required	Date for Action	Date Completed
SMS 8.2	Improve Police liaison for SH closures	RangDC	internal	9/05	

Table 0.1 : SMS Improvement Plan

Audit Regime

1.31 Purpose of Audit

The purpose of auditing is to provide assurance to each RCA and Land Transport NZ that the SMS aligns with best practice and the RCA is meeting the requirements of the SMS.

For the first two years, the audit regime for the SMS will be developed, trialled and refined.

The process will be integrated with the LTCCP audit cycle, and may involve Audit NZ review of related aspects (such as target outcomes).

The approach is based on “review, monitor and evaluate”, and is to be focussed on two processes as follows.

Technical Effectiveness (internal “audit”)

This consists of an evaluation of trends and a review of how well the SMS is working. It will include:

- Progress towards road safety targets
- Suitability of the road safety targets
- Crash trends (from Land Transport NZ reports) and the likely influence of the SMS on those trends
- Funding and human resource needs for ongoing SMS implementation
- Adequacy of the SMS itself, and any need for updating or review

System Compliance (external “audit”)

Formal processes are to be developed by the Land Transport NZ over the next 2-3 years, and a flexible approach is likely. The objective will be to monitor the:

- Currency of SMS components / items in terms of national best practice
- Adherence by the RCA to the procedures and guidelines within the SMS
- Implementation of improvement plan actions within the SMS

1.32 Responsibility

Each Roding Asset Manager will take responsibility for ensuring that the internal audit is undertaken for their RCA organisation. The overall results will be reviewed by the SMT, reported to the appropriate management level within each RCA, and actions documented.

The SMT may also, if appropriate, engage an external consultant to assist it to evaluate the effectiveness of the SMS on the road.

The external audit will be performed once agreed national guidelines are in place.

The external audit team may include:

- Land Transport NZ SMS auditor
- Land Transport NZ area engineer
- Each Council's safety team leader / champion or representative
- Specialist consultant(s) for areas in which expertise is required.

Members of the external audit team must be suitably experienced in road safety engineering and the independent auditing of compliance with safety or quality management systems.

1.33 Audit Programme

The technical internal audit will typically be undertaken in August / September of each year.

The external audit will typically follow the internal audit, in September / October. This audit will be undertaken on a 2-3 yearly cycle, but not within the next two years.

1.34 Specific SMS Audit Requirements

1.34.1 Road Safety Strategy

The Road Safety Strategy will be monitored annually as part of the **internal** technical audit, in terms of:

- Progress towards the goals defined in Section 2.
- Adequacy of funding and resources to meet safety related levels of service in relation to recorded crashes on the network.
- Consistency with the national strategy "Road Safety Towards 2010".
- Consistency with the current Regional Land Transport Strategy
- Consistency with each RCA's Asset Management plan with respect to Road Safety.

1.34.2 Expertise

Monitor annually as part of the **internal** audit:

- Competency Matrix and Competency Register
- Staff competence and training development

In addition, confirm staff competence (RCA's, Network Manager and Network Maintenance Contractor) through periodic tender evaluations and contract and performance evaluations.

1.34.3 Policies, Standards, Procedures and Guidelines

The procedures templates shall be individually reviewed and monitored as part of the **external** audit in terms of:

- Policies, procedures, standards and guidelines for consistency, currency and relevance in relation to national best practice
- Monitor the level of compliance with the specific requirements and outcomes set out in the activity sheets.

1.34.4 Management Systems

The **external** audit will specifically review the SMS for:

- Consistency with each RCA's structure, systems, operations, delegations and responsibilities,
- Adequacy, fitness for purpose and sufficiency of resources,
- Adequacy and relevance of the SMS Improvement Plan,
- Confirmation that appropriate liaison between road safety agencies with a vested interest in the SMS is taking place.

1.35 External Audit Report

The audit team will report on:

- Review of previous audits (internal and external)
- Areas of significant non-compliance with the SMS (later)
- A summary of the actions required to address any areas of significant non-compliance (later)
- Progress towards stated road safety goals with comment on how well the SMS addresses each safety issue, noting areas for improvement.
- Recommendations for the development of new or updated policies, standards, guidelines, specifications and actions.

The report will be presented to Land Transport NZ and a summary of the results may in turn be reported to each Council.

Appendix I – District Road Network Maps

Road network maps are provided for the Rangitikei, Ruapehu and Wanganui Districts.

Appendix II – List of Standards and Guidelines

The following list of available standards and guidelines has been compiled by Land Transport NZ and is also published in the Guidelines for Developing a Safety Management System.

This list provides a secondary source of information for users of the SMS.

Appendix III – Current Road Safety Issues by District

The annual Land Transport NZ Road Safety reports prepared for each District provide an overview of the key road safety issues in each District. The issues for the 1999 to 2003 period for each of the Local Road networks are summarised below, along with suggested actions for targeting each area.

Key actions are to be considered, selected and prioritised for implementation and reporting within each District. Implementation shall be through the respective coordinator, Police plan, or SMS programme actions.

Rangitikei District

Loss of Control

This is the most common crash type, accounting for 56% of all crashes, a major road safety issue. Key factors contributing to these crashes are poor handling, poor observation, and poor judgement. Poor driving skills amongst the 15 to 24 year age group is a wider concern within the District.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Encourage education campaigns to improve the cornering skills of younger drivers
- Support campaigns on adjusting drivers' speed for different driving conditions
- Support strategic education and enforcement campaigns targeting speed and alcohol

SMS

- Maintain good road surfaces and drainage
- Improve delineation around curves, for example by providing edge lines and centre lines
- Ensure roadside areas are kept clear of solid objects

Speed

Excessive speed has been identified as a contributing factor in 27% of all reported injury crashes over the 5 year period. Factors include too fast for conditions and combination with alcohol.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Support strategic enforcement campaigns targeting speed and alcohol.
- Conduct crash studies to determine whether road improvements are needed.

SMS

- Provide consistent 'no surprises' road environments.

Failure to Give Way

This was recorded to be a contributing factor in 37% of injury crashes over the 5 year period.

Actions that are to be used to target this key safety area will focus on intersection behaviour and visibility improvements.

Ruapehu District

Speed

Over the last five years 34% of crashes on local roads were speed related. Most speed related injury crashes in the District occur during July and August due to the popularity of winter sports in the district. Also significant overall is the representation of 15-24 year old drivers in these crashes.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Support strategic enforcement campaigns targeting speed and alcohol.
- Conduct crash studies to determine whether road improvements are needed.

SMS

- Provide consistent 'no surprises' road environments.

Loss of Control

This is a major issue on Ruapehu District's local roads, with loss of control having contributed to about 55% of all reported crashes over the 5 years. Most of these have occurred on rural roads with speed limits greater than 70 km/hr. Key factors in such crashes tend to be poor handling, too fast for conditions, and road or environmental factors.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Encourage education campaigns to improve the cornering skills of younger drivers
- Support campaigns on adjusting drivers' speed for different driving conditions
- Support strategic education and enforcement campaigns targeting speed and alcohol

SMS

- Maintain good road surfaces and drainage
- Improve delineation around curves, for example by providing edge lines and centre lines
- Ensure roadside areas are kept clear of solid objects

Alcohol

Over the last five years 31% of crashes on local roads were speed related.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Continue to support drink-driving strategic enforcement campaigns.
- Continue to support the Police's risk targeted patrol planning.
- Support the use of roving roadblocks and the booze bus in the district.
- Continue to support education campaigns aimed at drink-driving.
- Encourage campaigns aimed at rural communities.
- Support host responsibility and designated driver programmes.

Wanganui District

A concern for the Wanganui District is the increase in serious injury crashes in 2003. Of particular concern on local roads are alcohol, failure to give way and loss of control.

Alcohol

Alcohol has been a contributing factor in 19% of all injury crashes on local roads in recent years, with loss of control, speed and poor handling skills being involved in a significant number of these crashes. 15-24 year olds were involved in many of the crashes. Rural road trends are above the national and "group" averages for the District as a whole (Local Roads and SH's).

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Continue to support drink-driving strategic enforcement campaigns.
- Continue to support the Police's risk targeted patrol planning.
- Support the use of roving roadblocks and the booze bus in the district.
- Continue to support education campaigns aimed at drink-driving.
- Encourage campaigns aimed at rural communities.
- Support host responsibility and designated driver programmes.
- Conduct crash studies to determine whether road improvements are needed.

SMS

- Provide consistent 'no surprises' road environments.

Loss of Control

Loss of control accounted for 55% of all injury crashes on local roads over the 5-year period, with most of the rural crashes occurring at bends. Overall in the District, for each injury crash in 2003, there were over two additional non-injury crashes. A high proportion of crash injuries were to 15-24 year olds.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Encourage education campaigns to improve the cornering skills of younger drivers
- Support campaigns on adjusting drivers' speed for different driving conditions
- Support strategic education and enforcement campaigns targeting speed and alcohol

SMS

- Maintain good road surfaces and drainage
- Improve delineation around curves, for example by providing edge lines and centre lines
- Ensure roadside areas are kept clear of solid objects

Failure to Give Way

This factor makes up 66% of all injury accidents on local roads, with most occurring on urban roads. Failure to give way / stop is the most common contributory factor, followed by poor observation. This is a key improvement area for the Wanganui District.

Actions that are to be used to target this key safety area could include:

Education and Enforcement

- Support strategic enforcement campaigns aimed at T-junctions and crossroads.
- Support the risk targeted patrol planning of the New Zealand Police.
- Encourage education programmes to address key driver behaviour issues.

SMS

- Encourage crash reduction studies of known black spots.
- Ensure signs and markings are up to the appropriate standard.
- Encourage engineering staff and consultants to attend road safety workshops and conferences.
- Install appropriately designed islands at rural crossroads.

Appendix IV – Rangitikei Ruapehu Wanganui SMS Procedures

SMS Element Reference	Description
Planning:	SMS 1.1 Road Hierarchy
	SMS 1.2 Land use planning and regulatory controls including district plan and bylaws
Capital Works:	SMS 2.1 Road Design and Geometrics
	SMS 2.2 Structure Design
	SMS 2.3 Traffic Signal Design
	SMS 2.3 Project Safety Audits
Traffic Data:	SMS 3.1 Traffic Counting
	SMS 3.2 RAMM Data
Safety Operations:	SMS 4.1 Speed Management
	SMS 4.2 LATMS and Threshold Treatments
	SMS 4.3 Crash Reduction Studies
	SMS 4.4 Existing Road Safety Audits
	SMS 4.5 Deficiency Register and Analysis
	SMS 4.6 Road Safety Hazard Register
	SMS 4.7 Development of Minor Safety Works Programme
External Agencies:	SMS 5.1 Temporary Traffic Management (inc approval and auditing)
	SMS 5.2 Road Openings by utility and external service authorities and other departments within Council
	SMS 5.3 Cross-boundary Issues / Roads controlled by other RCA's
	SMS 5.4 Railway Crossings
User Services:	SMS 6.1 Overdimension and Overweight routes
	SMS 6.2 Road Closures (planned)
	SMS 6.3 Vehicle Crossings and Accessways
	SMS 6.4 Stock Control, Crossings and Underpasses
	SMS 6.5 Vulnerable Road Users
	SMS 6.6 Parking
Assets:	SMS 7.1 Pedestrian Crossing Facilities
	SMS 7.2 Footpaths
	SMS 7.3 Cycle Facilities
	SMS 7.4 Pavement Surface Skid Resistance
	SMS 7.5 Pavement Condition – Sealed
	SMS 7.6 Pavement Condition – Unsealed
	SMS 7.7 Traffic Control Devices
	SMS 7.8 Streetlighting
	SMS 7.9 Bridges, Culverts and Structures
	SMS 7.10 Drainage Systems

	SMS 7.11	Landscaping and Vegetation Control
	SMS 7.12	Safety Barriers
Maintenance:	SMS 8.1	Maintenance Contracts Management
	SMS 8.2	Emergency Response

Additional lists of specific District Council standards are also to be referred to, as follows:

Ruapehu

- Standards Index (internal) (included in Appendix VII) – Roading, Vegetation Control
- TNZ Specifications (held on “Folder 1” and on RDC intranet)

Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 1.1
May 2005		

Component Information

Activity Component:	Road Hierarchy
Description / Purpose:	To assign functional categories to the road network to enable standards, guidelines and controls that are appropriate to road function to be applied in a consistent manner.
Safety Issues:	Use of roads that are inappropriate (eg through traffic using local access roads) Achieving higher safety standards (eg through better lighting, capacity, separation, etc) on busier roads

Legislation, Policies, Standards and Guidelines

Legislation:	Resource Management Act Local Government Act (2002)
Policies:	RangDC District Plan RuapDC AMP WangDC District Plan
Standards:	RangDC District Plan RuapDC – na WangDC AMP
Guidelines:	Rural Road Design: Guide to the Geometric Design of Rural Roads, Austroads, 1989 Urban Road Design: Guide to the Geometric Design of Major Urban Roads, Austroads (where applicable) NZS 4404 : 2004 : Land Development and Subdivision Eng

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Planning Procedures	Hierarchy defined in District Plan, includes map form. Hierarchy consists of 4 categories – Strategic, Arterial, Collector, Local.	Hierarchy is generally defined in the District Plan – this needs to be reviewed (<i>Imp't Plan, with Land Transport NZ support</i>). Hierarchy consists of 3 categories – Arterial, Collector, Local – based on traffic volumes.	Urban network in DP, rural network defined in Rural Strategic Plan, map form. Hierarchy consists of 4 categories – State Highways, Arterial, Collector, Local
	Roading staff are consulted by Planners in preparing District Plan, and provide recommendations on safety (and other) related issues that need to be addressed.		
Development Standards	Standards are based on road function rather than traffic volume. Standards, including intersections, are controlled in District Plan, S 23.2.	LOS standard based on the hierarchy levels.	Rural strategies define ideal rural standards which are also listed in the AMP. Standards to be consistently applied (<i>Imp't Plan action</i>)
	General requirement to meet Austroads (rural) and NZS 4404 (urban) standards		
Review, Monitor & Evaluation Requirements	Review hierarchy with District Plan review or if warranted by development, land-use change or traffic demand. Roading staff have input to this process.		
		Review road hierarchy and standards following development of national guidelines (<i>Imp't Plan action</i>)	

Organisation

Primary Responsibility:	District Planners / Asset Managers
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Controlling Documents:	District Plans, Asset Management Plans
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 1.2
May 2005		

Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Land use planning and regulatory controls including district plan and bylaws	Legislation:	Local Government Act (2002) Resource Management Act
Description / Purpose:	To establish controls on land use planning processes and changes so that impacts on traffic safety and efficiency can be minimised and / or balanced against the benefits of the change	Policies:	DC District Plans RuapDC Roads Reserve Management Policy 2003 (Working Draft) Bylaws: <ul style="list-style-type: none"> • RangDC – General Bylaw, Stock Bylaw • RuapDC – Road Reserve Management Bylaw 2003 • WangDC – General Bylaw, Transport section
Safety Issues:	Adjacent land uses can affect road safety if they are not controlled to be sympathetic to the road network. This includes access points, on street manoeuvring and parking demand and associated site specific signage, including advertising signs. (Excessive advertising can cause distraction and sign clutter detracting from important regulatory and warning signs. Other signs such as sandwich board signs on footpaths can create a hazard for pedestrians if they are inadequately controlled).	Standards:	DC District Plans NZS 4404 : 2004 : Land Development and Subdivision Eng
		Guidelines:	RTA Guide to Traffic Generating Developments RTS 3 - Guidelines for Establishing Rural Selling Places, LTSA RTS 6 - Guidelines for Visibility at Driveways, LTSA RTS 7 – Advertising Signs and Road Safety: Design and Location Guidelines, LTSA RTS 13 - Guidelines for Service Stations, LTSA Manual of Traffic Signs and Markings (MOTSAM) Guidelines for Traffic Impact Assessments, Institution of Highways and Transportation, 1994

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Planning Procedures	District Plan Issues and Objectives section requires safety to be considered. Land use activities adjoining intersections typically permitted where intersection rules are met and sight distance and driveway / access rules complied with – referred to Network Manager for checking of sight distances and review.	District Plan controls access to and from roads. District Plan includes Rules for Access, Parking, sight distance, etc.	Accessways and driveways – RTS standards over-ride District Plan provisions.

	Rangitikei District	Ruapehu District	Wanganui District
	Consent applications (subdivision and resource consents) are managed through the District Plan, roading staff / Network Manager provide comment on consents where there are safety and /or transportation effects.		
	Advertising signage is controlled in the District Plan.		
	Limited Access Roads considered at discretion of Asset Manager	Limited Access Roads not used for control purposes.	
Audit Procedures	Subdivisions / developments may require independent safety review / audit as determined by Asset Manager.		
Review, Monitor & Evaluation Requirements		Bylaws under review at present, include Traffic, Parking Restrictions, Stock Droving (<i>Imp't Plan action</i>).	
	Reviews of DP and Bylaws involve Roding staff advice and input.		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	District Plans
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 2.1
May 2005		

Component Information

Activity Component:	Road Design and Geometrics
Description / Purpose:	To provide design guidance for roading projects. To ensure consistency in construction standards for long term safety and cost effectiveness.
Safety Issues:	Providing "no surprises" for road users through consistent design standards. Potential for conflict between road users.

Legislation, Policies, Standards and Guidelines

Legislation:	Resource Management Act Local Government Act
Policies:	Asset Management Plans
Standards:	NZS 4404 : 2004 : Land Development and Subdivision Eng RuapDC AMP – Sect A2, Pavements
Guidelines:	Guide to Geometric Design Rural Roads, NRBNZ, 1985 Rural Road Design: Guide to the Geometric Design of Rural Roads, Austroads, 2003 Guide to Traffic Engineering Practice, Part 5 Intersections at Grade, Austroads, 1991 Guide to Traffic Engineering Practice, Part 6 Roundabouts, Austroads, 1993 Pavement Design: A Guide to the Structural Design of Road Pavements; Austroads, 1992 (plus NZ supplement November 1995) Code of Practice for Design of Urban Streets, NRB, 1975. Highway Surface Drainage – Design Guide for Highways with a Positive Collection System, National Roads Board

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	Designs must incorporate safe pull-off areas on rural roads.	Designers to advise on standards appropriate to individual designs.	Use TNZ proforma documentation.
	Professional services for design, supervision and contract management are undertaken by consultants. Geometric and design standards are defined in the Guidelines above, and are to be specified in briefs. Deviations must be discussed with and approved by the Asset Manager.		
	Project safety audits are to be conducted as outlined in SMS 2.4.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Structure Design
Description / Purpose:	To ensure structures are designed and constructed to provide safety for road users
Safety Issues:	Weight and speed restrictions. Bridge end structures represent a potential hazard. Narrow approaches with limited stopping sight distance. One way structures. Retaining structures. Pedestrian walkways and overbridges.

Legislation, Policies, Standards and Guidelines

Legislation:	Resource Management Act Local Government Act
Policies:	Asset Management Plan – Bridges, Culverts
Standards:	NZS Standards and Codes for loadings, design and materials. NZ Building Code (2002) TNZ M23 Specification for Design, Manufacture & Maintenance of Guardrails. NZS 4404:2004 : Land Development and Subdivision Engineering
Guidelines:	TNZ Bridge Manual. Waterways Design: A Guide to the Hydraulic Design of Bridges, Culverts and Floodways: Austroads 1994

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	Professional services for design, supervision and contract management by consultants. All new structures require specific design and building consent. Project safety audits are to be conducted as outlined in SMS 2.4. Design standards are defined above. Deviations must be discussed with and approved by the Asset Manager.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 2.3
May 2005		

Component Information

Activity Component:	Traffic Signal design
Description / Purpose:	To ensure that the design of new traffic signals or the modification of existing signals, is within the applicable standards/guidelines.
Safety Issues:	To optimise effectiveness traffic signal design needs to be consistent both with current best practice and throughout the network.

Legislation, Policies, Standards and Guidelines

Legislation:	Resource Management Act Local Government Act
Policies:	
Standards:	AS/NZS Standards relating to traffic signals and components
Guidelines:	Guide to Traffic Engineering Practice, Austroads, Part 7 "Traffic Signals" Guide to Traffic Engineering Practice, Austroads Part 8 "Traffic Control Devices"

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	na	na	Professional services for design, supervision and contract management are undertaken by consultants. Design standards are defined in the Guidelines above, and are to be specified in briefs. Deviations must be discussed with and approved by the Asset Manager.
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Project Safety Audits
Description / Purpose:	To ensure safety audits are carried out as appropriate to the scale and safety risk of capital projects.
Safety Issues:	Inappropriate standards applied to design Potentially unsafe designs that could be easily remedied prior to construction Nearby features that may affect safety (but are not within the design area). Inconsistent design Hazards not identified as early as possible, where remedial action could be taken to reduce risk. The needs of all types of road users should be considered.

Legislation, Policies, Standards and Guidelines

Legislation:	Transit NZ Act Local Government Act
Policies:	
Standards:	Transfund Project Safety Audit requirements Transit NZ Manuals and Specifications
Guidelines:	Road Safety Audit, 1994, Austroads Rural Road Design: Guide to the Geometric Design of Rural Roads, 1989, Austroads Guide to Traffic Engineering Practice, Part 5 Intersections at Grade, Austroads, 1991 Guide to Traffic Engineering Practice, Part 6 Roundabouts, Austroads, 1993 LTSA Traffic Notes and Information Sheets

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Audit Procedures		Informal process at present. Contractor provides informal feedback. Need for improved process.	
	Audit procedures to follow Land Transport NZ Project Safety Audit requirements – this defines when pre-design, design and post construction phase audits are needed. All new internal capital works are subject to the safety audit procedure, other projects at the discretion of the asset manager. Minimum expectation is for a field based and desk-top review. Asset Manager to receive safety audit reports and recommendations. Subsequent design decisions to be recorded in writing.		
	Subdivisions / developments may require independent safety review / audit as determined by Asset Manager. Safety audit findings and responses reported to DC Asset Manager prior to project sign-off and acceptance. Record on the appropriate file.		
	Requirement for project audit to be included in project brief for professional services. All safety audits must be conducted by specifically trained safety auditors or a qualified CPEng engineer. Design certification / producer statement to be provided for all works where a safety audit is undertaken.		

	Rangitikei District	Ruapehu District	Wanganui District
Review, Monitor & Evaluation Requirements	Process to be documented within each RCA (<i>Imp't Plan action</i>). Procedures for considering, responding to and acting on the findings of Project Safety Audits are to be developed. These will include a simple safety review / audit checklist for "normal" projects (including minor safety improvements), and include a post-construction audit for "major" projects. (<i>Improvement Plan</i>)		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Traffic Counting
Description / Purpose:	To monitor traffic flows throughout the network so that a better understanding of traffic demands and patterns can be obtained
Safety Issues:	Traffic flow information assists with road design and in prioritising improvements. This data is also valuable in assessing road safety risk exposure.

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	
Standards:	
Guidelines:	"A Guide on Estimating AADT and Traffic Growth, and a Traffic Count Monitoring Programme Basis", Transit New Zealand Project Evaluation Manual, Transfund

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Annual / biannual / 3 yearly traffic counting programmes based on hierarchy and AMP needs, and include speed / axle classification counts. Programme may also be coordinated with forward programme needs, such as for Reseals and sites requiring Project Feasibility Reports. All traffic count data is recorded in RAMM, and may be used for setting and monitoring LOS in AMP. CAS crash data may be accessed and used with traffic data to investigate particular safety issues. Cycle counting not undertaken.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 3.2
May 2005		

Component Information

Activity Component:	RAMM Data
Description / Purpose:	Collection and analysis of road asset and condition data to enable the assessment of compliance with safety related standards, and contribute to project prioritisation
Safety Issues:	Asset safety deficiencies (e.g. width, skid resistance/surface condition, signs and markings etc.) Consistency of road environment.

Legislation, Policies, Standards and Guidelines

Legislation:	Transit NZ Act
Policies:	
Standards:	PFM 6 - RAMM Road Condition Rating and Roughness Manual, Transfund
Guidelines:	PFM 7 - Local Authority RAMM Database Operation Manual, Transfund

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	The following data are recorded in RAMM for all RCA's: Pavements, Footpaths, Drainage		
	Streetlighting – SLIM (RAMM) Bridges – BRIMS (RAMM)	Bridges – BRIMS (RAMM)	Most signs, but excludes Markings, EMP's and delineation. Streetlighting – SLIM (RAMM) Bridges – BRIMS (RAMM)
	Annual RAMM road asset condition rating. Annual capture of changes to asset data – new works, subdivisions, renewals, reseals, etc. RAMM data is analysed as part of the AMP and used in establishing LOS and roading strategies, including safety.		
Review, Monitor & Evaluation Requirements	Ongoing review of asset data capture and management needs, for example for safety planning purposes (<i>Imp't Plan action</i>) Monitor opportunities to enable integration of RAMM data and CAS data for safety planning (<i>Imp't Plan action</i>)		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Speed Management
Description / Purpose:	To ensure that the posted speed limit is appropriate for the surrounding environment and development, and to manage speed so that it is consistent and appropriate to the environment.
Safety Issues:	Road side development can result in speed restrictions becoming inappropriate. Inconsistent speed limits leading to erratic driver behaviour Excessive speeds in urban areas and on rural narrow roads. Speed management and need for regular reviews near schools, especially rural.

Legislation, Policies, Standards and Guidelines

Legislation:	Land Transport Rule: Traffic Control Devices 2004 Land Transport Rule: Setting of Speed Limits 2003
Policies:	Speed limit bylaw <ul style="list-style-type: none"> • RangDC – Speed Limit Bylaw 2004 • RuapDC – Setting of Speed Limits Bylaw (consult'n, 4/05) • WangDC – Speed Limits Bylaw 2004/1, to 2005/1
Standards:	
Guidelines:	RTS 15: Guidelines for urban-rural speed thresholds Code of Practice for Temporary Traffic Management (COPTTM), TNZ Guidelines for Urban Safety Management, IHT, 1990.

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Controlled by Bylaw, including applications for specific restrictions such as 40km/hr school speed zones.		
	Speed zones management – demand for special speed limits (eg 30km/hr), such as schools, settlements “at the end of the road”, are to be monitored, and where appropriate “voluntary slow speed zones” will be trialed. Mandatory slow speed zones to be complemented with enforcement. Speed surveys may be undertaken to assess potential speed control problem areas.	Speed zones anticipated in the District – 50 / 70 / 100 km/hr. Need to formalise process for curve advisory speed signage and use of 100kph sign on poor quality rural roads (<i>Imp't plan action</i>).	Speed and crash data are monitored annually, and a comprehensive review undertaken periodically.
	Temporary speed restrictions are controlled by the Asset Manager or delegated to the Network Manager / Consultant.		
Capital Works	Identified speed problem sites are fed into the safety planning process. This may result in the development of specific capital works or minor safety improvements.		

	Rangitikei District	Ruapehu District	Wanganui District
Review, Monitor & Evaluation Requirements	Refer Setting of Speed Limits Rule 2003 – results reviewed by Land Transport NZ		

Organisation

Primary Responsibility:	Asset Managers or by delegation to Network Managers	Controlling Documents:	Land Transport Rule:Setting of Speed Limits 2003
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Component Information

Activity Component:	LATMS and Threshold Treatments
Description / Purpose:	Features built into roads to control speed or the travel path of vehicles, cyclists and pedestrians using them. Includes raised thresholds / platforms / kerb extensions
Safety Issues:	Road safety in residential areas. Local roads used as collectors or arterials by some drivers, usually to avoid traffic signals. Placement and visibility of devices

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act (2002) Transport Act (1962) Transit NZ Act (1989) Land Transport Rule: Traffic Control Devices 2004
Policies:	
Standards:	
Guidelines:	RTS 15 – Guidelines for urban-rural speed thresholds, LTSA. Guide to Traffic Engineering Practice, Part 10, Local Area Traffic Management, Austroads, 2004 A Land Transport NZ guideline on the use of traffic calming and speed management is currently being developed. Guidelines for Urban Safety Management, IHT, 1990.

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	Case-by-case basis. Physical obstructions not typically used (eg speed humps). Recognise specific needs for slow speed environment when designing roading projects – this may result in the addition of narrowings, raised areas, as has been achieved in the Marton CBD area. Typically, this will be considered in close proximity to pedestrian priority areas.	The use of physical measures for controlling speed is to be considered on a case-by-case basis. SH's can be an issue.	Historically, the implementation of physical control devices was reactive and ad-hoc. The process now involves area based studies and strategies (see SMS 4.5), from which specific works may be systematically identified and programmed. Propose to develop a framework and approach, including a strategy for implementation for Council consideration (<i>Imp't Plan action</i>).
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Crash Reduction Studies	Legislation:	
Description / Purpose:	Detailed studies of crash site “black spots” to identify improvement options, primarily focusing on low cost solutions to remedy engineering deficiencies	Policies:	
Safety Issues:	Potential for crash numbers to continue unabated or to increase at identified crash sites. Hazards need to be identified as early as possible so remedial works to reduce risk exposure can be carried out. Some sites may become future “black spots” – ie crash migration	Standards:	Austroroads Ch 4 Treatment of Crash Locations (also refer NZ supplement by LTSA) Accident Investigation System Manual, 1994, LTSA Accident Investigation Procedures, 1991, TNZ, MoT Accident Investigation Monitoring System - Coding Manual, 1994, MoT
		Guidelines:	Policy Guidelines for Traffic Accident Reduction and Prevention, 1990, TNZ, MoT Standard Operating Procedure for CRS Monitoring Final Ver.1 November 2003.

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	CRS completed several years ago. Ongoing involvement with SH CRS's. Crash sites are dispersed throughout the District, there are no real “black spots”, although intersections are a particular focus – there are a small number where there may be several crashes / 5 years.	CRS has not been a routine activity to date. Study to be completed in 2005. Review and formalise the implementation of CRS (<i>Imp't Plan action</i>).	CRS completed in 2003. Ongoing, frequency 3 years. However, these studies are beginning to become less effective as issues are progressively being dealt with – need to review CRS process (<i>Imp't Plan action</i>). Decision on future CRS will be based on changes in crash trends, results from previous CRS, and outputs from other (eg area) studies.
	Rural local roads CRS are to be incorporated with State Highway studies wherever possible, and in particular in close proximity to intersections with SHs.		
	RCA's to identify need for, timing and base frequency of CRS - if significant increase in crash rate occurs this will prompt greater frequency. Land Transport NZ engineering staff to be involved in all CRS's. Black spots, grey spots and significant changes in crash data are identified in annual Land Transport NZ Road Safety Report. This information is considered along with the outputs of the CRS in the annual SAP process, safety planning, and deficiency analysis. Section 3 of the SMS illustrates how these processes are integrated in identifying safety treatments for prioritisation and programming.		
Routine Maintenance	Actions involving maintenance activity arising from the CRS process are to be implemented through maintenance contracts.		

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	Identified sites for capital expenditure treatment are fed into the safety planning process. This may result in the development of specific capital works or minor safety improvements. Completed site treatments documented by Network Manager.		
Review, Monitor & Evaluation Requirements	Monitoring system for CRS to be enhanced to allow assessment of benefits from site treatments: <ul style="list-style-type: none"> RCA to notify Land Transport NZ of sites identified in CRS's that have been treated, who may undertake independent review of the effectiveness of the treatments. Land Transport NZ to undertake post-construction monitoring and reporting of the effectiveness of measures in terms of crash rates through annual Road Safety Reports. 		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 4.4
May 2005		

Component Information

Activity Component:	Existing Road Safety Audits
Description / Purpose:	To ensure that existing roads are safety audited for consistency and compliance with current safety standards
Safety Issues:	Inappropriate / inconsistent standards on existing roads Potentially unsafe roads or features that can be readily remedied Nearby features that may adversely affect safety. Achievement of a "no surprises" environment.

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	
Standards:	
Guidelines:	Guidelines for Auditing Existing Roads, 2000, Transfund Rural Road Design: Guide to the Geometric Design of Rural Roads, 1989, Austroads Guide to Traffic Engineering Practice (various Parts), Austroads LTSA Traffic Notes and Information Sheets

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection and Audit Procedures	<p>Network is mostly low volume roads and experience shows that there is often little change from year to year.</p> <p>Audits are undertaken periodically with Land Transport NZ, and an audit was undertaken recently. Policy and practice need to be formalised.</p> <p>Annual inspection of road network assets is required of the Network Manager, and this includes night-time inspections. This reviews all aspects including safety, but is to be strengthened for safety (see below).</p> <p>AMP highlights a number of "risk aspects" to be focussed on, including Intersections, Alignment, Signs & Markings (eg legibility to be checked when asset register is updated).</p> <p>Routine liaison ongoing with Police.</p>	<p>Network is mostly low volume roads.</p> <p>Network Manager is required to drive over the network on an annual basis, and this includes night-time inspections – this reviews all network aspects including safety.</p> <p>However, there is no structured safety inspection / network auditing process at present and the need for this has been signalled in the AMP.</p> <p>(Most recent audit undertaken several years ago).</p>	<p>Routine inspections are carried out under various maintenance contracts, these include:</p> <ul style="list-style-type: none"> • Signs visibility – a particular concern • Performance based LOS for pavements and lighting • Footpaths annually • Markings and RPM's 6 monthly <p>Informal night-time inspections take place, although these are not yet formally programmed.</p> <p>Need to focus in particular on delineation in rural areas (<i>Imp't Plan action</i>).</p> <p>New professional services contract from 1 July 2005 to include this activity.</p>

	Rangitikei District	Ruapehu District	Wanganui District
	Land Transport NZ support for developing audit procedures may be available on request. Note that specialist teams are available throughout NZ (eg traffic signals).		
Emergency Maintenance	Immediate safety items referred to appropriate contractor for urgent response.		
Routine Maintenance	Items requiring routine response are to be implemented through monthly maintenance programmes.		
Capital Works	Identified needs for capital expenditure treatment are to be fed into the deficiency register and safety planning process. This may result in the development of specific capital works or minor safety improvements.		
Review, Monitor & Evaluation Requirements	Systematise existing roads safety inspection and audit processes suitable for local roads networks. Use Transfund Guidelines for Auditing Existing Roads as basis for implementation. (<i>Improvement Plan</i>). This will define the expertise required, standards and frequency of inspections and audits, and procedures for responding to and acting on the findings.		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	Land Transport NZ Guidelines
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 4.5
May 2005		

Component Information

Activity Component:	Deficiency Register and Analysis
Description / Purpose:	The RCA needs to be aware of the specific safety deficiencies within its road network, so that improvements can be programmed. Deficiencies need to be systematically recorded and ranked for remedial action.
Safety Issues:	Development of future safety problems / crash sites.

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	
Standards:	
Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Practice	Deficiencies are identified in the following ways: <ul style="list-style-type: none"> • Feedback from the Road Safety Coordinator • Submissions on DLTP or Annual Plan • Service requests which are logged, categorised and monitored – may be received by Council or Network Manager • Contractors (eg monthly reports, advice on specific sites) – proactive approach • Land Transport NZ annual Road Safety reports • Routine inspections and road safety audits • Specific studies (WangDC – see below) 		
	Actions which have been taken or are programmed, crash record, and road environment factors are to be recorded. Specific lists maintained for: <ul style="list-style-type: none"> • Sight distances • Benching deficiencies • Poor alignment • Other candidates for Minor Safety Imp'ts 	Forward list of potential projects maintained. Sites inspected and fed into Minor Safety Works programme. Evaluated and prioritised using multiple criteria.	Service request issues are monitored and reported on by Customer Service staff. Contractor has electronic access (Comms Web) to logged deficiencies. Strategic studies (eg Tokomaru East, T.W., and Koatanui Roads completed in Jan 04). Two further studies programmed for 04/05. Identify deficiencies such as vegetation, geometrics, and benching, from which lists of works needed for safety improvement are developed. Safety studies (eg speed) are undertaken in urban areas with known/potential problems (eg Laird Park area which has a high crash rate).

	Rangitikei District	Ruapehu District	Wanganui District
	<p>Record all deficiencies on each DC database (to be developed - <i>Imp't Plan action</i>), assess remedial priorities based on risk exposure and other appropriate criteria, programme as appropriate in Maintenance, Minor Safety Improvements, or Capital Programme.</p> <p>Safety deficiencies requiring major work (eg poor alignment of rural roads) are prioritised using economic analysis. Project status is to be identified for the FWP (eg programmed, pending, not yet justified, etc).</p> <p>A proactive approach is to be taken to identifying safety deficiencies where changes to the network (such as forestry) are anticipated, leading to the identification and prioritising of safety improvement works.</p>		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 4.6
May 2005		

Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Road Safety Hazard Register	Legislation:	
Description / Purpose:	Recurring, intermittent safety issues that may not be able to be remedied permanently – these are different to the “deficiency register”. The register enables an RCA to identify, eliminate or manage all road safety hazards in a risk prioritised manner.	Policies:	
Safety Issues:	Any safety hazard that may occur in the road reserve has the potential to increase the number and/or severity of crashes.	Standards:	
		Guidelines:	Engineering Lifelines reports

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Taihape-Napier Road is affected by snow and ice. There are no particular sites subject to regular flooding.	List of sites recorded in “Flood Damage Report”. Maintenance Contractor is required to observe and monitor hazards such as ice and snow. Specific risks which are known and advised to the contractor include: <ul style="list-style-type: none"> • Ohakune Mountain Road • Steep inclines where frost is prevalent. Sites with overhanging trees or embankments – negotiate with landowners to rectify, many of these are DOC sites.	Urban flooding. Problem sites (eg sump blockages) are listed in the Maintenance Contract. Wanganui River is also a flood risk. Four rural roads sites identified for flooding risk. Rural slips and washouts are the most common hazards. A list is maintained on Excel spreadsheet, and this has been used as a basis for identifying works. Feb 2004 storm has added significantly to this list.
Emergency Maintenance	Roads which are expected to be closed because of natural hazard events are listed in the Maintenance Contract.	Maintenance Contractor required to take action to control ice and snow.	Maintenance Contractor.
Routine Maintenance	Refer Maintenance contracts		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 4.7
May 2005		

Component Information

Activity Component:	Development of Minor Safety Works Programme
Description / Purpose:	The preparation of an annual list of small scale projects which qualify (within a "cap") for Transfund financial assistance, with expected road safety benefits.
Safety Issues:	Any road engineering problem with a safety concern

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act 2002 Transit New Zealand Act
Policies:	
Standards:	
Guidelines:	Land Transport NZ programme guidelines

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring			
Emergency Maintenance			
Routine Maintenance			
Capital Works	<p>Works up to a limit of \$150k can be included in the MSW programme, others must be assessed using B/C and included in FWP.</p> <p>Prepare annual list of candidates from following sources – Land Transport NZ road safety report, deficiencies database, complaints, crash reduction studies, speed measurements, inspections, reviews of compliance of traffic facilities with standards (eg pedestrian crossings).</p> <p>Review crash data, traffic use and composition, potential for conflicts between users (eg cyclists / motor vehicles), community concerns. Identify projects which fit the criteria for Minor Safety Improvements (others to be actioned through maintenance contracts or CAPEX process). Prioritise the list of candidates and include in the annual plan and budget process.</p>		
Review, Monitor & Evaluation Requirements	Transfund recommendations on prioritising Minor Safety Improvements projects to be considered following their recent survey and publication of report (<i>Improvement Plan action</i>).		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Temporary Traffic Management (inc approval and auditing)
Description / Purpose:	Standards are needed to ensure the safe and efficient passage of traffic through work-sites on the road, and a safe environment is needed for those working on the road. The process requires the approval and auditing of a specific Traffic Management Plan for the works.
Safety Issues:	The existence of a worksite on any road is a hazard which alters the normal operating condition of a road, and must be managed to eliminate, isolate or minimise it. Traffic travelling past or through works sites is a danger to workmen, particularly if they are working outside the work zone. Machinery operating on works sites is a danger to the travelling public. Drivers travelling at speed over rough, uneven surfaces or loose gravel can lose control of their vehicles. Restriction of traffic flow at a works site can cause congestion and long delays. Signs/directions need to be clear and comply with standards. Provision for pedestrians/cyclists.

Legislation, Policies, Standards and Guidelines

Legislation:	Health and Safety In Employment Act 1993 Land Transport Rule: Traffic Control Devices 2004 Local Government Act
Policies:	DC Occupational Health & Safety Policy RangDC – no written policy RuapDC Road Reserves Management Policy (s9, 10, 11)
Standards:	OSH documents Contractors Health and Safety procedures Transit New Zealand COPTTM (and Low Volume Roads supplement) G1: 1995 Specification for Temporary Traffic Control.
Guidelines:	Transfund Guidelines for Audit of Temporary Traffic Management TNZ handbook “Working on the Road” SNZ HB 2002:2003 Code of Practice for Working in the Road (NZUAG Roadshare).

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	COPTTM standard and Low Volume Roads supplement to be generally applied. Exceptions and specific practices for each RCA are noted below. All TMP approvals must be given by STMS qualified staff.		
	<p>Network management team (GHD) has delegated authority to receive, review and approve TMP's, including those for utility works on road reserve.</p> <p>Problems or concerns to be referred to GHD for action.</p>	<p>All TMP's approved by Road Asset Manager. STMS training required for key RuapDC and GHD staff.</p> <hr/> <p>Code of Practice defines local variations as agreed by Ruapehu, Waitomo and Otorohanga DC's.</p> <p>Generic utility TMP's reviewed annually by Asset Manager, similarly for Maintenance Contracts.</p>	<p>Network management team (Opus) STMS qualified personnel must approve, otherwise dealt with by WDC.</p> <p>Rural unsealed roads (typically with traffic volumes < 100 VPD) – Working on the Road is to be applied.</p> <p>Narrow rural roads where space is limited and where cones / traffic control cannot be implemented require specific provision – warning signage. (Rural category groups 3,4,5, <100 VPD)</p> <p>Promote education of the industry to improve overall compliance.</p> <p>Residents advised by letterbox drop of road closures.</p>
Events on Road Reserve	All events must have TMP and follow the Road Closure Process. Maintenance contractor may lay out sites for events.		
Routine Maintenance and Capital Works	Maintenance contracts covered by generic TMP, personnel must have appropriate STMS safety qualifications. All capital works must have specific TMP, and STMS qualified staff on site at all times.		
Audit Procedures	GHD monitors all contracts during construction phase, and maintains record of site visits on file.	Asset Manager samples and audits sites.	Opus staff monitor urban and rural contract work sites. Also monitor sites being managed by other agencies when carrying out other duties.
	<p>Engineer to the Contract is responsible for monitoring compliance with the TMP, and undertaking audits as documented in the contract.</p> <p>If there is no TMP, or compliance is unsatisfactory, or a significant potential safety issue exists, then the procedure is to request remedial action (may be immediate if warranted), issue a written notice, and if necessary issue a stop-work notice.</p> <p>All site activity non-compliances to be notified and recorded along with the response actions taken by the contractor.</p> <p>Compliance issues may be communicated by Council staff, consultants, contractors and the public.</p>		
Review, Monitor & Evaluation Requirements	Monitor the level of compliance with the above procedures on a regular basis, and implement process improvements where necessary. Review and improve TTM audit procedures for work being managed by other agencies.		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	Transit NZ Code of Practice for Temporary Traffic Management, 2 nd Edition Oct 2002 (inc low volume roads supplement) Working on the Road.
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 5.2
May 2005		

Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Road Openings by utility and external service authorities and other departments within Council	Legislation:	Local Government Act (2002) Transport Act (1962) Land Transport Rule: Traffic Control Devices 2004 Electricity Act Telecommunications Act
Description / Purpose:	<p>RCA's need to exhibit some control over others who work on the road. This can only be effective when the RCA knows who is working on the road, and where and when – eg using an openings register system.</p> <p>Controls are needed to ensure the safety of the utility / service provider and the public, and to ensure that reinstatement complies with Engineering Standards.</p> <p>These include requirements for Traffic Management Plans and appropriate temporary traffic control.</p> <p>Road openings are also undertaken by internal utility units – water, sewerage, and stormwater. It is possible to improve internal controls through a “service level agreement”.</p> <p>Final location of utility covers / trenches can be a safety hazard in wheel tracks</p> <p>Control of smaller work sites, such as driveways, builders, etc.</p> <p>Restoration in rural areas.</p> <p>Not receiving Road Opening Notices in advance, particularly for maintenance and emergency works.</p> <p>Possible inclusion of trees in RON process (eg Rotorua).</p>	Policies:	DC District Plan DC Street Opening Policy RuapDC Road Reserves Management Policy (s9, 10, 11) RuapDC Road Reserve Bylaw (Opening of the Road).
Safety Issues:	As for Temporary Traffic Control On carriageway vs off carriageway have different levels of control requirements.	Standards:	DC Engineering Standards SNZ HB 2002:2003 Code of Practice for Working in the Road (NZUAG Roadshare). Transit NZ COPTTM
		Guidelines:	Network Utilities Within the Road Corridor: The Role of the Resource Management Act: A Guide to Best Practice (NZUAG Roadshare)

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	<p>Street Opening Notice process (refer Policy Manual), which includes requirement for TMP (refer also SMS 5.1 above). Network Manager investigates, processes and advises Council on conditions.</p> <p>Final inspection undertaken by RDC. Sealing carried out by RDC for both internal and external utility services.</p>	<p>Operations are controlled by the Roads Reserve Management Policy, this includes a requirement to lodge a Road Opening Notice ("Operating on the Road" form). New utility connections (water and wastewater) are to be undertaken by United Water, private contractors are not permitted to do this work.</p>	<p>Road Opening Notice Procedure to follow NZUAG Roadshare standard. System to be improved to meet NZ standard practice – to provide a formal record of all road openings, with information captured on location, timing, responsibility, etc. This will require confirmation of resource to control <i>(Imp't Plan action)</i></p>
Audit Requirement	All Utilities to be audited and are required to comply with Street / Road Opening Notice conditions.		
Review, Monitor & Evaluation Requirements	Coordination meetings with utilities to ensure TTM requirements are recognised and implemented <i>(Imp't Plan action)</i> .		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 5.3
May 2005		

Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Cross Boundary Issues/Roads controlled by other RCA's	Legislation:	
Description / Purpose:	To ensure that there is effective cooperation to deal with adjacent RCA's that have common boundaries.	Policies:	
Safety Issues:	Different standards applying on cross-boundary roads could present "surprises" to motorists	Standards:	
		Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Quarterly coordination meetings with neighbouring RCA's (Ruapehu, Wanganui, Manawatu)	Interfaces with Waitomo, New Plymouth, South Taranaki, Wanganui, Taupo and Rangiteiki Districts. DOC – The Bruce Road Electricity generators – roads to power generation sites Local RCA coordinating groups, including TNZ – to the south and the north.	Formal regular meetings are held with Transit and neighbouring RCA's (South Taranaki, Stratford, New Plymouth, Ruapehu, Rangitikei).
	Regular and ongoing liaison with Transit NZ on SH / Local Roads interface issues.		
Routine Maintenance	Boundary agreements in place for maintenance of roads and bridges, plant / resources may be shared as appropriate. Common standards on cross-boundary roads to be maintained.		
Capital Works	Joint projects by agreement and appropriate cost sharing.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information
Legislation, Policies, Standards and Guidelines

Activity Component:	Railway Crossings	Legislation:	Local Government Act Transit NZ Act Transport Act (1962) Railway Safety and Corridor Management Act, 1992 Land Transport Rule: Traffic Control Devices 2004
Description / Purpose:	Ensuring that the rail operator maintains and upgrades rail crossings to a safe and acceptable standard for road users, and that appropriate signage is in place.	Policies:	
Safety Issues:	Potential for serious crashes involving trains and motor vehicles. Insufficient stacking length for truck and trailer units under certain roading / side road / railway layouts. Poor condition of railway crossings, lack of maintenance by rail authority, and perceived lack of good understanding of safety conflicts at rail crossings. Low level of communication between RCA, TrackCo and contractors, and low responsiveness.	Standards:	RTS 10: Road Signs and Markings for Railway Level Crossings
		Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	RDC monitors sight distance and general quality of crossings and advises Transrail of concerns.	Currently, not a crash problem, however proximity of some local road crossings to SH's is a potential concern and must be monitored.	
	Communication with TrackCo is currently ad hoc, and requests for response have been poor. Protocols / formal meetings required. Requirements are identified by TrackCo and cost sharing agreements for maintenance apply.		
	Regular joint inspection and communication regime required between RCA's and rail authorities (operator and infrastructure management) so that both the road and rail perspectives can be identified (minimum annual). Communication protocol needs to be improved at national level (<i>Imp't Plan action</i>). (Land Transport NZ commencing joint audits with TrackCo, and can also provide support to RCA's).		
Routine Maintenance	Maintenance needs to be identified and communicated to rail authority prior to undertaking work. Maintain contacts with local rail contractors.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers
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Controlling Documents:	
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Component Information
Legislation, Policies, Standards and Guidelines

Activity Component:	Overdimension and Overweight Routes	Legislation:	Heavy Motor Vehicle Regulations 1974
Description / Purpose:	To ensure the safe passage of loads over structures and on the network, and to minimise potential damage and disruption to roading assets from overweight and overdimension vehicles.	Policies:	
Safety Issues:	Overweight loads can damage the carriageway and major structures, eg bridges, culverts. Permits are often not obtained for over-weight vehicles with a resulting lack of control of routes being used. Large vehicles obstruct traffic flow and visibility. Oversize loads can damage signs, traffic facilities and street furniture. Information / applications not being received from the transport industry.	Standards:	Transit New Zealand Overweight Permit Manual Transit New Zealand Bridge Inspection and Maintenance Manual
		Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Routes identified for over-dimension and over-weight vehicles.	Maps of District show available over-weight routes. Maps and documented procedure available to applicants.	Daily list of overwidth and overweight permits is provided to Opus by Transit.
	Network Managers manage process and issue overweight permits.		
	Over dimension permits are issued by the Palmerston North Land Transport NZ office, who will also provide lists of approved routes on a regular basis.		
	Compliance on SH's is enforced by the Police.		
Review, Monitor & Evaluation Requirements			Over-weight permit application process to be reviewed to ensure higher applications rate (<i>Imp't Plan action</i>)

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 6.2
May 2005		

Component Information

Activity Component:	Road Closures (Planned)
Description / Purpose:	To provide effective public consultation procedures for the temporary closure of roads. To enable the holding of a public or sporting event. To enable the reconstruction of a road or facility.
Safety Issues:	Potential conflict and confusion to road users. Adequacy of signage for detour route

Legislation, Policies, Standards and Guidelines

Legislation:	Transport Act Land Transport Rule: Traffic Control Devices 2004 Resource Management Act Local Government Act
Policies:	RuapDC – Roads Reserve Management Policy 2003 (s18,19) RuapDC – Road Reserve Bylaw (Operating on the Road)
Standards:	DC District Plan MOTSAM Part I
Guidelines:	TNZ COPTTM

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Procedure documented in Network Management Contract.	Temporary Road Closure Application form documents procedures and requirements.	
	Follow road closure permitting process as defined in legislation – includes advertising and 42 days notice time. All events on road reserve must be approved by RCA. Event organisers to provide adequate TMP (refer also SMS 5.1), application must be signed off by STMS qualified personnel. Owner of event insurance policy to be advised and copy of TMP provided. Network Manager to provide advice where requested, Maintenance Contractor may undertake set-up on the day.		
Audit Requirement	Refer SMS 5.1. Events to be monitored for compliance with conditions.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers / Regulatory departments	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 6.3
May 2005		

Component Information

Activity Component:	Vehicle Crossings and Accessways
Description / Purpose:	To control the provision of safe, convenient and efficient property access, so that new and existing crossing places are formed to an appropriate standard and in the appropriate location.
Safety Issues:	Use of inadequate vehicle crossings and accessways (urban and rural) may pose safety hazards to other users. Design to meet vehicle turning and vehicle clearance requirements. Location/alignment at intersections. Poor visibility. Existing crossings can be a safety concern. Poorly located crossings (rural in particular).

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	DC District Plans RuapDC – Roads Reserve Management Policy 2003 (s12, 31) RuapDC – Road Reserve Bylaw (Opening the Road) WangDC – District Bylaw Part 8 Streets
Standards:	NZS 4404 : 2004 : Land Development and Subdivision Engineering DC District Plans NZS 4121:2001 : Design for Access and Mobility: Buildings and Associated Facilities AS/NZS 3661.2:1994 : Guide to reduction of slip hazards
Guidelines:	LTSA RTS 6 - Guidelines for Visibility at Driveways Austroads Guide to Traffic Engineering Practice: Part 5 Intersections at Grade

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Practices	Standards defined in s23.1 of District Plan. All applications are referred to Network Manager (GHD). Process controls the location of all crossings and access points. Standards checked following construction by contractor. Action to be taken on illegally installed crossings, particularly if there is non-compliance with standards or location requirements (eg sight distance).	Applications must come through resource or building consent process. Engineering standards for construction including size and layout are defined. RRMP s 31 defines construction and maintenance responsibilities – property owner's expense. Design criteria defined in s12 of the RRMP. Rural crossings to be monitored closely for non-compliance, and DP provisions enforced.	Application required (Street Opening Permit) for all installations – to Environmental Services (WDC), with input sought from Roding. Applications may be stand-alone or part of consent application (eg for re-development). Compliance with District Plan (eg spacings) and standard drawings checked, however need to also check for consistency with road environment (eg markings, features). Monitoring for illegally installed crossings.
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	District Plans
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 6.4
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Stock Control, Crossings and Underpasses	Legislation:	Local Government Act (2002) Transport Act (1962) Land Transport Rule: Traffic Control Devices 2004 Transit New Zealand Act Building Act
Description / Purpose:	To prevent uncontrolled interaction between stock and other road users. This requires processes to manage or separate stock movements from traffic (eg stock crossing points, stock underpasses)	Policies:	RangDC – Stock Droving and Grazing Bylaw 2001 RuapDC – Roads Reserve Management Policy 2003 (s6, 7, 14) RuapDC – Road Reserve Bylaw (Stock Droving) WangDC – Bylaw
Safety Issues:	Lack of control of stock movement resulting in the potential for crashes involving stock being driven along the road or across the road.	Standards:	DC District Plans NZ Building Code (2002)
		Guidelines:	Transit NZ COPTTM Transit NZ Stock Underpass Procedures Manual 2001 Transfund NZ Programme and Funding Manual: clause 7.4.20 Stock Underpasses. Culvert Manufacturer's Guidelines for Design and Installation Best Practice Guidelines on Stock Crossings (draft), RCA's Forum

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Bylaw to control stock droving and at grade stock crossing points managed by Environmental Services/ regulatory department.	Requirements in Bylaw and RRM Policy for traffic management procedures and signage, visibility, cleaning, formation of stock crossing points, stock droving. Grazing of the road verge is controlled through the RRM Policy (s 14).	Bylaw to control stock droving and at grade stock crossing points managed by Environmental Services/ regulatory department.
	Formal application required for stock crossing points, conditions apply. TMP must meet farmers' H&S requirements under OSH.		
Inspection / Monitoring	Compliance monitoring and enforcement undertaken by regulatory department. This may involve reporting of significant non-compliances to OSH.		

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works		Resource consent required for construction.	
	<p>Underpasses are encouraged, particularly where there is the potential for safety conflicts with traffic. Licence to occupy road space required prior to construction commencing. Council engineering standards must be complied with. Producer statements to be provided by structural designer of underpass. Maintenance of underpasses is the responsibility of the land owner – condition to be included on licence to occupy. Generally follow guidelines on stock crossings being developed by the RCAs Forum. Financial assistance from Land Transport NZ programme (eg capital / minor safety), plus Council grant where applicable (eg RangDC \$5,000 grant)</p>		
Audit Requirement			
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	RuapDC – Roads Reserve Management Policy Transit NZ COP for TTM
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 6.5
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Component Information

Activity Component:	Vulnerable Road Users
Description / Purpose:	Vulnerable road users include those with special needs but whose potential presence or use of the network needs to be considered and evaluated in any project. They include children, the elderly, handicapped, or impaired people.
Safety Issues:	Potential for injuries – which may or may not involve motor vehicles

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act (2002) Transport Act (1962) Land Transport Rule: Traffic Control Devices 2004
Policies:	
Standards:	DC District Plan
Guidelines:	Guide to Traffic Engineering Practice, Part 13: Pedestrians; Austroads RTS 14: Guidelines for Facilities for Blind and Vision-Impaired Pedestrians (2003), LTSA

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	<p>Formal consultation is undertaken as part of the LTCCP process.</p> <p>Ongoing feedback/submissions are received from groups such as the disabled, with reactive response.</p> <p>Schools, bus stops, and bus waiting areas (esp rural areas) are monitored – eg safe stopping, sight distance requirements.</p> <p>Encouragement approach to passenger transport users.</p> <p>Liaison with school bus companies.</p>	<p>Reactive, case-by-case approach.</p>	<p>Cycling Strategy (May 2003) in place and to be reviewed periodically.</p> <p>Includes development of on-road and off-road cycle routes.</p> <p>Capture safety concerns using public complaints and feedback from community groups, focus groups, elderly, disabled groups, etc.</p> <p>Also receive regular feedback from Road Safety Coordinator, and participate in monthly Coordinating Committee meetings.</p> <p>Input concerns into safety planning process, leading to maintenance / minor safety works programming.</p> <p>Also include in Urban Strategy Studies, LATMS designs, liaison with Schools process.</p> <p>Develop initiatives such as Walking School Bus.</p>

	Rangitikei District	Ruapehu District	Wanganui District
Routine Maintenance			
Capital Works	<p>Specific needs to be considered during normal project design process.</p> <p>Kerb cut-downs provided for mobility scooters / wheelchairs on a reactive basis.</p>	<p>There is a need for more in-depth consideration and assessment of vulnerable road users' needs in design.</p> <p>Increased emphasis to be considered during normal project design process, and briefs to designers to be specific.</p>	<p>Standards defined in Cycle Strategy.</p> <p>Consider needs of vulnerable road users in all new designs (eg as defined in Cycle Strategy).</p> <p>Undertake implementation of cycleway network development as defined in the Cycling Strategy.</p> <p>Ensure new subdivisions and footpath programmes include pram crossings – implement under MSW.</p> <p>Provide tactile crossing facilities for new / upgraded traffic signals, and sound for Barnes dance crossings.</p>
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Parking
Description / Purpose:	To control and manage parking facilities so that drivers can park their vehicles in safety while they let down or pick up passengers or leave their vehicles unattended.
Safety Issues:	<p>Parking on street can restrict visibility, egress and the flow of traffic, eg vehicles parked at intersections restrict sight distance</p> <p>Conflict between cyclists and motorists opening car doors, or reversing out of angle car-parks.</p> <p>Vehicles stopping in the traffic stream cause congestion and potential for collisions.</p> <p>Pedestrians stepping out from between parked vehicles are difficult for drivers to see.</p>

Legislation, Policies, Standards and Guidelines

Legislation:	Land Transport Rule: Traffic Control Devices 2004 Transport Act 1962 Local Government Act 2002
Policies:	RangDC - RuapDC – Traffic Bylaw WangDC – District Bylaw Part 23 Traffic
Standards:	MOTSAM Parts I and II District Plan Parking Bylaw
Guidelines:	Guide to Traffic Engineering Practice Part 11 : Parking, NAASRA NZS 4404 : 2004 : Land Development and Subdivision Eng AS/NZS 2890.1:2004 : Parking facilities - Off-street car parking

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	On-site parking controlled through District Plan. On-street parking controlled through bylaw, enforcement by regulatory departments. Provide education about parking safety where necessary.		
Inspection / Monitoring			
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.1
May 2005		

Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Pedestrian Crossing Facilities	Legislation:	Land Transport Rule: Traffic Control Devices 2004
Description / Purpose:	To provide safe and well maintained pedestrian crossing facilities where traffic flow is heavy and there is a pedestrian demand	Policies:	
Safety Issues:	Sight distances and intervisibility between driver and pedestrian. Location of crossing. Adequacy of signs and markings and lighting. Overhanging vegetation can be a visibility issue at crossings. Material type.	Standards:	TR11 (MOT/LTSA specification) MOTSAM Parts I and II AS/NZS 1158: 1997 – Street Lighting
		Guidelines:	Trafinz Pedestrian Crossing Standards NZ Local Authority Traffic Institute: Pedestrian Crossings RTS 14: Guidelines for Facilities for blind and vision-impaired pedestrians. LTSA Guidelines for KEA crossings – Fact Sheet 26, 2003 Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Practices	Locate crossing facilities in slow vehicle areas within CBD.	Low demand for Kea crossings at schools because of low numbers. Case-by-case consideration.	Maintain Wanganui CBD crossings in current form. 3 Kea crossings in place for schools, comply with warrants, with one approved school patrol. Flourogreen signs used for school crossings. Urban studies will highlight further needs for schools (see "Vulnerable Road Users").
	Facilities including Kea crossings for schools considered on a case-by-case basis. New pedestrian crossings are to be considered where pedestrian and vehicle numbers meet the following MOT warrants (includes State Highways):		
	<ul style="list-style-type: none"> • School Kea Crossings: Number of vehicles per half hour x number of pedestrians per half hour exceeds 3000. • School Pedestrian Crossing: Number of vehicles per half hour x number of pedestrians per half hour exceeds 5000, and number of vehicles exceeds 100 per half hour. • Other unsignalised pedestrian crossings: Number of vehicles per hour x number of pedestrians per hour exceeds 45,000 and number of vehicles exceeds 300 per hour. 		
Capital Works			Upgrade lighting at existing pedestrian crossings.

	Rangitikei District	Ruapehu District	Wanganui District
	Upgrading works to be completed in the time specified as required by the Traffic Control Devices 2004 Rule, including markings, signage, lighting.		
Review, Monitor & Evaluation Requirements	Maintain ongoing review of existing pedestrian crossings in relation to warrants, safety, and other relevant considerations such as lighting.		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	-
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Component Information

Activity Component:	Footpaths
Description / Purpose:	To provide safe and efficient pedestrian access
Safety Issues:	<p>Separation of pedestrian traffic from vehicular traffic. Need for an even footpath surface conflicts with the crossfall required for vehicle crossings, or disturbance by roots of adjacent trees. Use by bicycles, push scooters and ride-on mobility scooter. Overhanging vegetation Location/alignment at intersections Design and location of crossing points Free standing signs Tactile indicators Cleanliness (lichen/moss, leaf drop) Crossfall at some wheelchair crossings excessive for wheelchairs / mobility scooters.</p>

Legislation, Policies, Standards and Guidelines

Legislation:	Land Transport Rule: Traffic Control Devices 2004
Policies:	<p>DC District Plans</p> <ul style="list-style-type: none"> RangDC – footpath required on one side of road only
Standards:	<p>NZS 4404:2004 : Land Development and Subdivision Engineering AS/NZS 3661.2:1994 : Guide to the reduction of slip hazards AS/NZS 4586:1999 : Slip resistance classification of new pedestrian surface materials AS/NZS 4663:2002 : Slip resistance measurement of existing pedestrian surfaces</p>
Guidelines:	RTS 14 Guideline for installing pedestrian facilities for people with visual impairment

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Annual feedback from residents, followed up by consultant's inspection.	Annual inspection by Maintenance contractor.	3 yearly inspection of all footpaths. 100% condition rating used for ranking renewal / resurfacing.
	Service requests from public. Monitor overhanging vegetation and trip hazards on footpaths for pedestrian safety.		
Emergency and Routine Maintenance	Hazard standard defined as 10mm trip height. Vegetation clearance zones defined in maintenance contracts.		Reactive to user feedback and complaints – in particular tilted/uplifted footpath slabs.
	Service requests and safety hazards are referred to the Maintenance Contractor for action. Safety hazards are also to be identified by the Maintenance Contractor and treated / reported.		
Capital Works	Renewals based on monitoring information above.		
	New footpaths – target one side of road with footpath, implement through LTCCP process.		Adequate numbers of footpaths.
Review, Monitor & Evaluation Requirements		Review footpath capital budgets (<i>Imp't plan action</i>).	

Organisation

Primary Responsibility: Network Managers

Controlling Documents:

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Component Information

Activity Component:	Cycle Facilities
Description / Purpose:	Provide a safe network of on and off-road facilities for cyclists so as to make cycling more attractive, enhance its convenience and improve safety
Safety Issues:	Surface condition and debris Alignment Parking Cyclists using pedestrian facilities. Cyclists on arterial routes. Cycle facilities at intersections and crossing places.

Legislation, Policies, Standards and Guidelines

Legislation:	Land Transport Rule: Traffic Control Devices 2004 Local Government Act 2002
Policies:	
Standards:	NZS 4404:2004 : Land Development and Subdivision Engineering
Guidelines:	Austrroads Guide to Traffic Engineering Part 14 – Bicycling

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	No specific cycle facilities, with the exception of a combined walkway/cycleway route, linkages to High School and pools. Low numbers of cyclists – school routes are the primary focus.	Provision of specific facilities is not an issue for RuapDC. Developing cycle education in schools through the Road Safety Coordinator.	See Vulnerable Road Users. Cycle Strategy reviews. Annual meetings with cycle focus groups.
Emergency Maintenance	Inspect and remove broken glass, loose sealing chip or sand, missing service access covers or sump gratings as per Maintenance contracts.		
Routine Maintenance			
Capital Works	Consider cyclists' needs during design process, especially near schools, for example adequate space provision on bridges. Case-by-case basis and requests through LTCCP.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.4
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Pavement Surface Skid Resistance	Legislation:	
Description / Purpose:	To ensure that the carriageway surface is safe and has adequate skid resistance for road users during all weather conditions	Policies:	
Safety Issues:	Texture depth and skid resistance (Micro and Macro texture). Poor skid resistance can reduce tyre traction and contribute to loss of control crashes.	Standards:	PFM 6: Road Condition Rating and Roughness Manual; Transfund New Zealand, 1997
		Guidelines:	Transfund New Zealand Maintenance Guidelines for Local Roads, August 2004 TNZ Standards and Specifications for Testing and Evaluation T10: Specification for Skid Resistance Deficiency Investigation and Treatment Selection (SCRIM only) TNZ Bituminous Sealing Manual Austroads – Friction Related Crashes – Guidelines for Minimising Friction Related Crashes on Road Networks, 2002 Draft Austroads – Guide to the Selection of Pavement Surfacing, 2000

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	No formalised skid resistance tests undertaken at present. Surface friction assessment process to follow Transfund Maintenance guidelines above – “Method For The Identification and Programming Of Sites With Insufficient Skid Resistance”; to be developed (<i>Imp’t Plan action</i>). Problem sites are recorded by maintenance contractor or from complaints. Examine loss of control crash data to check if skid resistance was a contributory factor. High risk sites identified and monitored proactively.		
Capital Works	Routine inspections for reseals to assess safety factors such as texture, surface friction. Case-by-case approach with more frequent resealing of known problem locations.		
			Potential improvements to skid resistance by grooving AC surfaces to be considered at time of resurfacing.
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers
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Controlling Documents:	
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Component Information

Activity Component:	Pavement Condition – Sealed
Description / Purpose:	To ensure the pavement is sound and the carriageway surface free of defects, providing a safe, trafficable surface
Safety Issues:	<p>Pavement failure can contribute to loss of control crashes.</p> <p>Potholes, subsidence, pavement shape (deformation, rutting, shoving, edge breaks), low shoulder, service covers, crossfall, ponding.</p> <p>Shoulder rutting – safety issues on outside of curves</p> <p>Edge break – can contribute to loss of control</p> <p>Rutting and shoving – particularly on curves</p> <p>Surface cleanliness at intersections</p> <p>Excessive chip / chip loss following on from reseals</p> <p>Flushing / bleeding bitumen</p> <p>Spillages (diesel, fertiliser, mud etc)</p>

Legislation, Policies, Standards and Guidelines

Legislation:	Resource Management Act Local Government Act 2002
Policies:	DC Asset Management Plans
Standards:	PFM 6: Road Condition Rating and Roughness Manual; Transfund New Zealand, 1997
Guidelines:	<p>Transit New Zealand Code of Practice for Temporary Traffic Management</p> <p>C10: Specification for the Maintenance of Unsealed Shoulders</p> <p>ARRB Sealed Roads Manual, Guidelines to Good Practice for the Construction, Maintenance and Rehabilitation of Pavements 1995</p>

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring			Review of response times in relation to safety objectives is required (<i>Imp't Plan action</i>).
	Maintenance contract defines the characteristics of “defects” and response / repair times, and recording requirements.		
Emergency and Routine Maintenance	<p>Results of regular audits advised to Contractor for action.</p> <p>Refer also to Land Transport NZ KPI's and annual level of service / performance agreements.</p> <p>Reviews of Maintenance Contracts to consider and provide for LOS related to safety for each condition defect type – to maintain and improve the network.</p>		
Review, Monitor & Evaluation Requirements	Refer contract performance evaluation procedures. Deductions may apply. Network manager inspections established in contract (eg 10% formal inspection each month).		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.6
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Pavement Condition – Unsealed	Legislation:	Resource Management Act Local Government Act 2002
Description / Purpose:	To ensure the unsealed carriageway is free of surface defects for the provision of a safe and efficient trafficable surface	Policies:	DC Asset Management Plans
Safety Issues:	Potholes, crossfall, ponding, loss of metal. Metal drift, grading shape, material type.	Standards:	
		Guidelines:	ARRB Unsealed Roads Manual, Guidelines to Good Practice, 2000 Transit New Zealand Code of Practice for Temporary Traffic Management

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Maintenance contract defines the characteristics of “defects” and response / repair times, and recording requirements.		
Emergency Maintenance Routine Maintenance	Grading cycles are performance based, cycle times are influenced by inspections. Service requests also identify response needs, eg dust, metalling.	Maintenance contract requires specific unsealed surface materials and grading regime which together provide improved vehicle control characteristics.	Performance based minimum standards.
	Results of regular audits advised to Contractor for action. Refer also to Land Transport NZ KPI's and annual level of service / performance agreements. Reviews of Maintenance Contracts to consider and provide for LOS related to safety for each condition defect type – to maintain and improve the network.		
Capital Works			
Review, Monitor & Evaluation Requirements	Refer contract performance evaluation procedures. Deductions may apply. Network manager inspections established in contract (eg 10% formal inspection each month).		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Component Information**Legislation, Policies, Standards and Guidelines**

Activity Component:	Traffic Control Devices	Legislation:	Land Transport Rule: Traffic Control Devices 2004 Local Government Act (2002) Transit NZ Act (1989) Transport Act (1962)
Description / Purpose:	<p>Road markings - Highlight roadway, regulate traffic movements and provide guidance and information to road users</p> <p>Traffic Signs - provide good visual guidance/control, warning, information and regulates road users</p> <p>Delineation - provide guidance to drivers by defining the traffic lane, carriageway alignment and roadside hazards, to ensure the safe movement of traffic eg. Edge marker posts, RRPM's, sight rails.</p> <p>Traffic Signals - provide safe, well maintained signals</p>	Policies:	RuapDC District Plan RuapDC Roads Reserve Management Policy 2003 (s 13) RuapDC Bylaw (Signs)
Safety Issues:	<p>Roadmarkings - Faded/poor quality road markings Incorrect/inappropriate road markings Can not be seen on very wet nights Can be slippery (eg cyclists and motorcyclists).</p> <p>Re-instatement of markings following pavement maintenance repairs / resurfacing.</p> <p>Traffic Signs - Signs incorrectly/poorly located could provide a hazard for certain user groups, eg disabled, cyclists.</p> <p>Loss of reflectivity, cleanliness Placement and visibility, obstructions Damaged or missing signs. Signs obscured by foliage. Inadequate signage.</p> <p>Delineation - Consistency in delineation to reduce loss of control crashes Placement and spacing Missing or damaged items Type of delineator</p> <p>Traffic Signals - Hardware performance Maintenance of signs and markings Temporary traffic control during system failures or planned shut-downs</p>	Standards:	LTSA and TNZ Road and Traffic Standards. TNZ/LTSA Manual of traffic Signs and Markings Parts I and II TNZ Standards for Design, Construction & Materials RSMA Standards for the Manufacture and Maintenance of Traffic Signs, Posts and Fittings NZS 5431:1973 : Specification for traffic signals
		Guidelines:	RTS 1: Guidelines for the implementation of traffic controls at crossroads (1990) RTS 2: 1990 – Guidelines for Street Name Signs RTS 4: Guidelines for flush medians RTS 5: Guidelines for Rural Roadmarking and Delineation Road Signs Manufacturers Association Specification Edge Marker Posts Guidelines Austroads Guide to Traffic Engineering Practice, Part 7 "Traffic Signals" Austroads Guide to Traffic Engineering Practice, Part 8 "Traffic Control Devices"

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Monthly audit and reporting of the network includes all Traffic Control Devices within the maintenance contract.		<p><u>Markings</u> – inspect and replace faulty RPM's 6-monthly.</p> <p><u>Signs</u> – inspection routine (eg for reflectivity) needs to be improved – part of network safety audit process (<i>Imp't Plan action</i>)</p> <p><u>Signals</u> – performance monitored by Opus, reactive approach</p>
Routine Maintenance	<p><u>Markings</u> are not defined by road type or function. Refer Austroads specs.</p> <p>Marking of the inside of curves is discretionary.</p>	<p>Defined in maintenance contracts.</p> <p><u>Markings</u> – LOS based approach at present, and this is moving to an increased emphasis on reflectorisation – expect to re-mark annually, or more frequently where required for performance, eg intersections.</p> <p><u>Signs and Markings</u> – meet TNZ standards for reflectivity, condition and display (AMP LOS).</p>	<p><u>Markings</u> – annual re-mark.</p> <p>Reflective markings used on rural roads without RPM's and some central city non-parking lines.</p> <p><u>Island delineation</u> – clean and paint as required, typically 2 yearly.</p> <p><u>Signals</u> – non SCATS. Cyclic routine maintenance programme in place.</p>
Capital Works	<p><u>Delineation</u> need (eg chevrons) is assessed using "g" measurements for new designs, AWT's and minor safety improvements.</p> <p>Guardrails also considered where warranted by safety risk.</p>	<p>Case-by-case basis for any new work.</p> <p>For example, currently ad-hoc approach in place for curve speed advisory signs.</p> <p>No planned approach in place for improving delineation.</p>	
Review, Monitor & Evaluation Requirements	<p>Update project required to identify, locate and record all regulatory traffic controls (<i>Imp't Plan action</i>).</p>	<p>Controlled through District Plan and RRM Policy.</p>	<p><u>Delineation</u> – rural strategic studies (eg Wanganui River Rd, Whangaehu Rd) can identify issues, but there is a need for a more consistent approach to delineation.</p>
	<p>Systematic and consistent approach to delineation to be developed (<i>Imp't Plan action</i>).</p> <p>Include criteria where appropriate – traffic volume, road function, location of sight rails, etc.</p>		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.8
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Component Information

Activity Component:	Street Lighting
Description / Purpose:	To provide a safe level of road lighting to a standard appropriate for the road hierarchy
Safety Issues:	Light levels, uniformity and glare Light outages Maintenance failures Crash risks

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	DC Asset Management Plans
Standards:	AS/NZS 1158 – Road Lighting NZS 4404:2004 : Land Development and Subdivision Engineering
Guidelines:	Austrroads Guide to Traffic Engineering Part 12 : Roadway Lighting

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Night time and routine inspections of lighting effectiveness by lighting contractor. Most complaints relate to too much brightness, rather than lack of lighting for safety.	Investigating efficiency of existing lighting installations and the level of conformity with AS/NZS 1158. Results of this review to be used as an input to the Minor Safety Works Programme, capital projects, or lighting upgrade projects. Schools and accessways a particular issue.	Light measurements not currently undertaken, although it is expected that the arterial network is up to standards.
Routine Maintenance	Separate maintenance contract for street lighting. Response times in maintenance contract.		
Capital Works	Flaglighting considered on a case-by-case basis for rural intersections, but largely not warranted.	New / upgraded lighting may be installed with roading projects. AMP LOS to meet AS/NZS 1158 by 2010. Replacement programme based on technological upgrade. Flaglighting on a case-by-case basis.	Demand for flaglighting and there is a need for a review of criteria.
	AS/NZS 1158 to be used for new lighting and upgrades.		
Review, Monitor & Evaluation Requirements			Strategic review planned, this will assess lighting levels, pedestrian safety (eg alleyways), residential streets and aesthetics, flag-lighting criteria (<i>Imp't Plan action</i>).

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.9
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Bridges, Culverts and Structures	Legislation:	Heavy Motor Vehicle Regulations Resource Management Act Health and Safety in Employment Act Building Act
Description / Purpose:	To provide safe and effective access across waterways, gullies, high volume roads, railway lines and flood prone areas. To protect road users from the effects of slips or collapse of the road structure.	Policies:	
Safety Issues:	Structural integrity. Containment (vehicles, pedestrians and other road users). Guardrails, handrails, joint movement, loading, structure (super and sub-structure) abutments/ approaches and "end-protection", drainage and ponding. Bridge approaches and delineation at bridges. One lane priority (traffic management). Proximity to the road of retaining walls, headwalls, culverts, drains or intrusion into the clear zone which creates a traffic hazard.	Standards:	Asset Management Plan NZ Building Code (2002) Transit NZ Bridge Manual SP/M/016
		Guidelines:	Transit NZ Bridge Inspection & Maintenance Manual S/M/016

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Routine annual inspection, 5-6 yearly structural inspection.		2 yearly inspection, includes railings, approaches. Not currently used to identify need for improvements however.
	Weight and speed limits on bridges notified under HMV regulations. Width, passing and stopping provisions for one-way bridges to be regularly monitored for safety.		
Routine Maintenance	Maintenance contracts to maintain all bridges, guardrails, associated structures, delineation, and keep waterways clear.		

	Rangitikei District	Ruapehu District	Wanganui District
Capital Works	Currently treat sealing of approaches, guardrailing and other safety improvements on a case-by-case basis, based on road function, traffic and alignment. Programme under Minor Safety Works, capital, etc as appropriate.	Sealing of bridge approaches on unsealed roads underway – based on 100m each side. Realignment of bridge approaches to correct existing alignment / width deficiencies – programme under Minor Safety Works, AWT, etc as appropriate.	Currently treat sealing of approaches, guardrailing and other safety improvements on a case-by-case basis, based on road function, traffic and alignment. Programme under Minor Safety Works, capital, etc as appropriate.
Review, Monitor & Evaluation Requirements	Safety issues and LOS associated with bridges and structures are to be reviewed when the AMP is updated or LOS are reviewed, with deficiencies logged in the deficiency database (refer SMS 4.5). This will include alignment, guardrailings, sealing of approaches (<i>Imp't Plan action</i>).		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Version 1.0	RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM	SMS 7.10
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Component Information

Legislation, Policies, Standards and Guidelines

Activity Component:	Drainage Systems	Legislation:	NZ Building Code Resource Management Act Health and Safety in Employment Act
Description / Purpose:	Deep road-side & swale drains – Ensure drainage of the road corridor to minimise the risk of flooding on the carriageway, and reduce the potential damage to loss of control vehicles from impact with water channels Kerb & channel - Captures and transports water; defines and protects edge of traffic lane Sumps - Efficient and safe collection of stormwater and disposal of stormwater off roadways	Policies:	Refer Asset Management Plans
Safety Issues:	Deep road-side & swale drains – Entrapment, crash hazard/risk. Depth of drain / narrowness of road combination Poor / insufficient drainage causing flooding Water channel design can contribute to vehicle roll over (Roadside clear zone philosophy) Head wall structures can represent hazards Kerb & channel – Trips, flooding and height. Sumps – Blockage: flooding (aquaplanning, spray) Grates: missing, easy to lift, cyclist hazard Servicing: Traffic control	Standards:	Rural Road Design: Guide to the Geometric Design of Rural Roads, Austroads, 2003
		Guidelines:	NZS 4404:2004 : Land Development and Subdivision Engineering

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Waterways and drainage systems inspections undertaken by Maintenance Contractor on a regular basis. Watertable infill deficiencies identified and recorded in RAMM for future works programming (eg as “major drainage control”).		
Routine Maintenance	Maintenance contracts include LOS for drainage systems including kerbs and channels to control risk of blockages and carriageway flooding. Includes regular cleaning programmes.		
Review, Monitor & Evaluation Requirements			Review the safety implications of deep drains and hazardous swales (<i>Imp't Plan action</i>)

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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RANGITIKEI RUAPEHU WANGANUI ROADS SAFETY MANAGEMENT SYSTEM

SMS 7.11

Component Information

Activity Component:	Landscaping and Vegetation Control
Description / Purpose:	Maintain landscaping and vegetation on various parts of road reserve in a cost effective and visually attractive manner to ensure safety is not hindered. Trees can also provide a visual backdrop.
Safety Issues:	Traffic hazards caused by visibility constraints eg at intersections, traffic signals, signs etc. Planting in traffic islands and planters can restrict visibility if not maintained or of the appropriate type. Vegetation encroaching onto and over footpaths an obstacle for pedestrians. Rural vegetation envelope compromised (height and width dimensions). Public pressure for planting of trees in road reserve compromising clear zone requirements. Impact with non-frangible planting. Shading of the road exacerbates ice problems in winter. Street trees can limit the effectiveness of street lighting.

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act (2002) Transport Act (1962) Land Transport Rule: Traffic Control Devices 2004 Electricity Act
Policies:	DC District Plans Bylaws: <ul style="list-style-type: none"> • WangDC – District Bylaw Part 8 Streets
Standards:	NZS 4404:2004 : Land Development and Subdivision Engineering
Guidelines:	Traffic sight distance criteria – eg intersections, corners, signs TNZ COPTTM Guidelines for Planting for Road Safety (1991), TNZ

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Urban vegetation – visibility standard defined in District Plan. Rural trees shading controlled by 10m set-back from road boundary – District Plan. Property owners given notice to trim vegetation when non-compliance advised to RDC or through inspections, notice period applies after which Parks contractor undertakes work and owner is invoiced the costs.	Defined window relates to different road classes. Length standard specified for grass height. Inspection cycles defined in maintenance contracts.	Inside bends sight distance table for operating speed defined in maintenance contract. Rural vegetation envelope – 4.5m clear height, extending 0.3m beyond edge of SWC – defined in maintenance contract.

	Rangitikei District	Ruapehu District	Wanganui District
	All trees on rural road reserves are defined as “non-important” under the Electricity Act, and can be removed if required.		
Emergency Maintenance			
Routine Maintenance	Rural envelope managed by Maintenance Contractor.	Rural – maintenance contract. Urban – Parks and reserves contract, includes regulatory needs, vegetation envelope, signage visibility etc	Overhanging vegetation (footpaths and road carriageway) controlled by Bylaw and Environmental Services unit. Parks unit manages urban street trees, and some safety issues are apparent.
	Urban street trees, islands, roundabouts etc maintained by Parks and Reserves contractor.		
	Sight lines and visibility requirements to be specified in all contracts		
Capital Works			
Review, Monitor & Evaluation Requirements			Review safety implications of urban street trees and vegetation management practices (<i>Imp't Plan action</i>).

Organisation

Primary Responsibility:	Network Managers
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Controlling Documents:	
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Component Information

Activity Component:	Safety Barriers
Description / Purpose:	Safety barriers provide protection for road users from potential hazards such as bridges, embankments, and high drops, and can improve delineation.
Safety Issues:	Damaged or missing guardrail can present hazards to motorists. Many different standards and types Length for hazard protection Correct installation and end treatment Sight rails can be inappropriately used and present a hazard in themselves

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act (2002) Transport Act (1962) Transit NZ Act (1989) Land Transport Rule: Traffic Control Devices 2004
Policies:	
Standards:	AS/NZS 3845: 1999 Road Safety Barrier Systems TNZ standard specification M23 for design, manufacture and maintenance of guardrails
Guidelines:	Transit New Zealand Draft Geometric Design Manual Austroads Guides – 13 and 14 RTS 8: Guidelines for safe kerbline protection (1993) RTS 11: Guidelines for Urban Roadside Barriers and Alternative Treatments

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Regular inspections.	Historical practice has resulted in many sight rails effectively functioning as (unsatisfactory) safety barriers.	Regular inspections
Emergency Maintenance			
Routine Maintenance			
Capital Works	Case-by-case basis.	Case-by-case at present. Design and location criteria for safety barriers need to be established.	Case-by-case basis.
Review, Monitor & Evaluation Requirements	Criteria to be established for new safety barriers (<i>Imp't Plan action</i>). Existing barriers – review for compliance with standards (<i>Imp't Plan action</i>).		

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Effluent Disposal
Description / Purpose:	Disposal facilities for stock trucks and to a lesser extent tourist vehicles reduces the risk of spillages onto and contamination of the road.
Safety Issues:	Spillages can be a safety hazard if they result in slippery surfaces or surprise motorists into taking evasive and potentially risky action.

Legislation, Policies, Standards and Guidelines

Legislation:	
Policies:	
Standards:	
Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Inspection / Monitoring	Monitoring for future potential improvements through LTCCP process.		
Emergency Maintenance			
Routine Maintenance			
Capital Works		Programme for the development of effluent disposal sites is to be continued.	
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Asset Managers	Controlling Documents:	
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Component Information

Activity Component:	Maintenance Contracts Management
Description / Purpose:	Regular review of all roading maintenance contracts to ensure that the levels of service, standards, and specifications are optimal in relation to network safety performance.
Safety Issues:	Response times. Safety intervention standards. Safety Intervention Plan (SIP).

Legislation, Policies, Standards and Guidelines

Legislation:	Local Government Act 2002 Transit NZ Act
Policies:	
Standards:	Asset Management Plan Transfund Levels of Service / Performance Agreement
Guidelines:	

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Maintenance contract(s) include requirements for Site Safety Plan, Temporary Traffic Control. SIP to be developed for principal network maintenance contract(s).		
		Maintain a "parallel" contract document with desired changes marked up – implement when re-tendering or renegotiating parts of contract based on risk and need.	
Inspection / Monitoring	Network Manager must carry out routine safety inspections of the network as part of the management of the Maintenance contract.		
Emergency Maintenance	Response times set out in AMP LOS.		
	Maintenance tasks classed as Priority Work where the safety of road users may be compromised.		

	Rangitikei District	Ruapehu District	Wanganui District
Routine Maintenance	<p>“Omnibus” contract in place for most maintenance activities – “performance” based. Some activities undertaken in Parks contract. Contracts are:</p> <ul style="list-style-type: none"> Southern and northern maintenance contracts Streetlighting maintenance Street cleaning <p>Some activities managed within Parks contract.</p>	<p>Separate contracts in place for:</p> <ul style="list-style-type: none"> Maintenance of all assets Metalling of unsealed roads Resealing Footpath renewals and new development Vegetation / noxious plants control 	<p>Rural maintenance contract covers rural maintenance, vegetation, minor bridge repairs, non-structural metalling, delineation (EMP’s), footpaths, K&C cleaning, signs and drainage. Urban maintenance contract is similar and also includes, litterbin emptying, cycleways, guardrails, carriageway vegetation, sumps, street furniture, bus shelters. Pavement markings contract – markings, RPM’s, islands. Streetlighting contract. Traffic signals contract. Response times typically based on traffic volumes, and many of these do not vary across road types. Some specific standards apply to specific roads.</p>
Capital Works			
Review, Monitor & Evaluation Requirements	<p>Monthly meetings with maintenance contractor to include “safety” LOS as a regular discussion topic. Aim to develop safety culture in meetings. Review and standardise, where appropriate, provisions for and references to safety in maintenance contracts (<i>Improvement Plan</i>). All maintenance LOS are to be reviewed regularly in relation to the safety performance of the network. Normally, this will be on a 3 to 5-yearly cycle and / or when contracts are being re-tendered. However, an earlier review may be triggered by significant change in crash trends or by the findings of other safety management processes (eg network inspections). Consider applying penalty system for high priority / safety risk safety failures / non-compliances.</p>		

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Component Information

Activity Component:	Emergency Response
Description / Purpose:	Following on from emergency / significant weather or hazard events which compromise road user safety, make roads safe and trafficable (to at least one-way) in shortest possible time. Implement detour routes if required.
Safety Issues:	Safety of roads during adverse weather conditions. Obstacles e.g. slips, trees, damaged road surface, surface flooding. Alternative routes if necessary. Safety of road users during such events Erection of appropriate signs and barriers.

Legislation, Policies, Standards and Guidelines

Legislation:	Transport Act (1962) Transit NZ Act Land Transport Rule: Traffic Control Devices 2004 Civil Defence Emergency Management Act 2002
Policies:	Civil Defence and Emergency Management Group Plans
Standards:	Transit NZ COPTTM.
Guidelines:	Transfund NZ Programming and Funding Manual

SMS Procedures

	Rangitikei District	Ruapehu District	Wanganui District
Operational Procedures	Emergency Procedures Manual in place. Network Manager participates fully in CDEM activities for RDC. Police liaison to be improved and involve maintenance contractor (<i>Imp't Plan action</i>).	Incorporate requirements of contractors in Maintenance Contracts. Complete development of roadside Disaster Recovery Plan. Plan for SH emergency route diversions.	Incorporate requirements of contractors in Maintenance Contracts. Emergency Response Plan in place.
Emergency Maintenance			
Routine Maintenance			
Capital Works	Alternative routes – destination signage to be improved, particular need is SH3 closures.		
Review, Monitor & Evaluation Requirements			

Organisation

Primary Responsibility:	Network Managers	Controlling Documents:	
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Appendix V – Skid Resistance

Land Transport NZ has defined a method for the identification and programming of sites with insufficient skid resistance by local authorities, this is documented in “Transfund New Zealand Maintenance Guidelines for Local Roads”, August 2004 Draft.

The procedure includes the following steps:

- Desk top study
- Site investigations
- Prioritisation and programming of remedial actions
- Monitoring the effect of the remedial actions

The process includes the collection of surface friction data where resources permit.

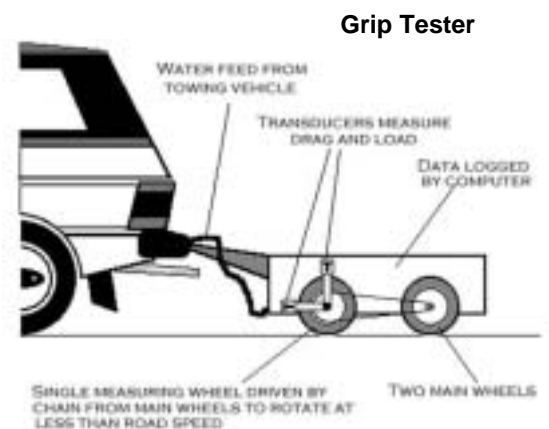
Lists of sites, based on factors such as wet weather crashes, can be provided from Land Transport NZ’s crash database and identify where loss of control crashes have occurred. These sites could have low skid resistance contributing to the occurrence of crashes.

The networks are typically characterised by low volume roads and polish resistant chips.

Available lists are included in this Appendix.

In addition, the following sites can be considered for skid resistance / surface friction tests:

- approaches to pedestrian crossings, railway crossings, roundabouts, Stop and Give Way controlled intersections, traffic signal controlled intersections, one lane bridges, isolated curves, etc.
- other sites as identified by engineering staff



Appendix VI – Rangitikei Resource Information

Insert in this Appendix any key diagrams, lists, forms etc for ready reference in the Rangitikei District.

Appendix VII – Ruapehu Resource Information

Insert in this Appendix any key diagrams, lists, forms etc for ready reference in the Ruapehu District.

Appendix VIII – Wanganui Resource Information

Insert in this Appendix any key diagrams, lists, forms etc for ready reference in the Wanganui District.

Part 4-D: Palmerston North City safety management system



Safety Management System



Preface

Every year over 100 people are injured from crashes on the road network in and around Palmerston North. The social cost of these crashes is estimated at over \$30 million each year. The social cost is only part of the problem. For some families the reality of road crashes is the loss of a loved family member or the life changing experience of coping with permanent injuries.

Council aspires for Palmerston North to be an exciting city in which to live, learn, work and play. Quality of life depends very much on the level of safety that our community experiences. Council is committed to enhancing our roading network to improve its safety. This will be achieved through the use of safety standards that are equivalent to world's best practice.

This Safety Management System sets out a framework to help achieve this objective. Improving safety is not easy. Rather it challenges us to understand our strengths and identify our weaknesses, so that we can improve safety through life-long learning and industry research. Safety will be improved through equipping our people with the skills and knowledge to deliver the best results, through having the right systems in place to address all safety aspects, through having access to the most suitable standards and through having the dedication and commitment necessary to deliver the outcomes that will contribute to improved safety.

This document is a living document. It contains references to critical processes, policies, standards and organisations that support the development of a safer roading network. It describes a system designed by the people who are to use it and sets a challenge to staff to be systematic, focussed, responsive and data-driven to achieve the best possible results. Used properly, this framework will ensure effective decision-making, efficient use of resources and value for money

Council is committed to having the right people doing the right things at the right time in our quest for improved safety. We will be recognised as a leader in road safety, committed to reducing the devastating impacts that road crashes have on our residents and visitors to our region.



Palmerston North City Council Safety Management System

This is an agreement between the Land Transport Safety Authority and Palmerston North City Council to certify that the Safety Management System enclosed herewith is endorsed by both parties as being in accordance with the LTSA "*Guideline for Developing a Safety Management System*".

Signed on behalf of Palmerston
North City Council

Signed on behalf of Land
Transport Safety Authority

Name:
Position:
Date:
(PNCC Seal)

Name:
Position: Regional Manager
Date:

Witnessed by:

Witnessed by:

Name:
Position:
Date:

Name:
Position:
Date:



Record of Amendments

This document is a controlled Palmerston North City Council document. It is reviewed and updated in accordance to Section 8. Amendments are recorded on this Amendment Control Sheet.

Amend. No.	Subject	Effective Date	Updated By	Date



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Appendices

- A Definitions
- B Road Safety Strategy
- C Design/Operational Templates
- D Council Procedures
- E Standards, Guidelines and Policies
- F Expertise, Qualifications and Roles
- G Management of SMS
- H Monitoring and Audit

Foreword

This Safety Management System (SMS) provides a general overview of the processes for managing the Palmerston North City road network to improve safety.

It defines the roles of the major stakeholders and documents road safety strategies, policies, standards, procedures, staff expertise, management, and audit systems for Palmerston North City. The focus of this document is on the desired outcomes, with regard to safety on the road network, rather than the method used to achieve these outcomes.

The Road Safety Strategy will form direction for the Safety Management System, and is to be developed by Road Safe Central. The Road Safety Strategy will set out the goals of Palmerston North City in terms of road safety, and the approach the SMS will take to achieve them.

Templates for various roading activities that impact on road safety are included as an appendix. These document relevant legislation, standards, policies, procedures and guidelines. Staff, consultants and contractors use the templates to ensure the appropriate standards and procedures are applied to achieve the safety targets for specific roading activities.



Introduction

1.1 Palmerston North City Council

Palmerston North City Council provides and maintains a network of roads and footpaths for the safe and efficient movement of pedestrians, road users and cyclists.

The network includes 483 km of roads and 84 bridges. Being primarily an urban network, there are 465 km of footpaths, 7,370 streetlights and 3160 parking spaces.

Traditionally Palmerston North City has had a great deal of pride in the visual appearance of their city. This is reflected by the existence of 10,600 street trees, which unfortunately, in some locations, now present a safety hazard.

Palmerston North City Council also promotes and advocates for the ongoing improvement and maintenance of urban passenger transport systems and to increase the provision of cycling facilities.

Refer to figure 1 below for the Palmerston City Council staff structure.



Proposed City Networks Unit Structure

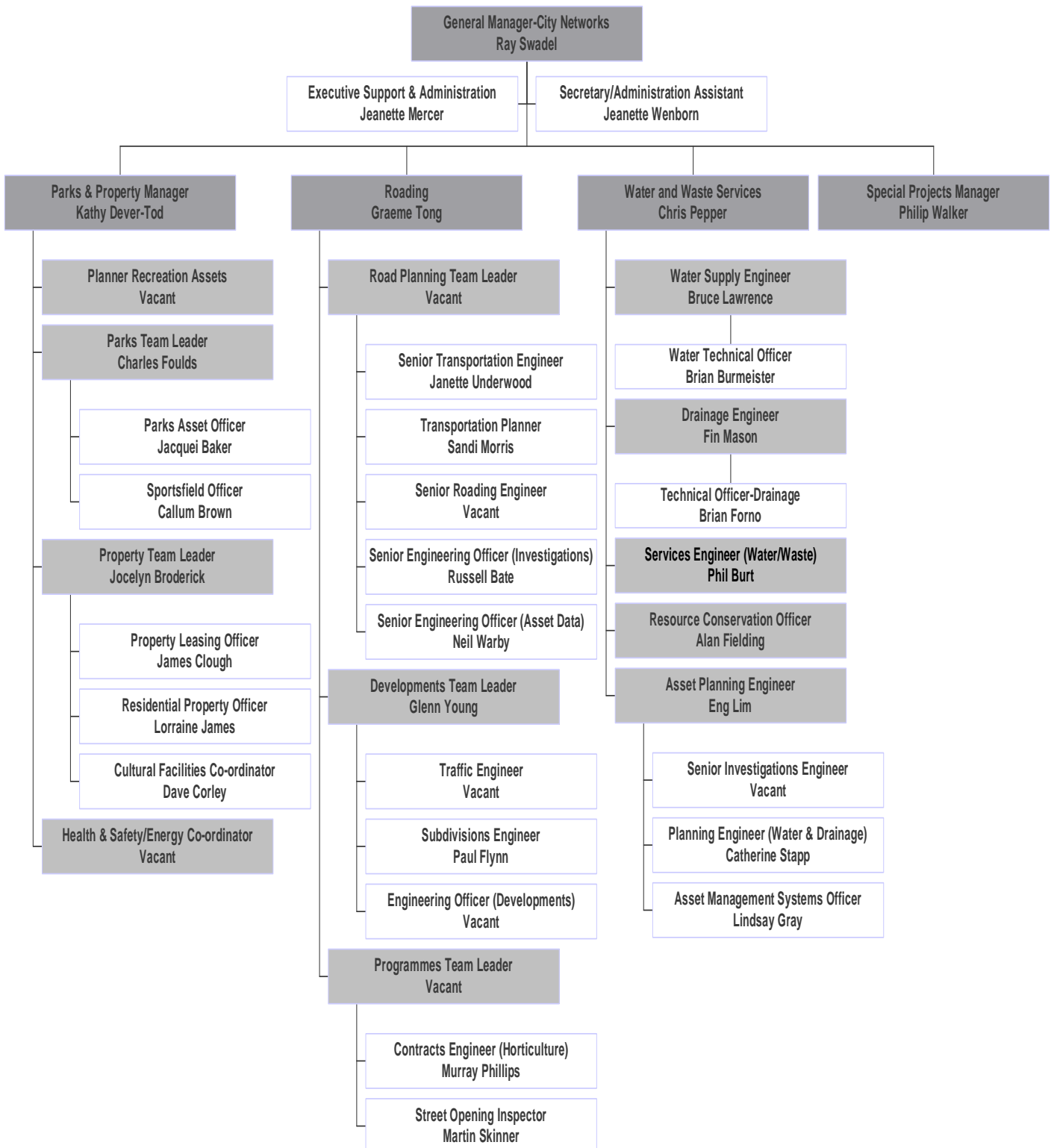


Figure 1 Palmerston North City Council Staff Structure

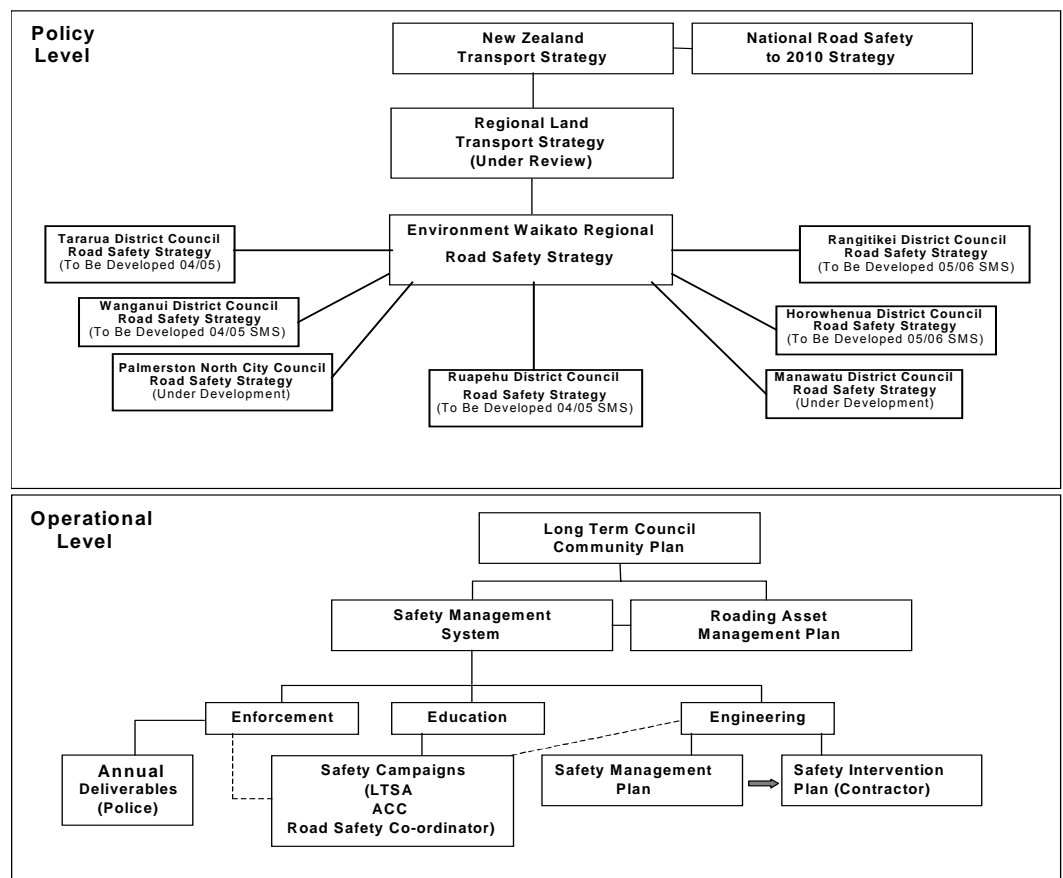
1.2 Safety Management Systems – Regional Policy Document

This Safety Management System will become a policy document, once adopted by council, which provides a systematic approach to safety on Palmerston North City's roading network.

The Palmerston North City Council Safety Management Plan will be closely linked to the Asset Management Plan. The Asset Management Plan will drive the Land Transport Community Consultation Plan.

The flowchart below identifies how the Palmerston North City Council Road Safety Strategy fits into the regional and national strategies and targets. The Council Road Safety Strategies will feed into the Regional Road Safety Strategy to ensure consistency.

Figure 2 National SMS Strategy Structure



1.3 Safety Management Systems – LTSA Model

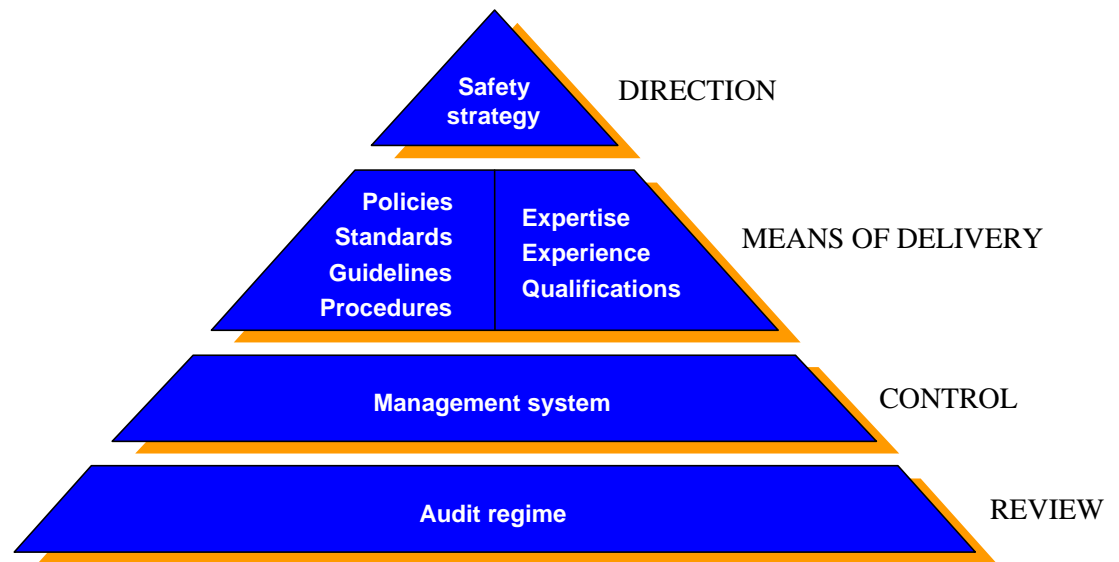
The Safety Management System was developed in conjunction with the LTSA, following LTSA Trial Guidelines for developing a Safety Management System for Road Controlling Authorities in response to the 2010 Road Safety Targets.

Palmerston North City Council has adapted the LTSA configuration and recognises the evolving nature of road safety initiatives, Safety Management Systems and Safety Intervention mechanisms. Palmerston North City Council's model provides a framework for the management of road activities that have an impact on road safety and ensures council staff and external contractors practice a consistent approach.

The five-element structure shown in figure 2 describes the layered management system that the SMS is based upon.



Figure 3 SMS Structure Pyramid



1.4 Stakeholders

The SMS intention is to build on the existing relationships to foster a collective and collaborative approach to road safety on the Palmerston North City Council roading network.

To be effective the Safety Management System requires inputs from a variety of stakeholders. Primary groups who will be principally involved with delivery of the road safety goals are Palmerston North City Council staff, elected members, Land Transport Safety Authority, Road Safe Central, Police, local community groups, consultants and network contractors. Secondary groups will include Transfund, Road Transport Association, Regional Councils, and the Automobile Association. A list of stakeholders is shown on Table 1.

The aim of these groups is to comment on and develop the SMS to ensure a consistent and appropriate method for achieving a safe road network.

Palmerston North City Council staff will undertake a management role to direct external groups in safety management of the road network and establish a safety culture necessary for effective delivery of the SMS. Within council the Roothing Manager will act as champion for the SMS will ensure that the SMS is a living and constructive document.

Table 1 Stakeholder Groups

Category	Group	Contact
Internal	Palmerston North City Council	
	CEO	
	Mayor and Councillors	
	Ward Committees (6)	
	City Networks	
	City Enterprises	
	Contractors	
	City Future	
	City Contact	
City Corporate		
Government Agency	Ambulance Service	
	Fire Service	
	LTSA*	
	ACC*	
	Mid Central Health	
	NZ Automobile Assn*	
	NZ Police*	
	Transfund	
	Transit*	
	Neighbouring Local Authorities (within Region)	
	Horizons Regional Council	Regional Road Safety Coordinator
Heavy Transport Operators	Central Area Road Transport Association (CARTA)	
Interest Groups	Federated Farmers	
	Plunket	
	DPA Disabilities Assn.	
	Schools	

Category	Group	Contact
	Cycle clubs/cycle action groups	
	Massey University	
	UCOL	
	Linton Army Camp	
Public Transport Services	Buses –	
	Madges	
	Transit	
	Intercity	
	Newmans	
	Taxis	
	Tranzrail (Freight and Passenger)	
Rental Car Firms		
School Bus Operators	Madges	
	Transit	
Service Groups	Lions	
	Rotary	
	Probus	
	Grey Power	
Tourist Operators		
Utility Services	Gas (Powerco – Siemens for contract maintenance)	
	Power (Powerco)	
	Sewage	PNCC
	Stormwater	PNCC
	Water	PNCC
	Telephone	

* Representative present at Road Safe Central quarterly meetings

1.5 Benefits

A consistent approach to safety management of the road network as offered in this SMS will in turn provide benefits such as:



- ▶ Ensuring safety is considered in all decisions concerning construction, maintenance, and management, of the road network. This facilitates achievement of goals and targets identified in the Palmerston North City Road Safety Strategy and the 2010 Road Safety Targets.
- ▶ Implementation of road management procedures will be consistent and efficient
- ▶ Risk management is documented providing protection from litigation
- ▶ Road safety knowledge and expertise needs are documented and can be made available
- ▶ The documentation provides clear guidance for all staff and can be used for training new employees
- ▶ Development, review and auditing of the road network are undertaken in a systematic way
- ▶ Better safety for all road users

1.6 The Safety Management System Manual

This manual documents Palmerston North City Council's Safety Management System and describes how road safety issues are considered in the operation and management of the Palmerston North City roading network.

Audit procedures for the continual improvement and development of this system are discussed in Section 8 of this manual.

Road Safety Strategy

The Road Safety Strategy is a key strategic document and sets the direction for road safety in respect of the management and operation of Palmerston North City's road network. It sets out Palmerston North City Council's longer term safety objectives, acknowledges regional and national road safety plans, reinforces the relationship between education, engineering and enforcement, and acknowledges that desired safety outcomes must be balanced with funding ability.

This Road Safety Strategy has been developed and forms part of the City's Safety Management System. Consultation with internal stakeholders and external Government agencies has been completed.

Recommended Actions

- 1. Consultation with external stakeholders regarding Road Safety Strategy is to be considered.**
- 2. Road Safety Strategy to be finalised and presented to Council for adoption.**

1.7 Vision

“To consistently achieve a level of safety, equal to or better than equivalent peer group districts within New Zealand”

Palmerston North City Council's vision should be aligned with that of Horizons Regional Council. It is understood that Horizons have commenced development of a Land Transport Strategy. It is likely that a Regional Road Safety Strategy will be developed following completion of that process.

1.8 Key Stakeholders and Partners

The key stakeholders and partners in the community who will contribute to achieving the vision are listed in table 1 of the previous section and include government agencies road industry associations and community groups.

Each one of these groups will have their own objectives in relation to road safety with the overall target of helping to meet the government's "Road Safety to 2010" objective of reducing annual road casualties to no more than 300 deaths and 4,500 hospitalisations by 2010.



1.9 Safety Outcomes

The Road Safety Strategy (RSS) sets out key safety areas that Palmerston North can target to reduce the number of fatalities and severity of crashes on its road network.

Primarily, the key safety areas are identified by reviewing the LTSA's Annual Road Safety Reports and any relevant road safety strategies being developed and implemented regionally. It is also expected that there will be influences on these safety areas from feedback during the consultation being undertaken as Palmerston North progresses with its Long Term Council Community Plan (LTCCP). The LTCCP contains the following target for road safety performance:

Road Safety:

- To hold the number of reported injury crashes at or below the five-year average for Palmerston North:

Fatal Crashes. 4.8 per annum

Serious Injury Crashes. 25 per annum

Minor Injury Crashes. 99 per annum

- To hold the number of reported cyclist casualties at or below the five-year average for Palmerston North:

Cyclist Casualties. 21 per annum

It is essential that all the stakeholders establish a safety culture in order for the safety outcomes to be achieved.

Examples of measures that will continue to contribute to the safety outcomes are:

- Consistent and unified approach to road safety by all stakeholders
- Implementation of the Safety Management System and its Safety Management Plan and Safety Intervention Plan components.
- Implementation of safety campaigns and enforcement strategies that complement the engineering functions of Council.
- Planned focused spending of available funds on projects that have been identified on the deficiency database and subsequently prioritised for funding.

As safety improvement projects are carried out in conjunction with education and enforcement, it is likely that some of the key safety areas may change and it will be important to monitor and review this aspect through the regular review and audit procedure for the SMS.

1.10 Key Safety Areas

Palmerston North falls into the LTSA Peer Group B of local authorities for safety comparison.

The 1999 – 2003 Annual Road Safety Report shows that Palmerston North City is already one of the safer districts in New Zealand.

For urban local roads Palmerston North has less crashes per 100 million vehicles kilometres travelled than any other District within its peer group. This is well below the average for group B and below the all New Zealand average. For rural local roads Palmerston North has the second highest crash rates within its peer group, and this accounts for \$5.0 million social cost, about 12.9% of total road trauma. Crash rates per 100 million kilometres travelled on State Highways are close to the New Zealand and peer group averages.

In spite of this good safety record in comparison with similar districts, the social cost of crashes in the Palmerston North City in 2003 was \$38.7 million.

1.10.1 Intersections

Intersection crashes constitute the bulk of all crashes occurring within Palmerston North City. Each year, 60% of all urban crashes occur at intersections, well above the national average. Analysis of crash data reveals that there is a reported injury crash at a City intersection every fifth day. There are 6 intersection crashes for every urban alcohol crash, and 5 intersection crashes for each urban speed crash. Strategies to address this problem are essential to achieving improved road safety outcomes.

Urban: In the urban areas of Palmerston North, crossing turning crashes are over represented and as a percentage of urban crashes are higher than the peer group and all NZ. This factor also showed an increase in 2002 and 2003.

Rural: In the rural areas crossing turning crashes represent over 20% of rural crashes and are significantly higher than and the rate for all NZ

Goal:

To reduce the number of intersection crashes on urban roads to no more than 55% of all urban crashes.

Strategies:

- Develop programme for installation of controls at all uncontrolled intersections, with priority given to through roads accessing collector, principal or arterial roads.



- Intersections identified with a specific crash history, to be included in Crash Reduction studies
- Council will work with other road safety agencies to educate road users on safety issues and road rules at intersections.
- Targeted enforcement where failure to give way/stop identified as an issue. Enforcement should also be targeted at drivers running orange and/or red traffic signals
- Signalised intersections will be monitored to assess changes in the level of safety or efficiency.
- Priority will be given to improving intersections with a poor safety record.
- Sight lines to and from vehicles stopped at the intersection control lines shall be maintained at all times to ensure drivers views to or from approaching traffic is not impeded in any way. This may include restrictions on parking close to intersections and removal of vegetation or other obstacles impeding a drivers line of sight

1.10.2 Loss of control

Loss of control and head on crashes occur at about national average rates. These crashes, however, contribute to high severity injuries and offer significant potential for reducing the number of fatal and serious crashes.

Goal:

To reduce loss of control and head on crashes to a level that is consistently below peer group average.

Strategies:

- Crash blackspots are identified and treated
- Council maintenance programmes will ensure road signage and delineation is maintained at required performance levels
- Council staff will liaise with staff from other safety agencies to ensure regular communication concerning identified problem areas

1.10.3 Pedestrians and cyclists

Pedestrians and cyclists are vulnerable road users. There is a need to maintain a safety focus for these road users. Although they are not over represented in the statistics, there has been an upward trend in recent years for crashes involving both pedestrians and cyclists.



Goal:

To reduce pedestrian and cyclist crashes to a level that is consistently below peer group average.

Strategies:

- Continued development of the Principal Cycle Network including road markings to clearly identify cycle lanes
- Dedicated cycle facilities will be upgraded to the most recent standards. This will include off road facilities and smooth widened road shoulders where appropriate to accommodate cycling traffic
- Council staff will continue to liaise with cycle advocacy groups as part of Council's community consultation activities
- Opportunities for promotion of cycling events will be actively supported
- All traffic signal installations will adequately cater for cyclists and pedestrian's needs
- The needs of less able pedestrians will be considered as part of all roading projects
- Council will provide adequate opportunities for discussion of pedestrian's safety needs

1.10.4 Alcohol

Alcohol crashes occur at levels similar to the peer group average in both urban and rural areas. While the numbers of reported crashes has been trending down, this activity remains important for the overall safety goals of the City. Maintaining current levels of safety is a high priority.

Goal:

To maintain alcohol crashes at a level that is consistently below peer group average

Strategies:

- Enforcement of alcohol laws, including the Liquor Control By-Law, will be maintained at current levels
- Council will support opportunities to promote desirable behaviour among drinkers, including moderation, use of designated drivers or alternate means of transport, and appropriate host responsibility practices
- Council will ensure that any Council activities involving alcohol observe appropriate host responsibility practices



1.10.5 Speed

Driving at a speed regarded as too fast for the conditions (as opposed to driving above the speed limit) remains a significant safety issue within the City. Such driving contributes to nearly 25% of rural crashes and over 10% of urban crashes. Speed remains one of the perceived concerns most frequently reported to Council staff.

Goal:

To maintain speed related crashes at a level that is consistently less than peer group average

Strategies:

- Council will ensure there is regular communication with road safety partners about speed related problems.
- Enforcement of speed limits will be maintained at similar levels to those currently provided
- Council will undertake regular monitoring and collection of speed data and this will be provided routinely to our road safety partners
- Council's programme for traffic calming will be continued at least at current levels
- Council will adopt appropriate traffic engineering solutions to ensure a driver's perception of the speed environment is consistent with the speed limit on any section of road within the city boundary. Appropriate speed limits will be set in accordance with national speed limit setting rules
- Council will monitor the performance of speed environment and traffic calming measures to assist development of a consistent best practice approach

Means of Delivery

The objectives of the Road Safety Strategy will be delivered by means of consistent policies, standards, procedures, and guidelines and by personnel appropriately qualified and experienced.

To ensure that consistent policies, standards, procedures and guidelines are used for design and operational purposes, templates appropriate for PNCC have been created for each road activity with a safety component. These templates are defined in Section 5 and included in appendix C.

Required standards of qualified and experienced personnel for each of the road activities are outlined and defined in Section 6 and a matrix included in appendix F.



Standards Guidelines and Procedures

1.11 Design and Operational Templates

Templates for various roading activities are attached in appendix C.

The templates provide design and operational direction including maintenance within the road reserve and document relevant legislation, standards, policies, procedures and guidelines. Staff, consultants and contractors use the templates to ensure the appropriate standards and procedures are applied to achieve the safety targets for specific roading activities. Judgement must be used in application of the standards and guidelines and any departures from them must be reported in writing (with appropriate justification) to the Road Asset Manager. This will then provide documented evidence of departures from the SMS, which will:

- Identify required changes specific to PNCC
- Provide a record of those items to be reviewed as part of the review and audit process

The road activities are divided into three components, Policy and Planning, Maintenance, and District Asset.

A full list of standards, guidelines and procedures is included in appendix E.

Recommended Actions

- 3. Template suitability and safety appropriateness to be monitored and any required templates added, or those requiring it, changed.**
- 4. Legislation, policy, procedure, standard and guideline versions and copy status to be kept up to date (Part of Audit Procedure – Refer Section 8)**
- 5. Audit and contract requirements to be kept up to date (Part of Audit Procedure – Refer Section 8)**

1.12 Road Safety System Components

Palmerston North City road safety system can be categorized under three components. Those with a primary road safety focus such as:

- ▶ Crash Reduction Studies
- ▶ Safety Audits
- ▶ Temporary Traffic Management



- ▶ Minor Safety Programme
- ▶ Hazard Register
- ▶ Deficiency Analysis

Secondary, such as

- ▶ Network Inspections
- ▶ 10 Year Forward Works Programme

The third component are the relationships between external road safety partners to ensure a consistent and united approach nationally and locally. Road safety partners include:

- ▶ Land Transport Safety Authority
- ▶ New Zealand Police
- ▶ Transfund New Zealand
- ▶ Accident Compensation Corporation
- ▶ Road Safety Co-ordinating Committees
- ▶ Transit

1.13 Safety Management Plan

A Safety Management Plan documents the methodology for the collection, analysis and management of safety deficiencies within the City's roading network.

Palmerston North City Council do not use a Network Management Consultant, all of the work is done in house by the business unit.

Recommended Action

6. **To document development and implementation of a Safety Management Plan.**

1.14 Safety Intervention Plan

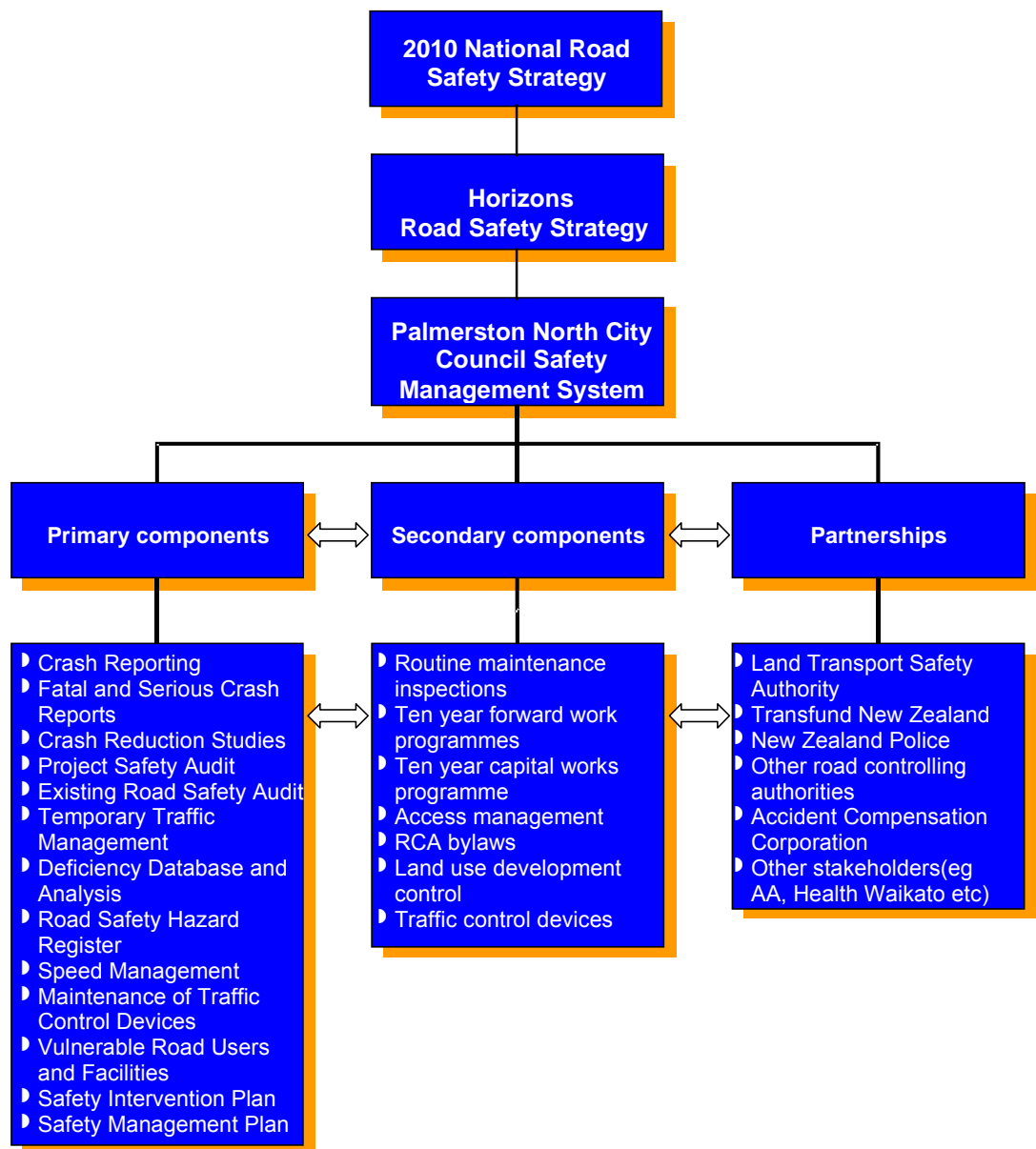
The purpose of the Safety Intervention Plan is to provide guidance to maintenance contractors, through partnering, to achieve the following:

- ▶ Guide to all physical works contractors involved in maintenance in Palmerston North City for programming of safety related maintenance works
- ▶ Basis for contractors to develop internal systems that will help to achieve their safety related contract responsibilities
- ▶ Minimise the number of safety deficiencies on the network

Recommended Action

7. **To document development and implementation of a Safety Intervention Plan.**





Roles and Responsibilities

1.15 Safety Management Team

All roading and asset management staff are to abide by and encourage ownership of the SMS. This includes the PNCC in house business unit, which carries out a network management role.

1.16 Safety Managers/Champions

The Road Asset Manager is responsible for encouraging a safety culture and ensuring that team members use the SMS appropriately and as such will “champion” the system.

To ensure buy in from other groups within Council, and external contractors it is important to identify champions within other teams at Council and within the external contract teams. It will be the responsibility of the Road Asset Manger to identify these people and organise and deliver workshops and presentations to maintain the momentum of the SMS and ensure understanding and adoption by the other parties.

Recommended Action

- 8. To identify champions within other groups within Council and external contractors and deliver workshops and presentation to “sell” the benefits and get “buy in”. Presentations to include Council Politicians.**

1.17 Safety Culture, Training and Development

A safety culture is to be encouraged by all council staff at all times.

Ongoing training and development is seen as playing an integral role to meet Road Safety Strategy targets. All road safety staff should be suitably trained and skilled to deal with issues that are likely to arise on the road network. Training requirements of the SMS should be reviewed annually and required training carried out or the additional trained staff as required should be obtained. Training such as:

- ▶ Temporary Traffic Management Courses (minimum requirement of L1 STMS)
- ▶ TNZ Safety Engineering workshop
- ▶ LTSA AIS System and CAS web based crash analysis system
- ▶ Other appropriate safety training or conferences identified

1.18 Safety Roles and Competence

The respective principal roles are defined as:



Palmerston North City Council – Manage the safety process, including identification of safety related deficiencies and monitoring of solutions and audit and control the management process.

Network Contractors – Maintain and improve the network. Minimise safety deficiencies via proactive intervention.

It is the responsibility of the Road Asset Manager and the individual staff involved to ensure that staff training and competency records are kept up to date. Staff training and competency records are to be contained within appendix F. The competency matrix included in appendix F indicates required levels of competency, training and experience.



Management Systems

Day to day implementation of the Safety Management System relies on management systems and procedures necessary to achieve the Safety Management objectives.

1.19 Procedures

Council procedures outline the standard council method for carrying out the roading activity to achieve a safer road network. These are specific for the roading activity and provide direction for the implementation and operation of the activity.

Where Council Procedures for activities are noted as “To be Developed” specific advice should be sought from the Road Asset Manager.

Council procedures are included in appendix D

Recommended Action

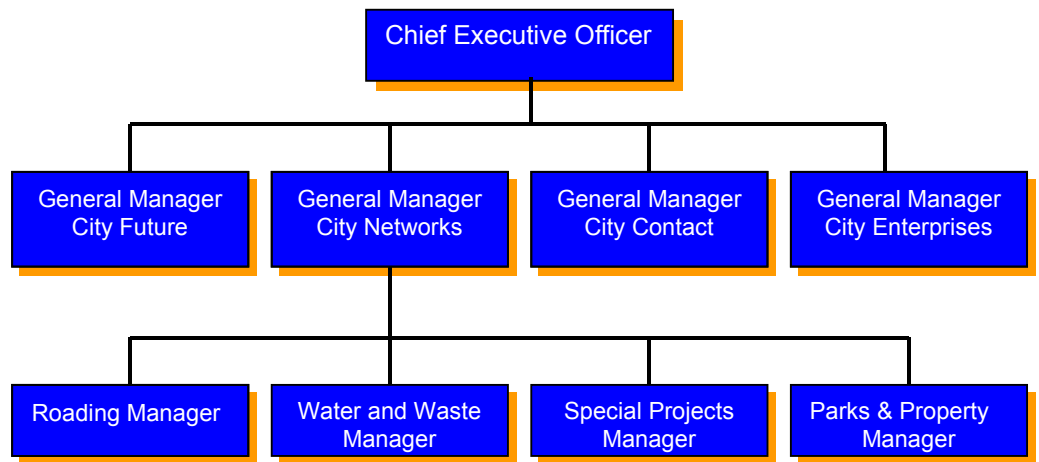
9. Develop procedures for “To be developed” activities. Refer to Recommended Actions for full list of procedures to be developed.

1.20 Management Responsibilities for the Safety Management System and Road Safety Strategy

The Road Asset Manager is responsible for all five components of the SMS; Road Safety Strategy, the means of delivery – standards, guidelines and policies and roles and responsibilities, management systems, and the auditing systems. This includes the overall implementation and development of the SMS as well as the auditing process of the SMS.

All Palmerston North City Council staff are responsible for then applying the SMS procedures to their activities.

A close working relationship is required with the network contractors to maximise the benefits of the SMS. The systems used by the network contractor and Palmerston North City Council must be consistent to facilitate effective work programming and implementation. In particular regular input into Palmerston North City Council’s Minor Safety Programme and 10 Year Forward Works Programme.



1.21 Continuous Improvement Opportunities

Continuous development of the Safety Management System is essential to provide up to date “best practice” solutions to road safety problems. Continual development is dependent on the identification, implementation and monitoring of improvement opportunities.

Although the Roding Asset Manager is primarily responsible, all staff members and contractors need to have a sense of ownership and are expected to make suggestions for improvements as they arise.

Any non-compliance with the procedures and standards contained within the SMS are to be recorded as part of the monitoring of staff compliance with the SMS. The ongoing development process forms provide a place for improvement suggestion or comments to be recorded, and define how these suggestions are dealt with within Council. appendix G includes monitoring of staff compliance with SMS, and ongoing system development process forms.

Audit Systems

1.22 Audit Purpose

The SMS will be audited by the Roading Asset Manager to ensure that the SMS remains a developing and functional document. Areas to be audited include progress to targets, suitability of targets, funding needs, safety trends monitoring, monitoring of amendments, relevance of standards, policies and guidelines, adequate application of guidelines and procedures and adoption of improvement recommendations.

1.23 Audit Requirements

Review Palmerston North Recommended Actions

- ▶ Progress towards achieving actions
- ▶ Adequacy of funding
- ▶ Review of adequacy of actions
- ▶ Revising and adding to actions

Review of Road Safety Strategy (once developed)

- ▶ Progress towards achieving goals
- ▶ Adequacy of funding
- ▶ Service level and guideline appropriateness vs safety record
- ▶ Consistency with national 2010 Road Safety targets
- ▶ Consistence with regional road safety strategy (once developed)

Review of Safety Management Manual

- ▶ Progress towards achieving strategic goals
- ▶ Appropriateness of procedures and templates for achieving strategic goals
- ▶ Adequacy of funding
- ▶ Review design and operational templates for consistence relevance
- ▶ Review council procedures for consistence relevance
- ▶ Specific safety audit requirements for each activity included in templates
- ▶ Review competency matrix and competency register
- ▶ Review staff competence and training development

- ▶ Review SMS for consistency in systems, fitness for purpose, sufficiency of resources and opportunities for improvement system

1.24 Auditors

Auditors may be internally or externally appointed and must be suitably experienced in road safety engineering and independent auditing of compliance with safety or quality management systems.

1.25 Audit Report

Auditors will report on:

- ▶ Review of previous audits, including progress towards existing recommended action plan.
- ▶ Areas of non-compliance with the safety management system.
- ▶ A summary of recommended actions required to address areas with high non-compliance.
- ▶ Recommendations for the development of new or updated standards, guidelines, procedures, specifications, and strategies.
- ▶ Progress towards stated road safety strategy targets with comment on how well the SMS addresses each safety issue, noting areas for improvement.

Audits reports are to be kept within the SMS in appendix H.

1.26 External Audits

The LTSA propose to arrange for external auditing of the SMS every three years. This will involve an external auditor from a different local authority. Part of this external auditing system may require personnel from Palmerston North City Council to travel to other local authorities in order to audit their SMS.

Recommended Action

10.To document development and implementation of an Audit Checklist

Appendix A
Definitions



Definitions and Abbreviations

After Hours	The period outside the stated normal working hours.
Black Spots	<p>Black spots are identified as the top 10 sites or routes with the highest crash rate (per site or per kilometre) of non-injury and injury crashes.</p> <p>Sites with more than 2 crashes per year.</p> <p>In urban areas, ≥ 5 reported injury crashes within a 70m x 70m area during a 5-year period.</p> <p>In rural areas, ≥ 3 (but preferably ≥ 5) reported injury crashes within a 510m x 510m area during a 5-year period.</p> <p>A Crash Reduction Study may be carried out for sites with more than one crash in the last five years.</p>
Council	Palmerston North City Council.
Deficiency	Any issue or problem related to the road reserve that is identified to the Rooding Manager by Council staff, consultants, contractors, or the public.
Emergency Event	An event that will or has the potential to require emergency work as a remedial measure.
Emergency Services	Police, Ambulance, Fire, Civil Defence and Rescue services.
Emergency Work or Urgent Work	Works arising from storm damage, floods, snowfall, debris, slips, under slips, motor vehicle accidents, natural disasters, civil defence and rural fire emergencies, fallen trees and other similar events.
Fault	Any area/item of the network that does not comply with the maintenance standards specified in the Contract Documents.
LTCCP	Long Term Council Community Plan.
Legal Road	Any road corridor owned and maintained by Palmerston North City Council.
Level of Service	The standard that any maintenance activity must be completed to as a minimum requirement under the contract as specified in the Technical Specification (Level of Service) of the General Specification.
Network	The network includes but is not limited to all roadway berms, traffic islands, surfaces, pavement and road furniture, bridges, stormwater structures, water tables, guardrails and signs and encompassing the road land bounded by existing fences or road land boundaries within the Palmerston North area.
Private Property Land and Other Land	Land or property owned by parties other than the Palmerston North City Council.
Projects	Any roading work, or any work carried out within the road reserve aimed at improving the roading network level of service.
RCA	Road Controlling Authority.



Definitions and Abbreviations

Road	Area of sealed carriageway.
Road Furniture	All facilities, objects, signs, post and assets within the legal road.
Road Reserve	Area from road reserve boundary to road reserve boundary.
Route	A well used road(s) between two locations.
Routine Maintenance	Maintenance work undertaken by the Contractor where approval of the Engineer is not required prior to the commencement of the physical works.
RSS	Road Safety Strategy.
Site	The location within the network of any task or work activity.
Sites	With respect to Crash Reduction Studies a site is: In urban areas, a 70m x 70m area. In rural areas, a 510m x 510m area.
SMS	Safety Management System.
Stakeholder	All groups or individuals who have some 'stake' or interest in the roading network as listed in Section 2.4 of this SMS.
TLA	Territorial Local Authority.
Utility Operators or Utility Service Providers	All those service providers providing utility services within Palmerston North City, including gas, telephone, telecommunication, electricity, water, stormwater, wastewater, including Palmerston North City Council.



Appendix C
Design/Operational Templates



Design and Operational Templates

Reference	Template Description
Policy and Planning	
1	Crash Reduction Studies
2	Project Safety Audit
3	Existing Road Safety Audit
4	Network Inspections
5	Application, approval and Installation of Temporary Traffic Management
6	Temporary Traffic Management Audits
7	Deficiency Analysis
8	Road Hierarchy
9	Traffic Counting
10	RAMM Data
11	DTIMS
12	Hazard Register
13	Speed Management
14	Maintenance of Traffic Control Devices
15	Design and Installation of Traffic Control Devices
16	Land Use Planning and Regulatory Controls
17	Street Lighting
18	Landscaping and vegetation control
19	Vulnerable Road Users
20	Deep Drains, Irrigation Channels and Swale Drains
21	Cycle Facilities
22	Footpaths
23	Vehicle Crossings
24	Guardrails
25	Pedestrian Crossings and other Pedestrian Facilities



Reference	Template Description
26	Road Closures



Appendix D
Council Procedures



Appendix E

Standards, Guidelines and Policies

PNCC Policies

PNCC Procedures

PNCC Standards and Guidelines

Policies and Procedures

Standards

Guidelines



List of Standards and Guidelines

Group	Subject	Legislation	Commonly used Guidelines	Additional Standards / Guidelines	Examples of Local Policies
Planning	Land Use Planning and Controls	Resource Management Act (1992)	NZS 4404:2004 Land Development and Subdivision Engineering	Guide to Traffic Engineering Practice series, general, Austroads	District Plan
		Local Government Act (2002)	RTS 6: Guidelines for Visibility at Driveways	Draft State Highway Geometric Design Manual (2000-03)	Land Use and Regulatory Control Procedures
				Guide to Traffic Engineering Practice, Part 5: Intersections at Grade	
				Planning Policy Manual (1999), TNZ	
				RTA Guide to Traffic Generating Developments	
				RTS 3: Guidelines for Establishing Rural Selling Places	
				RTS 6: Guidelines for Visibility at Driveways	
				RTS 7: Advertising Signs & Road Safety: Design and Location Guidelines	
				TNZ Planning and Policy Manual	
	Landscape	Local Government Act (2002)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	RSS 15 - Roadside Hazard Management, LTSA	Asset Management Plan
			Guidelines for Planting for Road Safety (1991), TNZ	TNZ Standards	Roadside Planting Procedures
			NZS 4404:2004 Land Development and Subdivision Engineering		
	Road Network Planning	Local Government Act (2002)	Guide to Traffic Engineering Practice series, general, Austroads	Transit NZ Planning for a safe and efficient highway network (1994)	Asset Management Plan
		Resource Management Act (1992)	LTSA RTS Standards general	Guide to Traffic Engineering Practice series, general, Austroads	District Plan
		Transit NZ Act (1989)	NZS 4404:2004 Land Development and Subdivision Engineering	Draft State Highway Geometric Design Manual (2000-03)	Roading Policies
			Standards and Guidelines Manual, Transfund	LTSA RTS Standards general	
			TNZ Guidelines	NZS 4404:2004 Land Development and Subdivision Engineering	
			Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads		
				TNZ Standards	
Structures	Asset Creation, Development &	Local Government Act (2002)	Accounting Regulations and Standards	Guide to Traffic Engineering Practice series, general, Austroads	Asset Management Plan Policy



Management	Resource Management Act (1992)	NZ Asset Management Asset Valuation and Depreciation Guidelines		Regional Land Transport Strategy
	Transit NZ Act (1989)	International Infrastructure management Manual, 2002, NAMS		
Bridges & Culverts	Resource Management Act (1992)	Bridge Inspection and Maintenance Manual (SP/M/016), TNZ	Waterways Design: A guide to the Hydraulic Design of Bridges (AP-23/94), Austroads	Asset Management Plan – Bridges and Culverts
	NZ Building Code (1992)	Bridge Manual (SP/M/022) 2nd Ed, TNZ	Draft State Highway Geometric Design Manual (2000-03)	Policy for Upgrading Handrails
	Health and Safety in Employment Act (1992)		TNZ M/01 Roading Bitumens, 1995	To have two way bridges on all sealed roads
			TNZ M/23 Road Safety Barrier Systems	
Carriageway Pavements	Local Government Act (2002)		Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Asset Management Plan - Roading Policies
	Resource Management Act (1992)		NRB TR8 – Manual for maintenance of unsealed roads	District Plan
	Transport Act (1962 & 1997)		Road Condition Rating and Roughness Manual (PFM 6); Transfund, 1997	
	Traffic Regulations (1976)		TNZ C/03 Repair Potholes	
			TNZ C/04 Digout Repairs in Flexible Pavements	
			TNZ C/05 Repair of Surface Openings and Minor Surface Levelling	
			TNZ C/06 Repair of Surface Defects	
			TNZ C/07 Repair of Edge Break	
			TNZ C/08 Adjusting Service Covers	
			TNZ C/09 Emergency Work	
			TNZ C/10 Maintenance of Unsealed Shoulders	
			TNZ C/11 Unsealed pavements : Repair of Potholes	
			TNZ C/12 Unsealed Pavements : Surface and Shape Restoration	
			TNZ C/13 Unsealed Pavements : Digout Repairs	
			TNZ C/14 Unsealed Pavements : Supply and Place Maintenance Aggregate	
		TNZ C/15 Removal of Surface Detritus		
		TNZ P4, P7, T11		
		TNZ Specifications and guidelines for maintenance of road networks		
Drains, Catchpits and Sumps	Resource Management Act (1992)	Draft State Highway Geometric Design Manual (2000-03)	Guide to the Design of Road Surface Drainage, NAASRA	Asset Management Plan



	Local Government Act (2002)	NZS 4404:2004 Land Development and Subdivision Engineering	Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	Ensure all sump grates are cyclist friendly and have grating at right angles to kerb line with no dropoffs
	Transport Act (1962 & 1997)		TNZ C/15 Removal of Surface Detritus	Roadside Drains should preferably be behind the fence or sufficiently far from the road that vehicles can stop before entering the drain
	Transit NZ Act (1989)		TNZ C/16 Maintenance of Stormwater Structures	
	Traffic Regulations (1976)		TNZ C/21 Vegetation Control	
Kerb and Channel (inc vehicle crossings)	Resource Management Act (1992)	NZS 4404:2004 Land Development and Subdivision Engineering	Guide to Traffic Engineering Practice, Part 10: Local Area Traffic Management	Asset Management Plan
			Guide to Traffic Engineering Practice, Part 13: Pedestrians	Footpath Policy
			Guide to Traffic Engineering Practice, Part 5: Intersections at Grade	Footpath Strategy and Standards (Incl drainage)
			Guide to Traffic Engineering Practice, Part 9: Arterial Road Traffic Management	
			NZS 3661 - Slip resistance of pedestrian surfaces	
Over-Weight/ Over-Dimension Loads	Heavy Motor Vehicle Regulations (1974)	Bridge Inspection and Maintenance Manual (SP/M/016), TNZ	Load Pilot Driver Code, 2004, LTSA	Encourage overweight vehicles to travel on State Highway network wherever possible
		Overweight Permit Manual, TNZ	LTSA Fact Sheet 13: Maximum permitted vehicle weights and dimensions	Overweight Policy
Road construction & design (inc barriers)	Local Government Act (2002)	AS/NZS 3845:1999 Road Safety Barrier Systems	ARRB Sealed Local Road Manual, 1995	District Plan
	Resource Management Act (1992)	Draft State Highway Geometric Design Manual (2000-03)	Bridge Inspection and Maintenance Manual (SP/M/016), TNZ	Roading Policies
		NZS 4404:2004 Land Development and Subdivision Engineering	Bridge Manual (SP/M/022) 2nd Ed, TNZ	Footpath Policy
		TNZ M/23 Road Safety Barrier Systems	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Asset Management Plan
			Guide to Traffic Engineering Practice, Part 13: Pedestrians	Guardrail Procedures
			Guide to Traffic Engineering Practice, Part 5: Intersections at Grade	
			Guide to Traffic Engineering Practice, Part 6: Roundabouts	
			Highway Surface Drainage: Design Guide for Highways with a Positive Collection System, NRB	



				Pavement Design: A Guide to the Structural Design of Road Pavements, Austroads (plus) New Zealand supplement (May 2000)		
				RTS 11: Guidelines for Urban Roadside Barriers and Alternative Treatments		
				Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads		
				Safety Barriers: Consideration for the revision of safety barriers on Rural Roads, NAASRA		
	Slips and Retaining structures	NZ Building Code (1992) Resource Management Act (1992)			Regional Policy Statement All new structures require specific design and building permit	
	Stock Crossings and Underpasses	Transit NZ Act (1989)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Bridge Manual (SP/M/022) 2nd Ed, TNZ	Landowner funds all maintenance costs, except structural repairs which are not due to his use of the underpass	
			Culvert Manufacturer's Guidelines for Design and Installation	Manual of Traffic Signs and Markings: Part 1 - Traffic Signs (Ed. 4)		
			Transfund Programme & Funding Manual: Clause 7.4.20 Stock Underpasses			
			Transit NZ Stock Underpass Procedures Manual 2001			
	Utilities / Road Reserve	Local Government Act (2002)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	LTSA and TNZ Road and Traffic Standards	Street Opening Policy	
		Resource Management Act (1992)	Manual of Traffic Signs and Markings: Parts I and II	TNZ M/23 Road Safety Barrier Systems	District Plan	
		Telecommunications Act (2001)			Consent for Works on the Road	
		Electricity Act (1992)			Roading Policies	
		Gas Act (1992)				
		Health and Safety in Employment Act (1992)				
		Transit NZ Act (1989)				
		Transport Act (1962 & 1997) Traffic Regulations (1976)				
Systems	Accident Notification System	Traffic Regulations (1976)		Accident Investigation System Manual, LTSA	Police and Local Accident Reports	
				Annual LTSA Road Safety Report	Emergency Procedures Manual	
				Code of Practice for Temporary Traffic Management (SP/M/018), TNZ		
				LTSA RTS Standards general		



				State Highway Asset Management Manual	
				TNZ Standards	
Annual Plan and Strategic Plan Process	Local Government Act (2002)			Guide to Traffic Engineering Practice series, general, Austroads	Regional Land Transport Strategy
	Transit NZ Act (1989)			LTSA RTS Standards general	Annual Plan
Crash Reduction Studies	Traffic Regulations (1976)	Accident Investigation Procedures, TNZ/MOT,1991		Accident Investigation Monitoring System - Coding Manual, LTSA	Crash Reduction Studies Procedures
				Accident Investigation System Manual, LTSA	Undertake Crash Reduction Study at least once every 4 years
				Guide to Traffic Engineering Practice, Part 4: Road Crashes	
				LTSA RTS Standards general	
				Policy Guidelines for Traffic Accident Reduction and Prevention, TNZ/MOT	
				TNZ Standards, Criteria and Guidelines Manual	
Emergency Response	Traffic Regulations (1976)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ		TNZ C/09 Emergency Work	Emergency Procedures Manual
	Transport Act (1962 & 1997)				Policies for Road Stopping, Snow Clearing
	Transit NZ Act (1989)				
Hazard Registers / Safety Databases	Local Government Act (2002)	Standards and Guidelines Manual, Transfund		Asset Management Manual, Chapter 2, Transfund	Network Maintenance Contracts
	Resource Management Act (1992)			Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Asset Management Plan
				Manual of Traffic Signs and Markings: Parts I and II	District Plan
				RTS 5: Guidelines for Rural Road Marking and Delineation	
Public services / consultation	Local Government Act (2002)			Guide to Traffic Engineering Practice series, general, Austroads	Policy Manual
	Transit NZ Act (1989)			LTSA Guidelines general	Delegation Manual
	Transport Act (1962 & 1997)			NZ Road Code	
	Traffic Regulations (1976)			NZS 4402: 1986 Methods for Testing Soils for Civil Engineering Purposes	
				Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	
				Safety Audit Policy and Procedures (1993), TNZ	
				Standards and Guidelines Manual, Transfund	
			TNZ Standards		



Road Safety Plans and Strategies	Traffic Regulations (1976)		LTSA Guidelines for developing a Safety Management System for Road Controlling Authorities	Road Safety Plan
			NZ Road Safety Plan Guidelines, 2004, LTSA	Regional Land Transport Strategy
			NZ Road Code	Road Safety Strategy
			TNZ SH Safety Management system Manual	
Safety Audits	Local Government Act (2002)	Guidelines for Auditing Existing Roads, Transfund	Guide to Traffic Engineering Practice series, general, Austroads	Asset Management Plan – Risk Section
		Safety Audit Policy and Procedures (1993), TNZ	Road Safety Audit, Austroads 1994	Existing Road Safety Audit Procedure
		Safety Audit Policy and Procedures (2004), TransfundNZ	Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	
			TNZ Maintenance Specifications	
Safety Inspections	Resource Management Act (1992)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Waterways Design: A guide to the Hydraulic Design of Bridges (AP-23/94), Austroads	Asset Management Plan
	Local Government Act (2002)		Bridge Inspection and Maintenance Manual (SP/M/016), TNZ	Roading Policies,
	Transit NZ Act (1989)		Draft State Highway Geometric Design Manual (2000-03)	Manage unofficial signs
	NZ Building Code (1992)		Guide to Traffic Engineering Practice, Part 5: Intersections at Grade	Manage lighting overspill (glare)
			Guide to Traffic Engineering Practice, Part 6: Roundabouts	
			Guidelines for Auditing Existing Roads, Transfund	
			Highway Surface Drainage: Design Guide for Highways with a Positive Collection System, NRB	
			NZS 4404:2004 Land Development and Subdivision Engineering	
			Road Safety Audit, Austroads 1994	
			Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	
			Transit New Zealand Safety Certification procedures	
			TNZ Standards, Criteria and Guidelines	
Traffic Counting Program			“A Guide on Estimating AADT and Traffic Growth, and a Traffic Count Monitoring Programme Basis”, Transit New Zealand	GK5000 Traffic Recorder/ Classifier, Fred Daggs Quick Guide to Traffic Counting & Classifying
			Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Strategic Planning Requirements



				Local Authority RAMM Operation Database Manual		
				Project Evaluation Manual, Transfund		
Traffic Management	Carriageway Surface & Friction	Local Government Act (2002)		Guide to the selection of road surfacings, 2000, Austroads	Asset Management Plan	
		Resource Management Act (1992)		Bituminous Sealing Manual, Transit New Zealand, 1993	Road snow clearing policy	
		Transport Act (1962 & 1997)		Code of Practice for Temporary Traffic Management (SP/M/018), TNZ		
		Traffic Regulations (1976)		Local Authority RAMM Operation Database Manual		
				Road Condition Rating and Roughness Manual (PFM 6); Transfund, 1997		
				RRU Bulletin 79 - Guidelines for Selection, Design and Construction of Thin Flexible Bituminous Surfacings in NZ		
				RSS 10 - Skid Resistance, LTSA , 1998		
				SCRIM Deficiency Report, User Guidelines, TNZ 1998		
				TNZ C/10 Maintenance of Unsealed Shoulders		
				TNZ C/15 Removal of Surface Detritus		
				TNZ C/22 Frost & Ice Gritting and Snow Clearance		
			TNZ Standards and Specifications for Testing and Evaluation			
			TNZ T3: Measurement of Texture by Sand Circle Method			
		Delineation	Traffic Regulations (1976)	Manual of Traffic Signs and Markings: Parts I and II	Bridge Manual (SP/M/022) 2nd Ed, TNZ	District Plan
			Local Government Act (2002)	RTS 5: Guidelines for Rural Road Marking and Delineation	RSMA Compliance Standard for Traffic Signs (2003)	Rural Delineation Policy?
			Transport Act (1962 & 1997)		TNZ C/18 Maintenance of Edge Marker Posts	Asset Management Plan,
					TNZ C/20 Erection and Maintenance of Traffic Signs, Chevrons, Markers & Sight Rails	
					TNZ M/12 Raised Pavement Markers	
					TNZ M/14 Edge Marker Posts	
	Detritus Sweeping and Vegetation control	Local Government Act (2002)	Manual of Traffic Signs and Markings: Part 1 - Traffic Signs (Ed. 4)	Guidelines for Planting for Road Safety (1991), TNZ	Regional Policy Statement	
				NZS 4404:2004 Land Development and Subdivision Engineering	Weed Pest Strategy	



				NZS 8409: 1995 Agrichemical Uses Code of Practice	District Plan
Intersection Control (Incl Traffic Signals)	Local Government Act (2002)	AS/NZS 2144:2002 Traffic signal lanterns		Draft State Highway Geometric Design Manual (2000-03)	Code of Practice for Development
	Resource Management Act (1992)	Guide to Traffic Engineering Practice, Part 7: Traffic Signals		Guide to Traffic Engineering Practice, Part 5: Intersections at Grade	Asset Management Plans
	Transport Act (1962 & 1997)	Road Design Guidelines RD-1 Intersections at Grade RD-2 Roundabouts		Guide to Traffic Engineering Practice, Part 6: Roundabouts	Policy not to use the Rural Right Turn Lane Type B in Austroads
	Traffic Regulations (1976)			Manual of Traffic Signs and Markings: Parts I and II	
	Traffic control devices rule			New Zealand On-road Tracking Curves, LTSA	
				RTS 1: Guidelines for the Implementation of Traffic Control at Crossroads	
				RTS 9: Guidelines for the Signing and Laying out of Slip Lanes	
				Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	
				State Highway Control Manual (SM012), TNZ	
				AS2353 - 1999 Pedestrian push button assemblies	
				Guide to Traffic Engineering Practice, Part 8: Traffic Control Devices	
				Guide to Traffic Engineering Practice, Part 9: Arterial Road Traffic Management	
				NZS 5431:1973 Specification for Traffic Signals, Section 18: Warrants for traffic signals	
			RTS 14: Guidelines for Installing Pedestrian Facilities for People with Visual Impairment		
Parking (Inc Bus Stops)	Traffic Regulations (1976)	Guide to Traffic Engineering Practice, Part 11: Parking		Draft State Highway Geometric Design Manual (2000-03)	District Plan
	Local Government Act (2002)			Highway Surface Drainage: Design Guide for Highways with a Positive Collection System, NRB	Asset Management Plan
				Manual of Traffic Signs and Markings: Parts I and II	District Plan, Appendix F sets out required manoeuvring and parking dimensions
				Rural Road Design: A Guide to the Geometric Design of Rural Roads, Austroads	
				TNZ M/23 Road Safety Barrier Systems	
Road Closures	Local Government Act (2002)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ			Temporary Traffic Management



		Transport Act (1962 & 1997)	Manual of Traffic Signs and Markings: Part 1 - Traffic Signs (Ed. 4)		Road Stopping Policy
		Resource Management Act (1992)			Asset Management Plan
		Traffic Regulations (1976)			District Plan
		Transport (Vehicular Traffic – Road Closures) Regulations (1965)			
Road Lighting		Transport Act (1962 & 1997)	AS/NZS 1158 Road lighting series	Guide to Traffic Engineering Part 12 : Roadway Lighting	Roadway Street Lighting Policy
		Local Government Act (2002)	NZS 6701: Code of Practice for Road Lighting	NZS 4404:2004 Land Development and Subdivision Engineering	Asset Management Plan
		Traffic Regulations (1976)			Street Lighting Procedures – prioritise upgrades and improvements/requests from public to fit criteria
Road Signage		Traffic Regulations (1976)	Manual of Traffic Signs and Markings: Part 1 - Traffic Signs (Ed. 4)	Draft State Highway Geometric Design Manual (2000-03)	District Plan
		Local Government Act (2002)	RSMA Compliance Standard for Traffic Signs (2003)	Guide to Traffic Engineering Practice, Part 1: Traffic Flow	Asset Management Plan
		Transit NZ Act (1989)	RTS 5: Guidelines for Rural Road Marking and Delineation	Quality Standard TQS1: 1995 for High QA Level Contracts, TNZ	signage policy
		Transport Act (1962 & 1997)		RTS 2: Guidelines for Street Name Signs	Consolidated Bylaw
		Traffic Control Devices Rule		RTS 7: Advertising Signs & Road Safety: Design and Location Guidelines	Parking restriction selection types policy
		Resource Management Act (1992)		TNZ C/20 Erection and Maintenance of Traffic Signs, Chevrons, Markers & Sight Rails	
Roadmarking				TNZ Standards for Design, Construction & Materials	
		Traffic Regulations (1976)	Manual of Traffic Signs and Markings: Part 2 – Markings (Ed. 3 Interim Update)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Asset Management Plans
		Traffic control devices rule	RTS 5: Guidelines for Rural Road Marking and Delineation	Guide to Traffic Engineering Practice, Part 14: Bicycles	Flush Medians policy
			LTSA and TNZ Road and Traffic Standards	TNZ P/12 Pavement Marking	Keep Clear marking policy
				TNZ P/14 Installation of Raised Pavement Markers	Broken Yellow Lines for intervisibility at driveways policy
				TNZ specifications - E/3 1995; E/4 1994; M/7 1993; M12 1986; M/20 1994; Q/3 1995; T/8 1996; TQS/2 1995	Remark existing markings in March/May and October/November each year



	Speed Limits	Transport Act (1962 & 1997)	Land Transport Rule: Setting of Speed Limits (2003)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	Asset Management Plan
		Traffic Regulations (1976)	Speed Limits New Zealand (2003), LTSA	Manual of Traffic Signs and Markings: Parts I and II	
		Land Transport Rule: Setting of Speed Limits (2003)			
	Temporary Traffic Management	Health and Safety in Employment Act (1992)	Code of Practice for Temporary Traffic Management (SP/M/018), TNZ	AS/NZS 1906 Series (1993-97): Reflective materials	Roading Policies
		Traffic Regulations (1976)	OSH documents	Manual of Traffic Signs and Markings: Parts I and II	Street Opening Policy
		Local Government Act (2002)	Contractors health and safety procedures	Safe Handling of Bituminous Materials, BCA	Asset Management Plan
		Transport Act (1962 & 1997)		TNZ handbook "Working on the Road"	Special Events Guidelines for Road Usage
		Land Transport Rule: Setting of Speed Limits (2003)		Transfund Interim Procedures for Safety Audit of Traffic Control at Roadwork Sites: Feb. 1999	Health & Safety Policy
		Transit NZ Act (1989)			Road Closures Procedures
	Vulnerable Users	Cycle Facilities	Traffic Regulations (1976)	Guide to Traffic Engineering Practice, Part 14: Bicycles	Bridge Manual (SP/M/022) 2nd Ed, TNZ
Local Government Act (2002)			Guidelines for Cycle Audit and Cycle Review, IHT	New Zealand Cycle Design Guide, Draft, 2003, TNZ	Roading Policies
				Guide to Cycle Facilities, NRB/UTC	Cycle & Walking Strategy
				Manual of Traffic Signs and Markings: Parts I and II	Road Safety Plan
				NZS 4404:2004 Land Development and Subdivision Engineering	Strategic Cycle Plan
				The National Cycle Network: Guidelines and Practical Issues: Issue 2 (Ove Arup, 1997)	Cycleway Policy and Action Plans
Pedestrian Crossings		Traffic Regulations (1976)	AS/NZS 3661 series (1993-94): Slip resistance of pedestrian surfaces	Guide to Traffic Engineering Practice, Part 7: Traffic Signals	Pedestrian crossings are established where pedestrian and vehicle numbers meet the warrant
			Guide to Traffic Engineering Practice, Part 13: Pedestrians	NZS 4404:2004 Land Development and Subdivision Engineering	Roading Policy
			LTSA Fact Sheet 26: Kea Crossings - School Crossing Points, 2003		
			Manual of Traffic Signs and Markings: Parts I and II		
			NZS 6701: Code of Practice for Road Lighting		
			TR 11: Recommended Practice for Pedestrian Crossings		



			Draft Guide to Pedestrian Crossing Facilities (2001), TRAFINZ		
Pedestrian Facilities	Traffic Regulations (1976)	Draft Guide to Pedestrian Crossing Facilities (2001), TRAFINZ	AS/NZS 3661 series (1993-94): Slip resistance of pedestrian surfaces	Asset Management Plan	
	Local Government Act (2002)	Guide to Traffic Engineering Practice, Part 13: Pedestrians	Guide to Traffic Engineering Practice, Part 14: Bicycles	Walking and Cycling Strategy	
	Transport Act (1962 & 1997)	Manual of Traffic Signs and Markings: Parts I and II	Guide to Traffic Engineering Practice, Part 7: Traffic Signals	Pedestrian Strategy	
	Resource Management Act (1992)	RTS 14: Guidelines for Installing Pedestrian Facilities for People with Visual Impairment	LTSA Fact Sheet 26: Kea Crossings - School Crossing Points, 2003	Multilane road pedestrian crossing policy	
			NZ Road Code	Footpath Strategy	
			NZS 4121:2001, design for access and mobility – buildings and associated facilities		
			NZS 4404:2004 Land Development and Subdivision Engineering		
			NZS 6701: Code of Practice for Road Lighting		
			NZS 6701: Code of Practice for Road Lighting		
			TR 11: Recommended Practice for Pedestrian Crossings		
Traffic Calming	Traffic Regulations (1976)	Guide to Traffic Engineering Practice, Part 10: Local Area Traffic Management	Guidelines for Local Area Traffic Management, Western Australia Main Roads Department	LATM Policy and Guidelines	
	Transit NZ Act (1989)	Guide to Traffic Engineering Practice, Part 9: Arterial Road Traffic Management	Manual of Traffic Signs and Markings: Parts I and II	Code of Practice for Development	
			RTS 15: Guidelines for Urban - Rural Thresholds		



Appendix F

Expertise, Qualifications and Roles

Staff Training and Competency Matrix



Part 4-E: Communication Plans and Tools

Part 4-E: Communication plan and tools

Contents

1 Communication plan

This example from Southland District Council describes the plan used to achieve a 'buy-in' to the council's SMS.

2 Councillor SMS presentation

This example from Marlborough Roads is a PowerPoint presentation used to achieve elected members' buy-in to their SMS.

3 Community board and asset committee SMS buy-in presentation

This example from Otorohanga District Council is a PowerPoint presentation used to achieve elected members' understanding of the SMS.

4 Contractor SMS presentation

This example from Southland District Council is a PowerPoint presentation used to achieve contractor commitment to the safety intervention plan. Some terms used in this presentation are different from those adopted in the Land Transport NZ guidelines, for example, their safety management system is called a safety management plan.

5 Staff publicity flyer

This example from North Shore City Council was used to raise staff awareness of their SMS.

6 Publicity flyer

This example from North Shore City Council was used to raise staff, contractor and public awareness of their SMS.

Part 4-E-1: Communication plan

Part 4-E-2: Councillor SMS presentation

**Part 4-E-3: Community and asset committee SMS buy-in
presentation**

Part 4-E-4: Contractor SMS presentation

Part 4-E-5: Staff publicity flyer

Part 4-E-6: Publicity flyer

Southland District Council

SMP: Communication Plan Brief

1 Introduction

The purpose of the Communication Plan is to inform and educate the main stakeholders of the existence of the SMP and ensure that it becomes a living and useful document which is used, consulted and implemented. The desired outcome is an increased focus on road safety.

A presentation has already been made to the Councillors and they have adopted the SMP. It is now appropriate that Community Board Members, CDA's, SDC Staff, MWH Staff, and Contractors are brought into the loop.

2 Community Board Members and CDA's

Given that there are a total of 25 Community Boards and CDA's within Southland and they have separate local meetings, it is not viable to make separate presentations to these groups. It is proposed to write a report to be tabled at their meetings. It will be similar in content to the presentation made to the Council, but in report format.

To give the report the appropriate weight, a covering letter signed by the Chief Executive or the appropriate elected representative is recommended. The report can be followed up by the Urban Engineers to reinforce the issues over a period of time.

2.1 SDC Staff, MWH Staff and Contractors

A presentation is to be made to SDC staff, MWH staff and Contractors. Most of the audience will be new to the SMP. It will therefore need to cover the strategy with additional detail and focus on the system and operations. These people will have a strong influence on the policy implementation aspects of the SMP. Invitations should go to SDC Urban Engineers and Roading related staff. Building Inspectors and Planning staff should also be invited to provide an introduction to the SMP. At MWH, invitations should be extended to roading related staff. The Maintenance, Signs and Markings Contractors should also be invited. While in the interests of partnering it would be good to have the Contractors down to Foreman level, numbers would be unwieldy. The separate SIP presentation, the following day, detailed in the SIP proposal is an opportunity to brief these people.

As the level of detail is different for the different audiences it is agreed that:

- A detailed workshop for SDC and MWH staff (particularly Urban Engineers and Roading Managers) will be held on the morning of 11 June 2003.
- On the same afternoon the SMP will be outlined to contractors at a general meeting of SDC's contractors where it will be a 20 minute powerpoint presentation on the agenda. It will provide an overview/introduction to the SMP.
- A cut down version of this powerpoint presentation will be provided to Ian Marshall to enable a 10 minute presentation to be made to Road Safety Southland.

Ideally SDC will arrange to video the SDC/MWH presentation to enable those that can not make it, to view the presentation at a later date.

THE
DEVELOPMENT OF
A
SAFETY
MANAGEMENT
SYSTEM
FOR
MARLBOROUGH
ROADS

Introduction

- Road Safety to 2010 identified the development of "Safety Management Systems" for Road Controlling Authorities as one of the prime means of improving Road Safety.
- The LTSA appointed a new Project Manager for SMS Development ~ **Bill Greenwood**~ in December 2002.
- Opus commissioned by the LTSA to assist Marlborough Roads to develop a "Safety Management System" ~ **June 2003**.

Introduction

- The Marlborough Roads Safety Management System (SMS) was developed as a “demonstration” SMS.
- The SMS was developed in terms of the: **LTSA Guidelines for Developing a Safety Management System for Road controlling Authorities.**
- The Marlborough Roads Interim “Safety Management System” was completed early **September 2003.**
- The Marlborough Roads SMS was subjected to a Stage 3 Review ~ **15 December 2003.**

What is a SMS ?

- A high level over “Umbrella” document.
- The SMS describes how Marlborough Roads will manage all Road Safety aspects that will or could affect the safety performance of the road network under their control.
- Includes the 3 “E’s”
 - Engineering
 - Education, and
 - Enforcement.

What is a SMS ?

- However the main focus is on "Engineering".
- The **SMS** covers:-
 - Design
 - Management, and
 - Maintenance functions.

For State Highways and Local roads

- In the event of any potential claims against Marlborough Roads and the Marlborough District Council the **SMS** would be used demonstrate the method to manage safety issues on the road network
- How does the SMS fit into " the scheme of things" ????

Long Term Road Safety Direction ~ 5 to 10 Years

NZ Land Transport Strategy

```
graph TD; A[NZ Land Transport Strategy] --> B[Road Safety 2010]; B --> C["Regional Land Transport Strategy 2001 - 2006  
And Marlborough Roads - Road Safety Strategy"]
```

Road Safety 2010

Regional Land Transport Strategy 2001 - 2006
And Marlborough Roads - Road Safety Strategy

Means of Achievement for Road Safety (Systems and Processes)

Regional Land Transport Strategy 2001 - 2006
And Marlborough Roads - Road Safety Strategy

Marlborough Roads
Safety Management
System

Marlborough Roads - Road Safety Plan



Operational Achievement of Road Safety

**Marlborough Roads
Safety Management
System**

```
graph TD; A["Marlborough Roads Safety Management System"] --> B["Network Management"]; A --> C["Network Maintenance"]; A --> D["Capital Projects"]; B --- E["Safety Management Plan  
A complementary Document"]; C --- F["Safety Intervention Strategy  
A complementary Document"]; D --- G["Contract Documents"];
```

Network Management

Safety Management Plan
A complementary Document

Network Maintenance

Safety Intervention Strategy
A complementary Document

Capital Projects

Contract Documents

Alignment of SMS

NZ Land Transport Strategy

National Direction

Road Safety to 2010

Regional Land Transport Strategy 2001-2006
and Marlborough Roads - Road Safety Strategy

Unitary Authority

Joint Road Safety Committee

Marlborough Roads
SMS

Marlborough Roads - Road Safety Plan

Engineering Specific + Education & Enforcement

Education & Enforcement Specific + Engineering

Network Management

Network Maintenance

Capital Projects

Safety Management Plan

Safety Intervention Strategy

Main Users of the SMS

- Marlborough Roads Staff
- Marlborough District Council Staff
- Transit NZ - for this Network area
- NZ Police
- Consultants ~ Network and Project ~
The SMS will be the prime Road Safety reference in Requests for Tender and Contract Documents.
- Contractors ~ Network and Project ~
The SMS will be the prime Road Safety reference in Requests for Tender and Contract Documents.

Structure of the SMS

Direction

*Safety
Strategy*

*Means of
Delivery*

*Policies
Standards
Procedures
Guidelines*

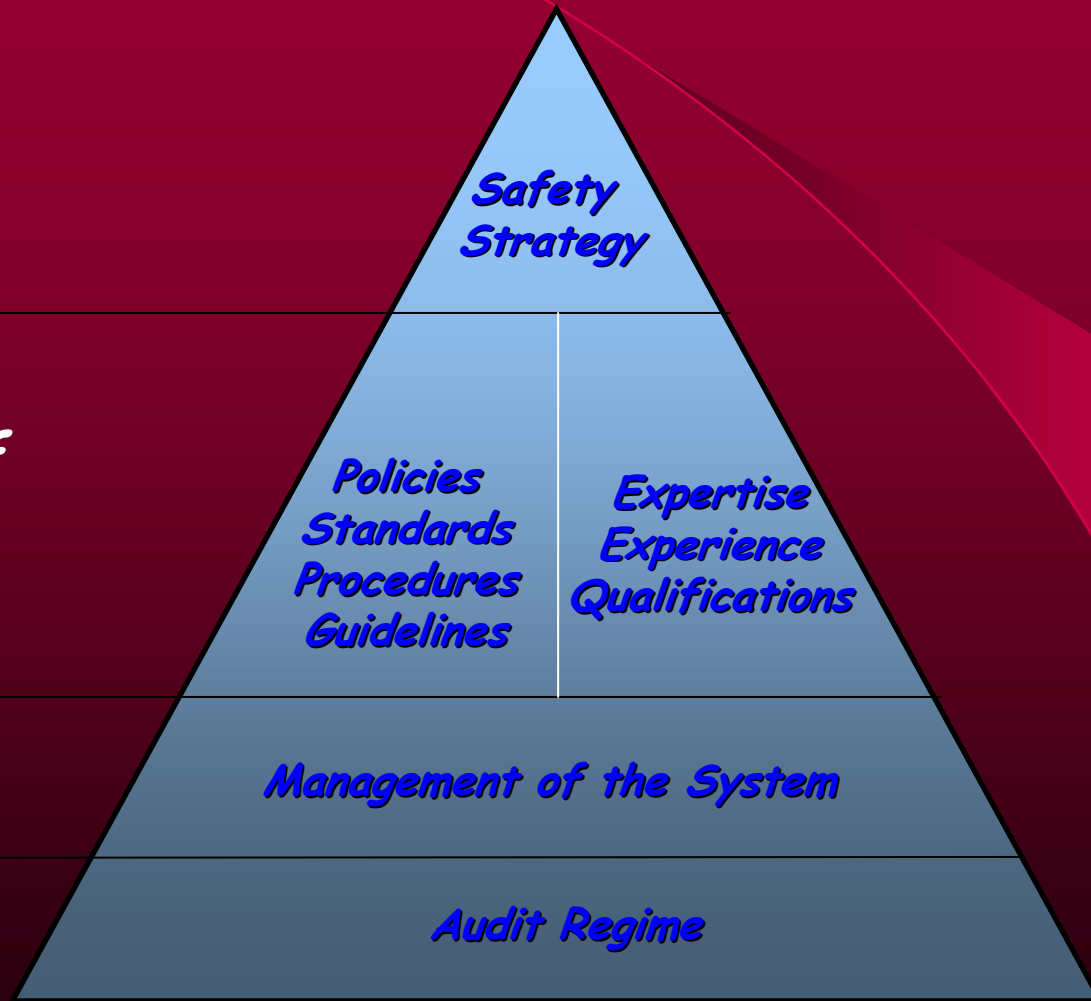
*Expertise
Experience
Qualifications*

Control

Management of the System

Review

Audit Regime



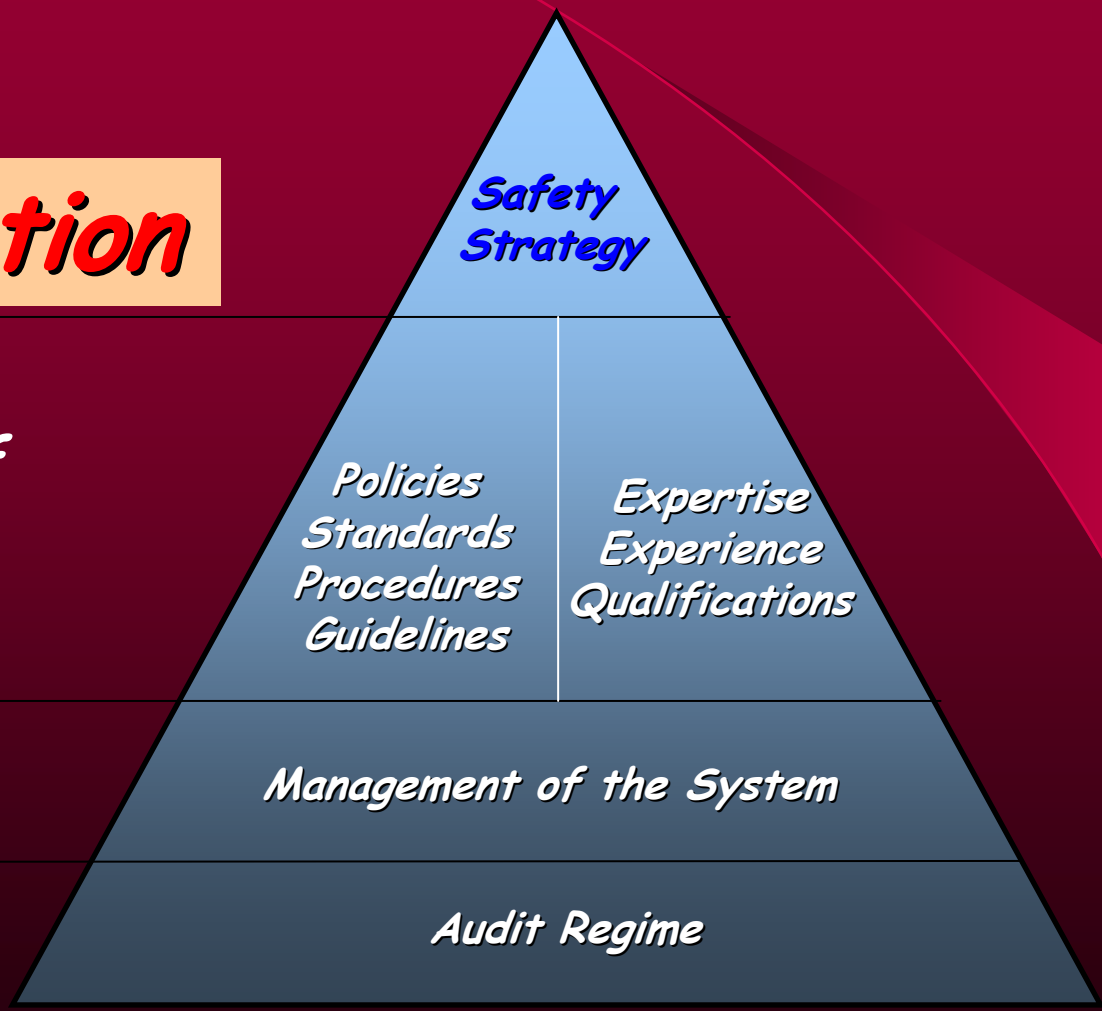
Safety Strategy ~ Direction

Direction

Means of Delivery

Control

Review



Components of the Safety Strategy

- **Vision** - *To reduce the crash rate and enhance road user safety in the region*
- **Mission Statement** - *To manage road hazards by a best value approach to provide a roading network that will achieve no surprises environment for the road user.*
- **Prime Goal** - *Reduce the number of fatalities and the number of hospitalisations resulting from crashes, based on the current crash trends*
- **Goals** - *for Road Safety on the Network are identified on an annual basis, following a review of safety performance in the past year.*

Components of the Safety Strategy

- *Goals - for Road Safety on the Network achieved by*
 - **Engineering initiatives**
 - **Education initiatives**
 - **Enforcement initiatives**
- **Key Stakeholders and Partners are identified.**
- *Progress towards goals - Reviewed on an Annual Basis - Annual audit review*

Means of Delivery

Direction

*Safety
Strategy*

***Means of
Delivery***

*Policies
Standards
Procedures
Guidelines*

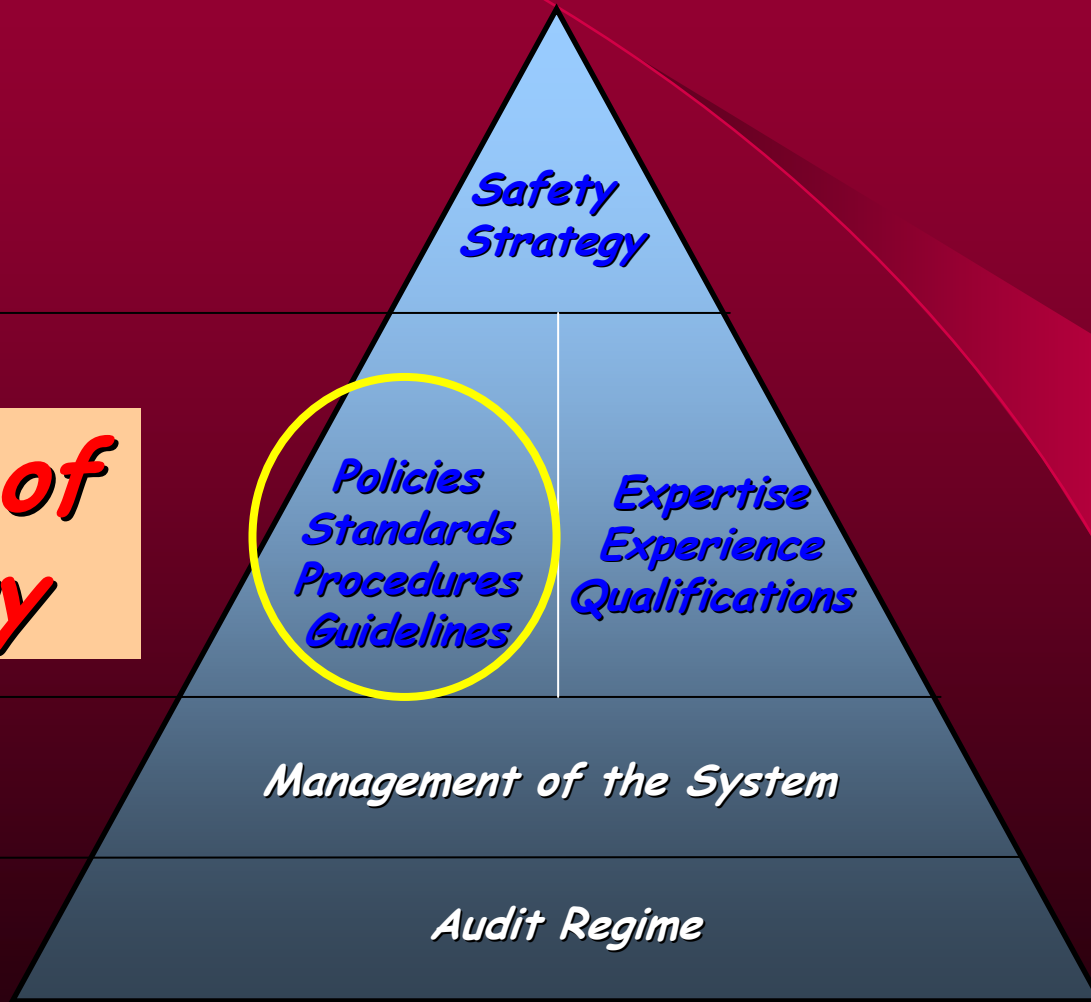
*Expertise
Experience
Qualifications*

Control

Management of the System

Review

Audit Regime



Policies, Standards, Procedures & Guidelines

- These are identified in "Template" form
- Divided by Asset Component Type:
 - **Management General** - *Planning Management, Road Safety Hazard Database, etc.*
 - **Management Processes** - *CRS, Road Safety Inspections, Safety Audits, Emergency and Incident Management, etc*
 - **Operations** - *Potholes, Edge break, Drainage, Kerb and Channel, Street lighting, etc*

Policies, Standards, Procedures & Guidelines

All items with a risk rating of "High" or "Medium" are included in the SMS

Each Template includes the following information:

- The "Owner" - *Person Responsible*
- The Principal document reference
- Safety Issues associated with the item
- Purpose / Description
- Legislation
- Standards
- Principal Guidelines
- Policies

Policies, Standards, Procedures & Guidelines

The Detail for each template is further Sub Divided by Road Classification / Hierarchy covering ~ State Highways, Regional Routes, District Arterials, Collector Routes and Local roads ~ and include the following:

- Inspection / Monitoring
- Routine Maintenance
- Emergency Maintenance
- Response
- Capital works

Policies, Standards, Procedures & Guidelines



Example Template

Means of Delivery

Direction

*Safety
Strategy*

***Means of
Delivery***

*Policies
Standards
Procedures
Guidelines*

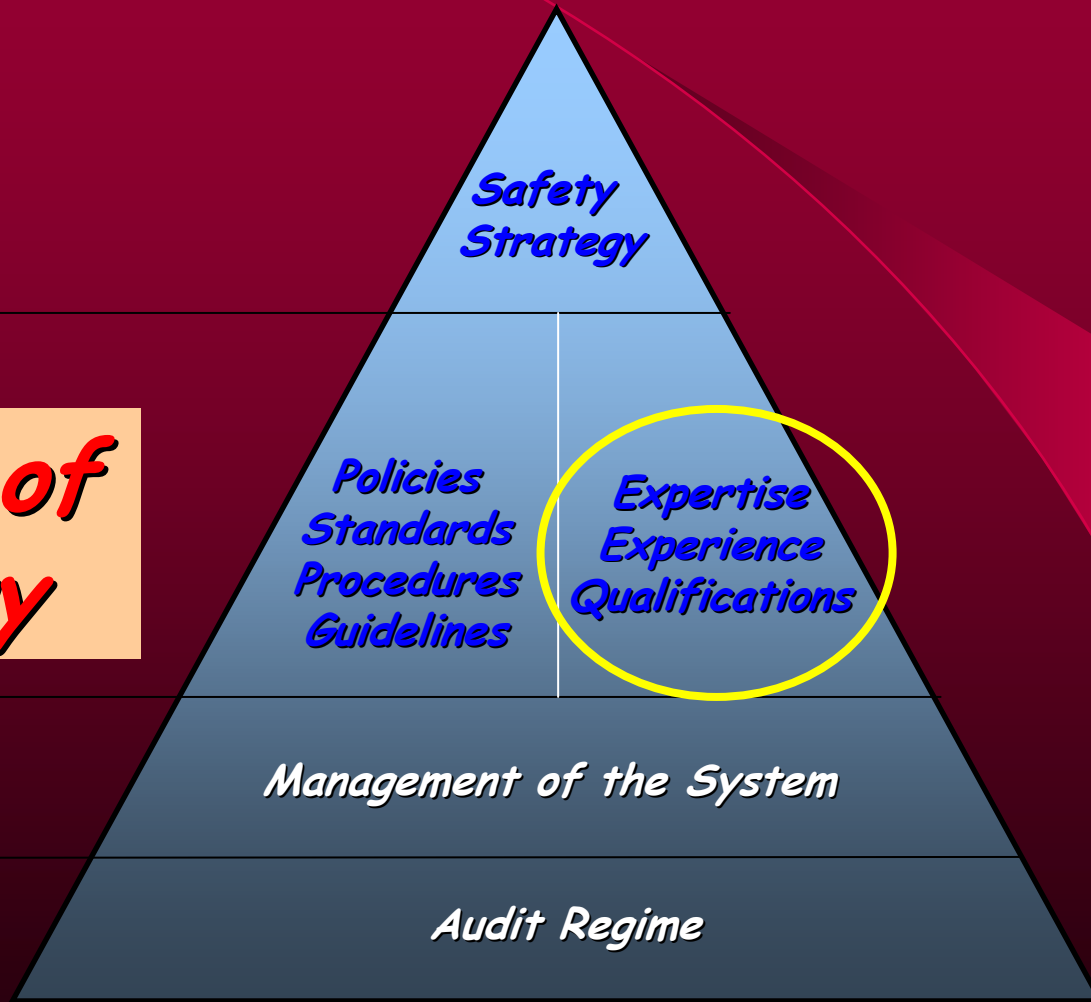
*Expertise
Experience
Qualifications*

Control

Management of the System

Review

Audit Regime



Expertise, Experience & Qualifications

Requirements

- The “ideal” level of competence for each position and activity in terms of Road Safety has been identified
- Competence Level:
 - **Appreciation (A)** ~ Knows who can help and the likely process
 - **Understanding (U)** ~ Understands the process. Can identify appropriate response
 - **Competence (C)** ~ Can develop an appropriate solution. Can identify when expert assistance is required
 - **Expertise (E)** ~ Specialist adviser. Can develop guidelines, can assess the implication of trends and offer options for solutions.



Position

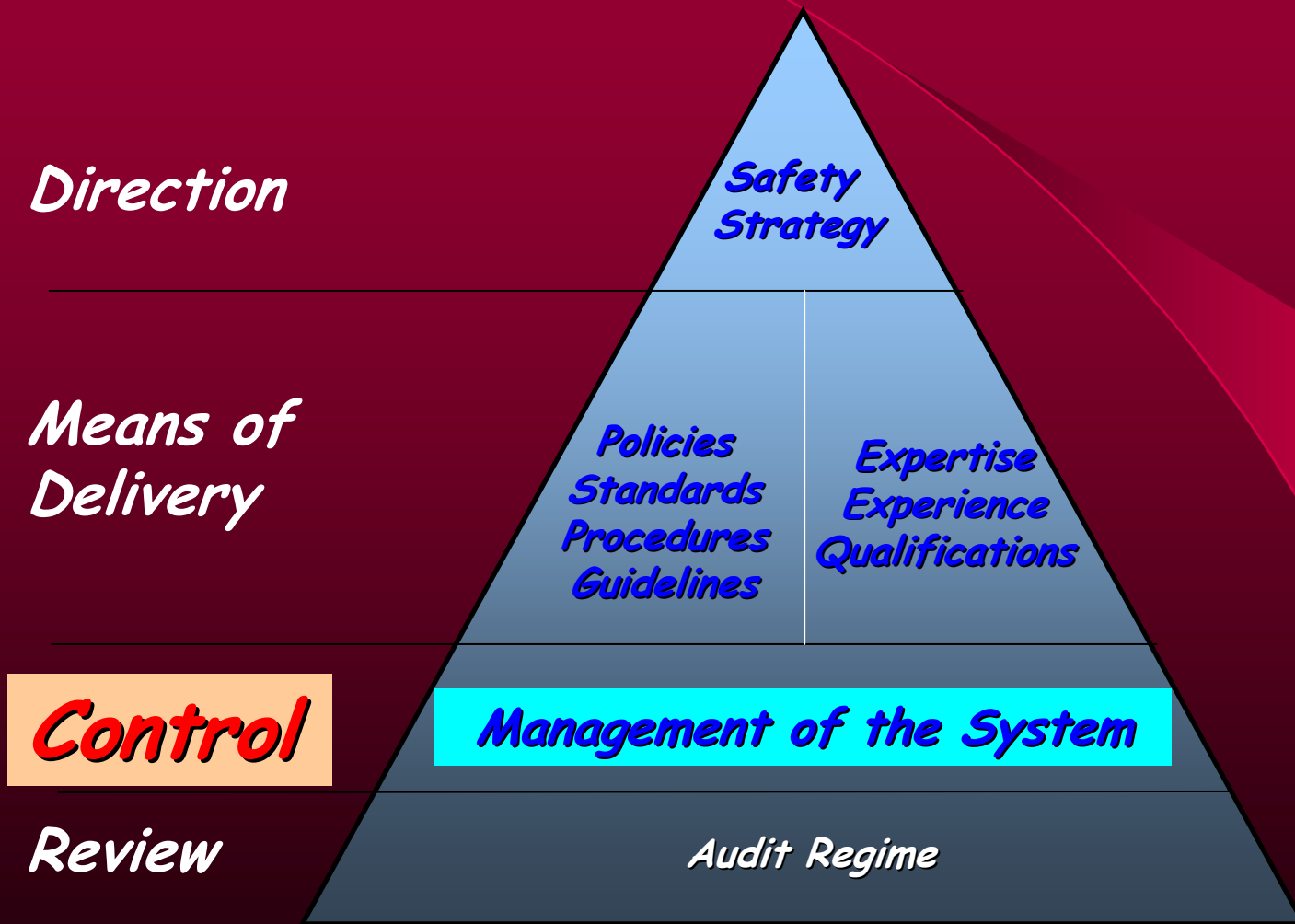
Asset Item

Matrix of Expertise

Used when:

Engaging Suppliers
Employing New Staff
&
Developing Current
Staff

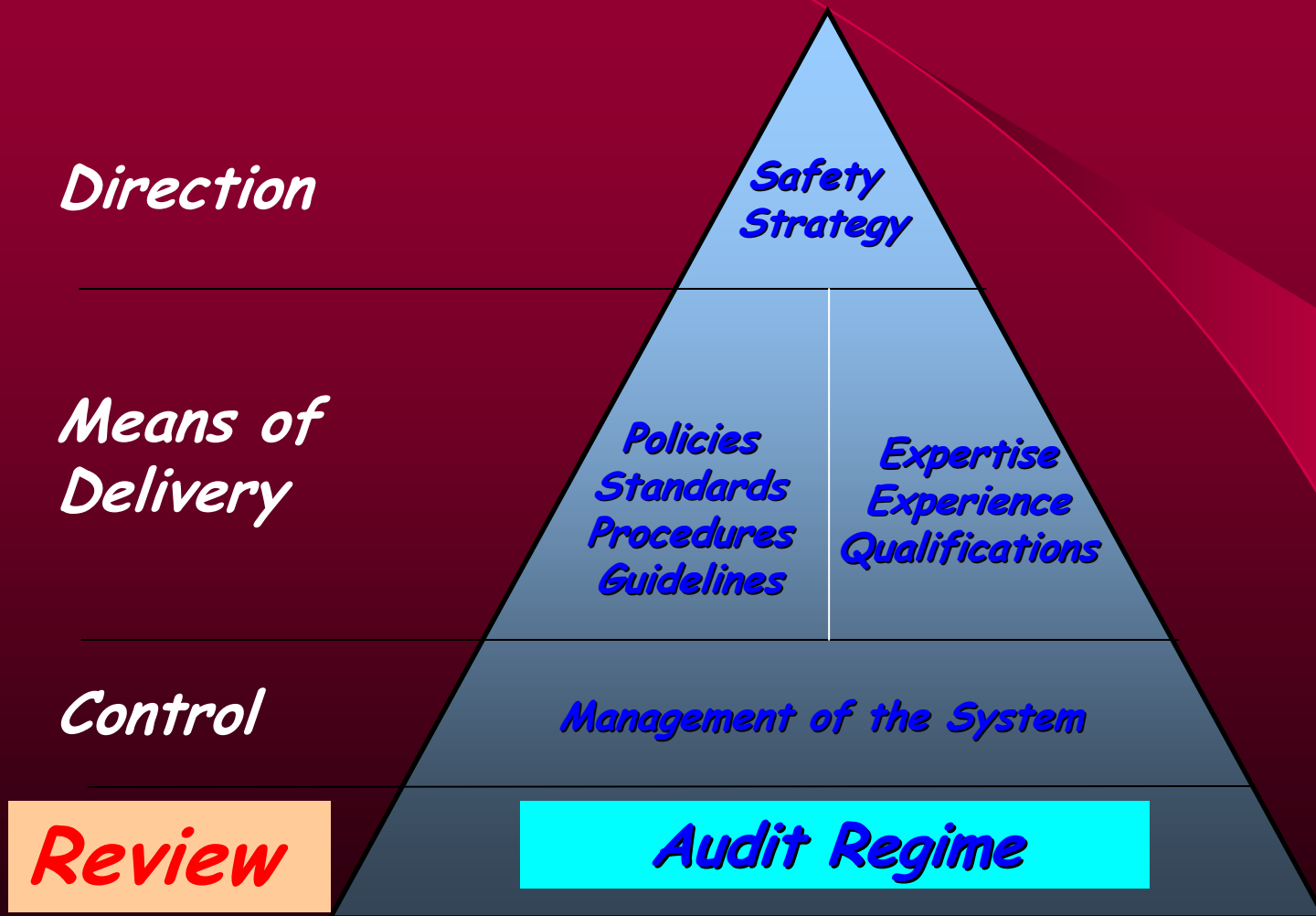
Management of the System



Management of the SMS

- Describes :-
- Application of the SMS.
- Implementation of the SMS.
- Management Responsibility.
- Management Processes, &
- Opportunities for Improvement (OFI):
 - Reason for required improvement
 - Person responsible for undertaking the improvement
 - Date for action
 - Date Completed

Audit Regime



Audit Regime

SMS Audited in Two Stages

Stage 1 Technical Effectiveness

Internal Audit in Feb each Year

- Progress towards Targets - KPI's, KPM's
- Suitability of Targets
- Funding / needs
- Adequacy of SMS

Audit Regime

Stage 2 Systems Compliance ~

External Audit August each Year

- Currency of SMS components
- Implementation of SMS
- Adherence to Procedures and Guidelines
- Adoptions of "*Opportunities for Improvements*".

Audit Regime

- **Audit Team will include:**
 - LTSA Regional Engineering Manager or representative
 - Manager Marlborough Roads or representative
 - Network Consultant - Team Leader/ Road Safety Manager
 - Transit NZ representative
- **Audit Team may include:**
 - Network Maintenance Contractor
 - Manager, Asset and Services MDC
 - Independent Auditor ~ from another RCA or Consultant

Audit Regime

- **Auditors will report on:**
- Review of previous audits
- Progress towards Road Safety Targets
- Outcomes of KPI's set in the Road Safety Strategy section
- Highlight areas of High Compliance or Non Compliance
- Summarise actions to address Non Compliance
- Recommendations for the development of new or updated policies, standards, guidelines, specifications and strategies

Comparison of the Marlborough Roads SMS and the Transit NZ SMS

- A review of the two documents has been undertaken.
- The Marlborough Roads SMS fully complies with the requirements of the Transit NZ State Highway Safety Management System Manual and in many cases exceeds the Transit NZ's requirements

~ Where to from here ~

Stage 3 Review ~ Dec 2003

Issues Identified to complete SMS

- Memorandum of Understanding (LTSA / MR) to be signed
- SMS Document Endorsement ~ OFI
- Add "Enforcement" and "Education" to Legislative Links flow chart ~ OFI
- Develop a "Family Tree" showing the management setup of Marlborough roads ~ OFI
- Minor OFI's

Stage 3 Review ~ Dec 2003

Issues Identified

Target the development of companion Operational link documents:

- **Safety Management Plan (SMP) ~**
 - **Developed in conjunction with Network Management Consultant**
 - **Complies with Transit NZ SHAMM Section 2**
 - **Describes the day to day management of the network with respect to Road Safety including:**
 - **Day, Night and Side road Safety Inspections**
 - **Fatal and High Profile serious crash investigations and reporting**
 - **Grey and Black spot studies**
 - **Development and Management of prioritised Road Safety Hazard register**

Stage 3 Review ~ Dec 2003

Issues Identified

Target the development of companion Operational link documents:

- **Safety Intervention Plan (SIP) ~**
 - Developed in conjunction with Network Maintenance Contractor
 - Complies with SHAMM Section 2
 - Describes the day to day activities of the Maintenance Contractor with respect to "Safety Maintenance" and Road Safety issues, including:
 - Inspections
 - Work Prioritising and programming
 - Treatment Selection
 - Work Execution
 - Monitoring and recording
 - Maintenance of the Recurring Hazard Register

Implementation of the Marlborough Roads SMS

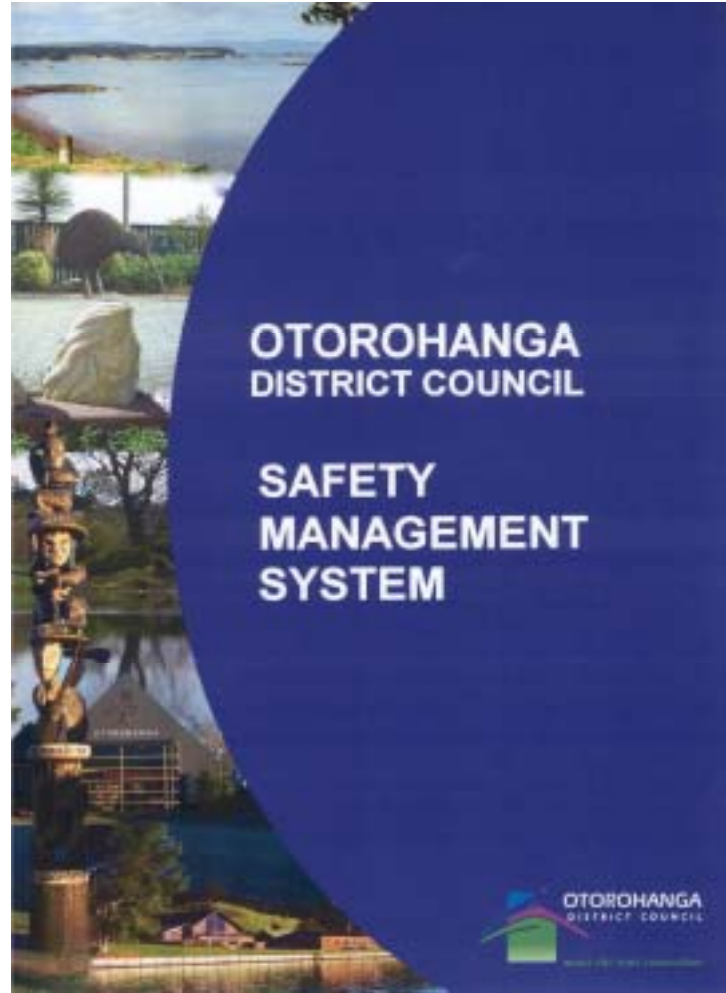
- Distribute copies of the SMS for review and comments.
- Release the SMS as a "Final" document (Interim Tag removed).
- Include the SMS as a requirement/reference in future Contracts, Consents for Work on the Road, issued by Marlborough Roads and the Marlborough District Council.
- Include the SMS in Marlborough Roads and the Marlborough District Council operational procedures/documents.

Thank You

Any Questions

OTOROHANGA DISTRICT COUNCIL SAFETY MANAGEMENT SYSTEM (SMS)

24 November 2004



Introductions

- Robyn Denton – LTSA
- Leanne McAdams - LTSA

Purpose of Today

Introduce concept of the ODC safety management System

- What is an SMS
- Why are we doing this
- Who is involved
- What is expected of each person



Why are we doing this?

- ODC “volunteered” to be one of early trial group- was going to become a future requirement
- Increasing legal liability on RCA’s for safety on their networks
 - Non-feasance (not done)
 - Mis-feasance (done wrong)
 - Mal-feasance (done badly)
- Council showing increased desire to improve safety on network

Safety Audits at Contract work sites show the majority of sites to be inadequate.

COPTTM for Low volume roads to be nationally adopted by July 2005, and ODC will implement immediately

Health and Safety in Employment Act (Incl 2003 Amendment)

Object is to

“..promote the prevention of harm to all persons at work and other persons in, or in the vicinity of, a a place of work...”

Council officers role:

- *Principal has responsibility to ensure Contractors have adequate H & S Policy, procedures etc,.....*

.....AND ARE IMPLEMENTING THEM CORRECTLY!!

- *If Contractor does not have adequate systems, must abide by Council system*
- *To receive the Contractors Hazard ID and do nothing further is not sufficient*
- *By doing nothing to stop an unsafe practice, you can be held personally liable, and prosecuted /fined*
 - *Up to 2 years imprisonment*
 - *Fine not exceeding \$500 000*
 - *Typical fines for non-action are around \$3000*

I would like to see a culture change to increased ownership of, and safety on, our network.

Users of the SMS

- Major users

- ODC Roding design, construction and maintenance staff / consultants
- Planning – subdivisions / land use

- Other groups impacted (WOTR)

- Utilities operators
- Consultants and Contractors
- Anyone else who works within the road reserve

Perhaps if these guys had used a SMS,

this wouldn't have happened.....

29. 10. 2001

Background

- Road Safety to 2010 identified the development of “Safety Management Systems” for Road Controlling Authorities as one of the prime means of improving Road Safety into the future.
- Consultant commissioned by the LTSA to assist Otorohanga District to develop a “Safety Management System” ~ July 2003.

What is a SMS ?

- A high level “Umbrella” document.
- A systematic approach to managing the activities which will or could impact upon the safety performance of the road network.

Includes both Council and the external agencies contracted to Council

- An integral part of the overall management of the road network.
- Documentation of existing policies and practices already being undertaken.

What is a SMS ?

- Includes the 3 “E’s”
 - Engineering, Education and Enforcement.
- The main focus is on “Engineering”.

The **SMS** covers:-

- Design and Construction,
- Maintenance,
- Network Management, and
- Policy and Planning functions

Benefits of a SMS

- ensures that safety is considered in all decisions that affect the road network
- assists in the achievement of targets and goals identified at national, regional and local levels
- will lead to greater consistency in the implementation of road management procedures

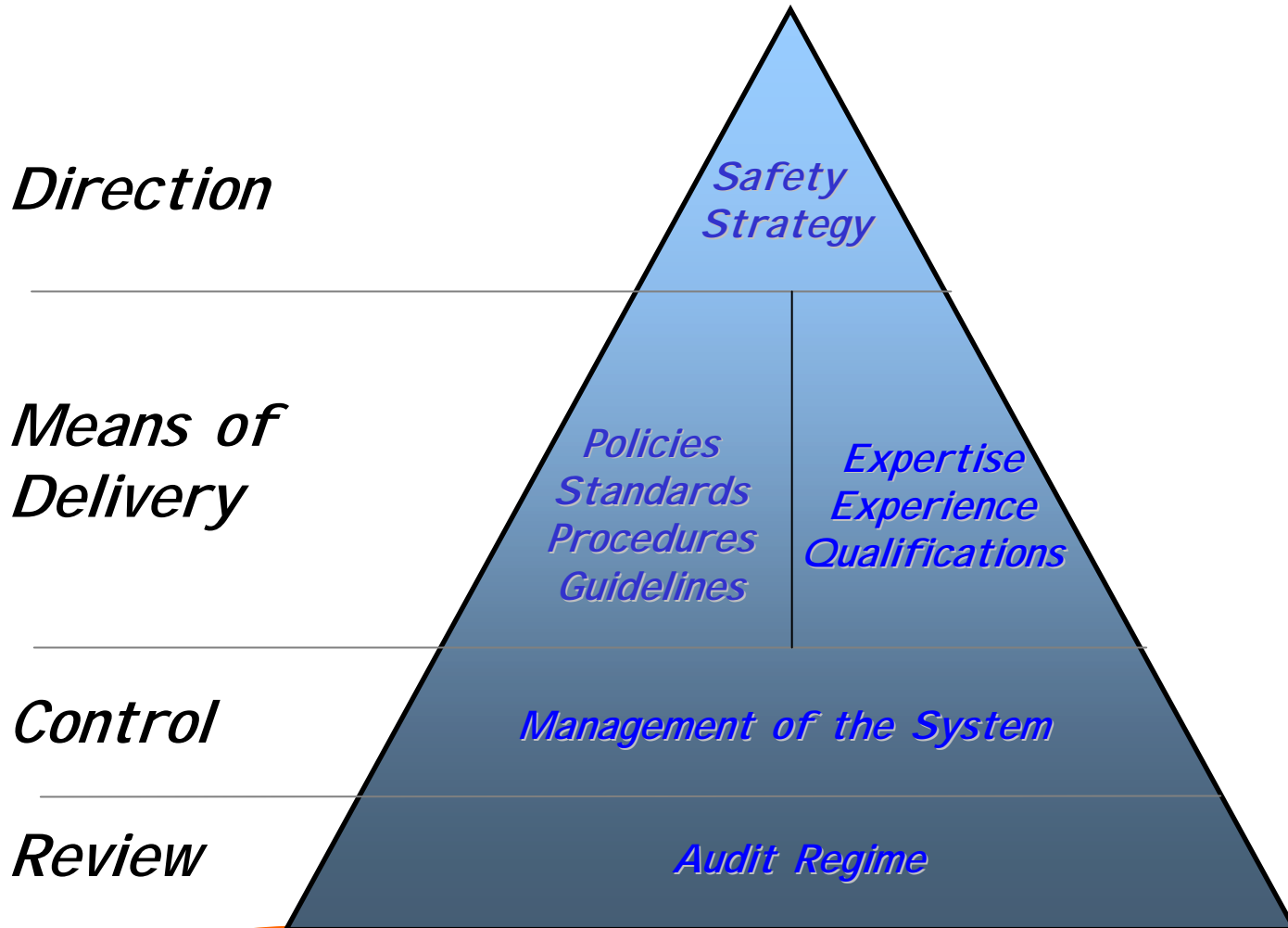
Benefits of a SMS (2)

- demonstrates risk management approach is being used - which helps provide protection from litigation
- provides clear guidance for all staff
- useful training tool for new staff
- development, review and auditing of the roading network are undertaken in a systematic way

Benefits of a SMS ⁽³⁾

Better safety for **all** road users

Structure of the SMS



Safety Strategy ~ Direction

Direction

*Safety
Strategy*

*Means of
Delivery*

*Policies
Standards
Procedures
Guidelines*

*Expertise
Experience
Qualifications*

Control

Management of the System

Review

Audit Regime

ODC Road Safety Strategy

- Adopted by Council 14 October 2003

Vision

***“Council and Community
working together to provide a
safe roading network”***

ODC Road Safety Strategy

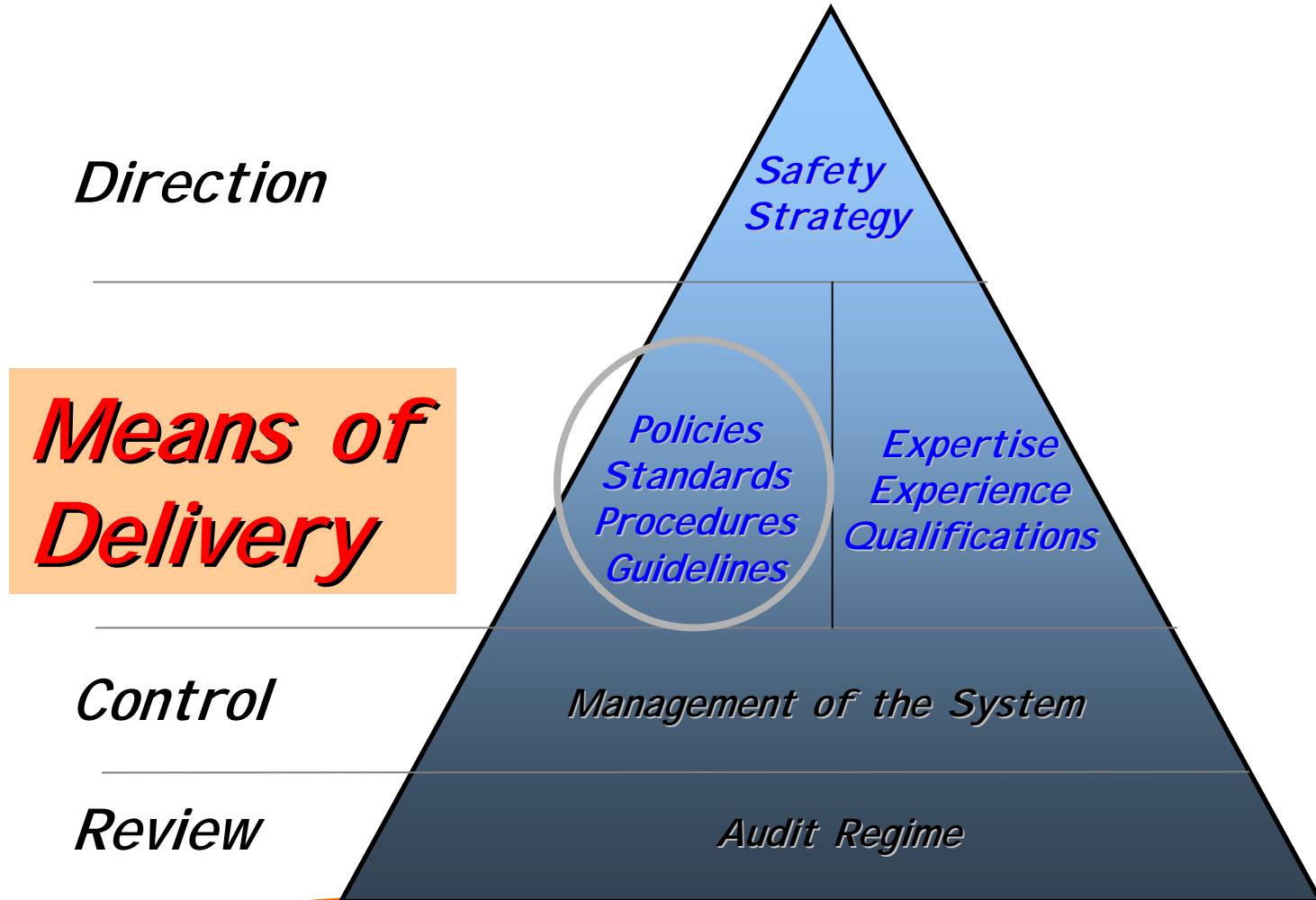
Key Road safety issues:

- Speed
 - Poor Observation
 - Road factors
 - Restraints and helmets
-
- Road factors are our greatest concern with regard to the SMS
 - Council aim is to reduce road factors to, and maintain at zero.

ODC Road Safety Strategy

- Means of Achievement
 - *Engineer the safest road possible*
 - *Relationships with stakeholders*
 - *Encourage a responsible road safety culture through community ownership of road safety*

Means of Delivery



Activity Sheets

- Cover activities relating to
 - Design and Construction**(roads, bridges, barriers etc),
 - Maintenance (pavement, bridges, drainage, signs, marking, lighting, vegetation, footpaths etc),
 - Network management (speed limits, temp. road closures etc)
 - District Asset (safety and structure inspections)
 - Policy and Planning (parking, road hierarchy, Land use etc)

Found in Appendix 2

Activity	Maintenance
Subject	PEDESTRIAN CROSSINGS
Description/Purpose	To provide safe, well maintained pedestrian crossing facilities.
Primary Responsibility	Road Maintenance Engineer and Contracts Engineer
Safety Issues	<ul style="list-style-type: none"> • Location • Visibility of pedestrians by road users • Visibility of traffic by pedestrians • Maintenance of signs and markings and lighting
Legislation	<ul style="list-style-type: none"> • Traffic Regulations (1976)
Policies	<ul style="list-style-type: none"> • ODC Asset Management Plan • Signs maintained under Road Maintenance Contract g.
Standards	<ul style="list-style-type: none"> • TR11 (MOT/LTSA specification) • MOTSAM Parts I and II
Guidelines	<ul style="list-style-type: none"> • "Trafaluz" Guide to Pedestrian Crossing Facilities (Draft August 2001) • LTSA Traffic Note 40 • RTS 14 Guideline for installing pedestrian facilities for people with visual impairment. • NZS 3661 • AS/NZS 1158 – Road Lighting • LTSA Guidelines for KEA crossings • Austroads Part 13 – Pedestrians
Inspection/Monitoring	<ul style="list-style-type: none"> • Routine monitoring of roadmarkings and signs by ODC engineering staff • Routine monitoring of signs by road maintenance contractor as per road maintenance contract response times schedule • Biannual day/night inspection by ODC engineering staff
Emergency Maintenance	<ul style="list-style-type: none"> • Roadmarking contractor to respond as requested • Road lighting maintenance contractor to inspect and repair any faults as per the contract response times Schedule. • Signs contractor - response for signs faults as per the contract works response times schedule.
Routine Maintenance	<ul style="list-style-type: none"> • As required for signs, markings and lighting contracts
Capital Works	<ul style="list-style-type: none"> • New signs shall be installed as per above standards
Audit Requirement	<ul style="list-style-type: none"> • As per Transfund Safety Audit Policy and Procedures

FINAL: July 2004: Signed.....

Activity Sheets

Activity
Subject
Description/Purpose
Primary Responsibility

Maintenance

PEDESTRIAN CROSSINGS

To provide safe, well maintained pedestrian crossing facilities.

Road Maintenance Engineer and Contracts Engineer

Safety Issues

- Location
- Visibility of pedestrians by road users
- Visibility of traffic by pedestrians
- Maintenance of signs and markings and lighting

Legislation	• Traffic Regulations (1976)
Policies	• ODC Asset Management Plan • Signs maintained under Road Maintenance Contract g.
Standards	• TR11 (MOT/LTSA specification) • MOTSAM Parts I and II
Guidelines	• "Traffinz" Guide to Pedestrian Crossing Facilities (Draft August 2001) • LTSA Traffic Note 40 • RTS 14 Guideline for installing pedestrian facilities for people with visual impairment. • NZS 3661 • AS/NZS 1158 – Road Lighting • LTSA Guidelines for KEA crossings • Austroads Part 13 – Pedestrians

Inspection/Monitoring	<ul style="list-style-type: none"> ● Routine monitoring of roadmarkings and signs by ODC engineering staff ● Routine monitoring of signs by road maintenance contractor as per road maintenance contract response times schedule ● Biannual day/night inspection by ODC engineering staff
Emergency Maintenance	<ul style="list-style-type: none"> ● Roadmarking contractor to respond as requested ● Road lighting maintenance contractor to inspect and repair any faults as per the contract response times Schedule. ● Signs contractor - response for signs faults as per the contract works response times schedule.
Routine Maintenance	<ul style="list-style-type: none"> ● As required for signs, markings and lighting contracts
Capital Works	<ul style="list-style-type: none"> ● New signs shall be installed as per above standards
Audit Requirement	<ul style="list-style-type: none"> ● As per Transfund Safety Audit Policy and Procedures

How does that affect me?

- Outlined in each activity sheet
- Ongoing manual improvements re errors, clarification, updating etc (OFI sheets)
- Ensure that the network is the safest possible
- Manage the network according to best industry practices
- Identify, register and deal to hazards appropriately.

Hazard Register

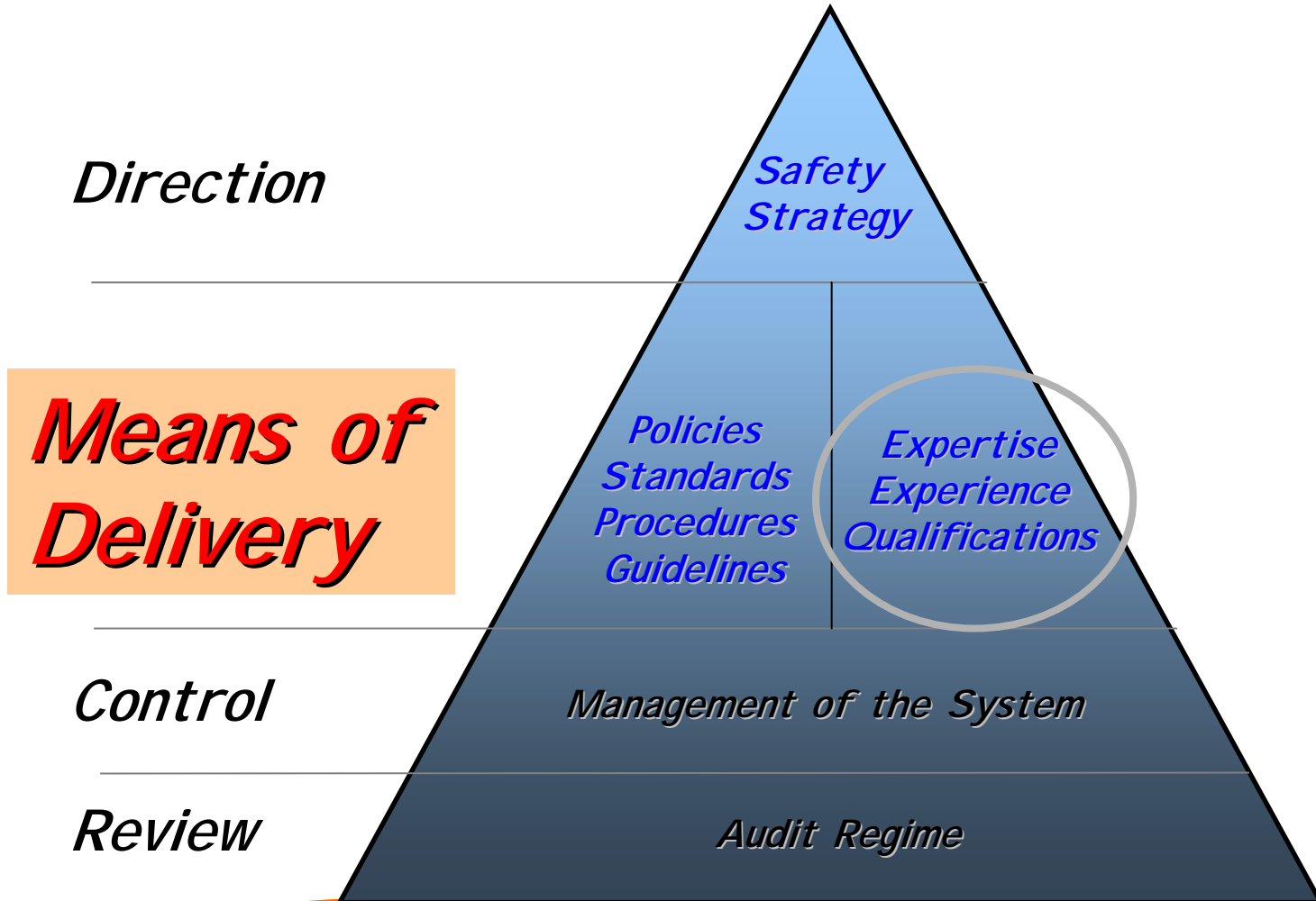
Hazard Reported:

- Deal with it immediately – (Service Requester or work order to contractor)
- Hazard List in Dataworks- prioritise
- Future MSP
- Future Construction Project
- No Action if appropriate (other projects higher priority for funds)

What is expected of me?

- All work together to make the whole network safer.
- Look for and report faults or hazards on our network – not just on the job you are going to inspect
- Include SH's & transitions to other networks as they affect travel thru our District.

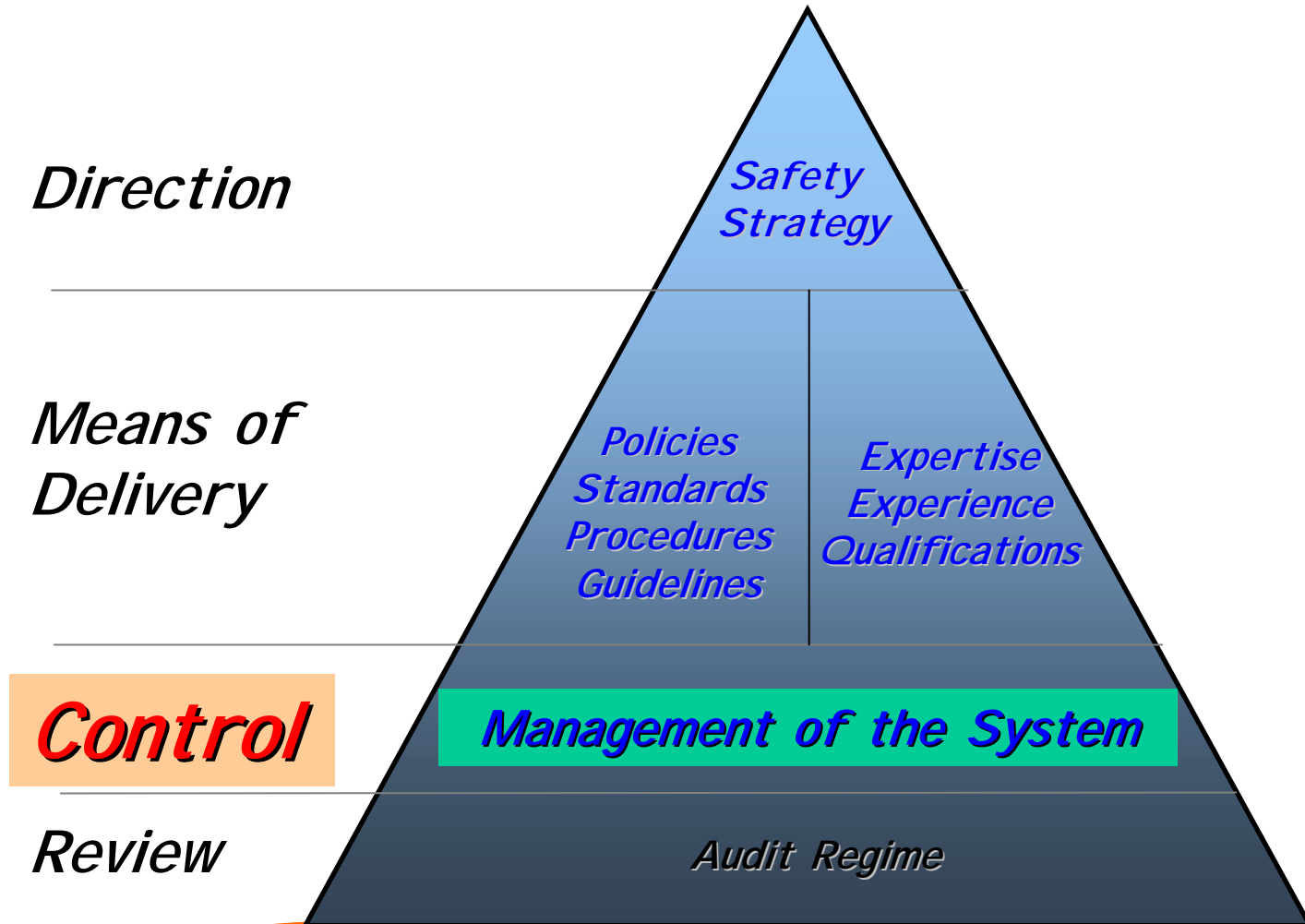
Means of Delivery



Expertise, Experience & Qualifications

- Ensure that those who are involved with activities that take place on the road network are competent for the task.
- This includes:
 - Council staff
 - Consultants
 - Contractors
 - Utility Company staff

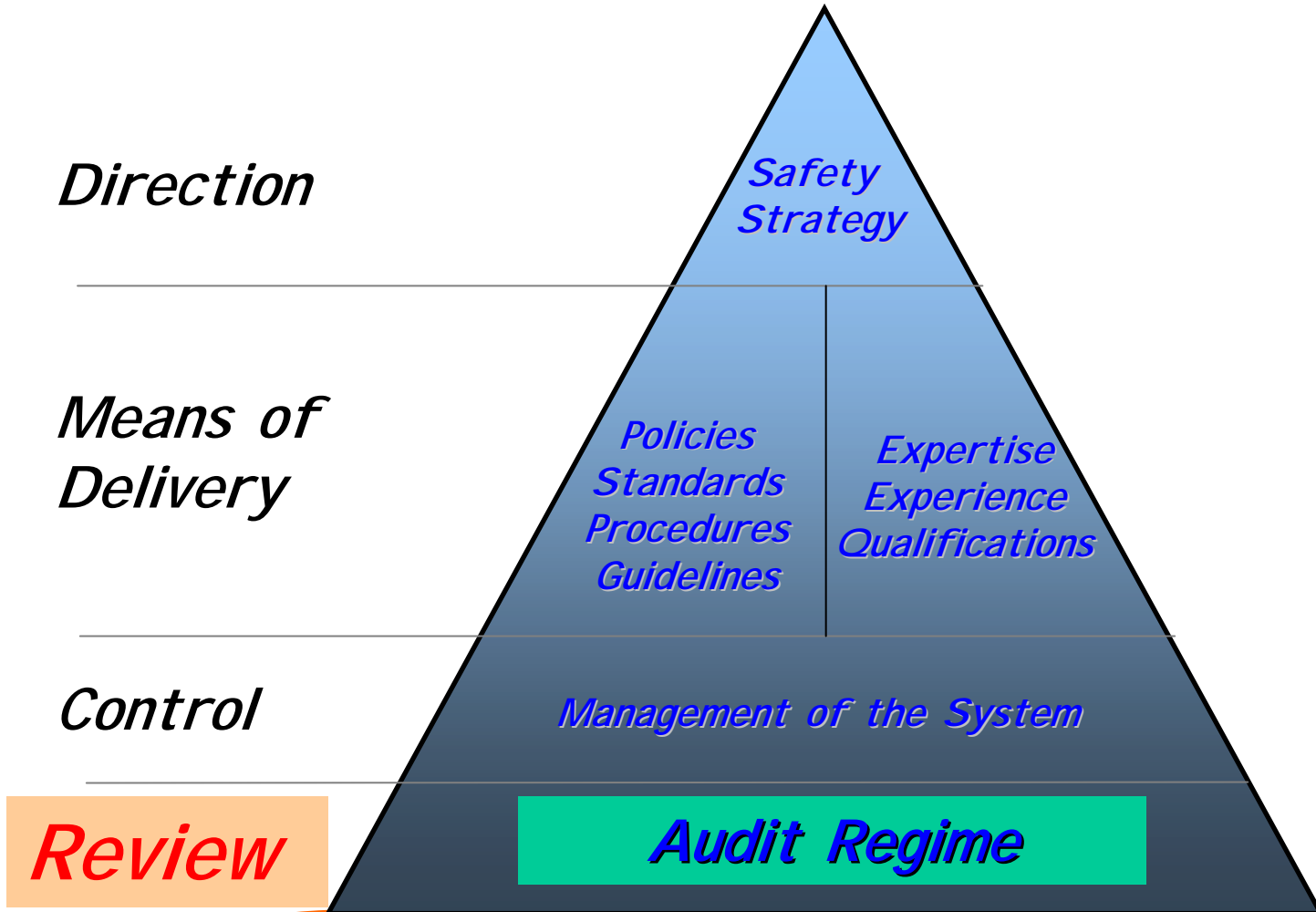
Management of the System



Management of the SMS

- Engineering Manager has overall responsibility for the development and implementation of the SMS
- Good working relationships between staff, consultants and contractors needed for the actual implementation.
- Opportunities for Improvement (OFI) process ensures the document remains current and everyone's good ideas are captured.

Audit Regime



Audit Regime

- Technical Effectiveness
 - Progress on safety outcomes
 - Suitability of safety outcomes
 - Funding needs
 - Crash trends
 - Need for updating the SMS

Audit Regime

- Systems Compliance

- Adherence to Procedures and Guidelines
- Adoption of *Opportunities for Improvement recommendations*

Southland District Council Introduction to the Safety Management Plan

Presented to SDC Maintenance Contractors

Presented by Denise Anderson

Date 12 June 2003

What is the Safety Management Plan?

It is a comprehensive systematic approach to improve road safety.



The Safety Management Strategy

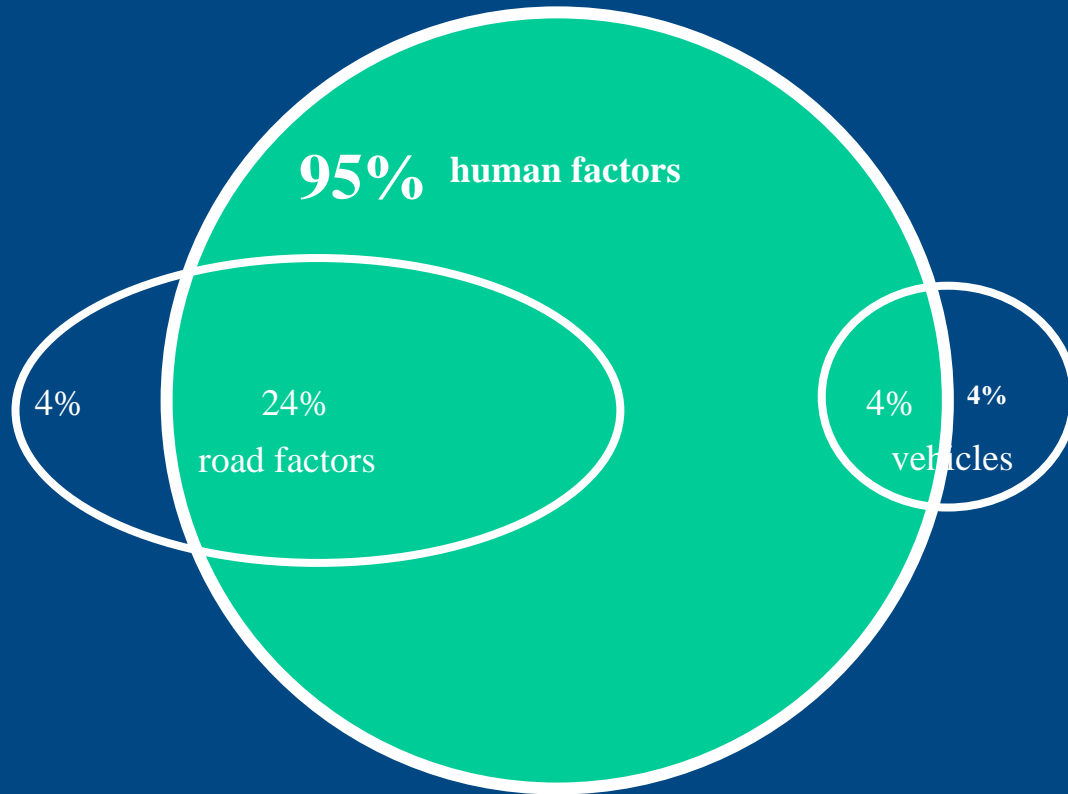
Aim:

- To utilise the appropriate best practice to provide a safe road network.
- It fits well with Southland's guiding principle of "People First Serving Communities together".

Initial Target:

- A trending down of crash numbers better than the national trend within 5 years.

Involvement of Factors of Crashes



Safety Management Strategy Goals Relate to:

1. Road Environment
2. Road Projects
3. Deficiencies
4. Special User Groups
5. Safety Culture
6. Information Management System

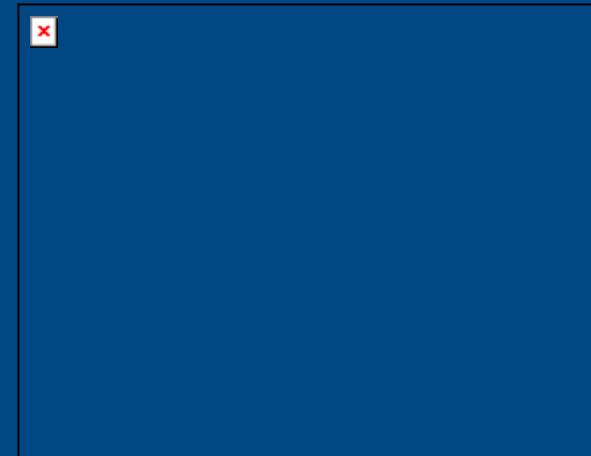
For each goal objectives, methods, deliverables and outcomes have been developed.

Goal 1: To Ensure Road Users have a Consistent Road Environment

- Provide roads with geometry consistent with terrain, traffic volume, mix and road group.
- Provide carriageway widths and shoulders appropriate to the road group.

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- Maintain clear zones along roads.
- Develop SDC Clear Zone Principles.
- Develop Safety Intervention Plan.



Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- Manage vegetation within the road reserve appropriately.
- Use SDC policy for Roadside Planting.

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Signs.**

- maintain a set standard of signs for each road according to road group
- sign all curves or groups of curves which are 15km/hr below design speed
- chevron boards and chevron curve indicators at curves and tee intersections that are deceptive.

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Road Markings.**

- maintain a set standard of markings for each road according to group of road
- ensure correct application and location of no passing lines

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Hazard Marking.**
 - remove or mark isolated hazards within the clear zone
 - highlight location of bridges

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Surface Conditions.**
 - maintain unsealed roads with no soft spots, consistent camber, no potholes or corrugations
 - maintain sealed roads so they have safe skid resistance values
 - no potholes, loose chips and gravel, etc
- **Minimise effects of adverse weather.**
 - reduce icing by removing vegetation shading roads
 - warning signs
 - gritting snow clearance and consider use of CMA

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Intersections.**
 - ensure intersections operate safely
 - is the sight distance adequate
 - priority signs



Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Delineation Devices.**
 - maintain a set level of delineation for each road according to Level of Service



Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Delineation Devices cont'd**
 - EMP's must delineate horizontal and vertical curves at night

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Delineation Devices** cont'd
 - RRPM's must delineate horizontal and vertical curves at night

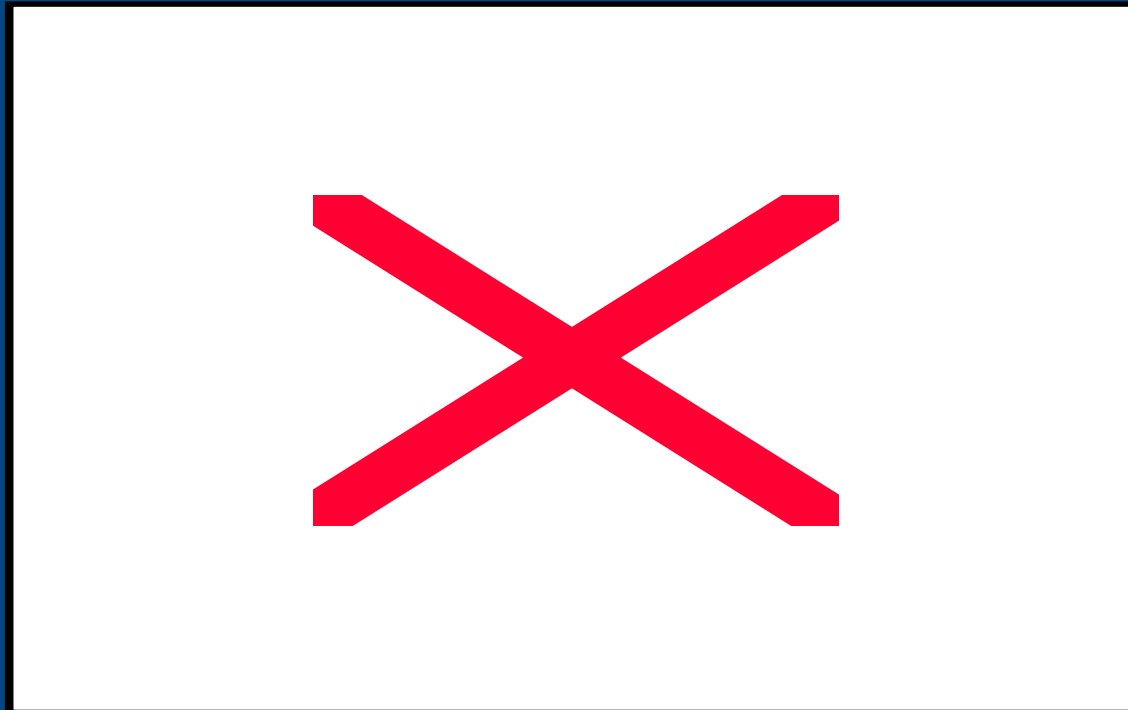
Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

- **Adjacent Development.**
 - avoid, remedy or mitigate the effects of adjacent development on road users

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd

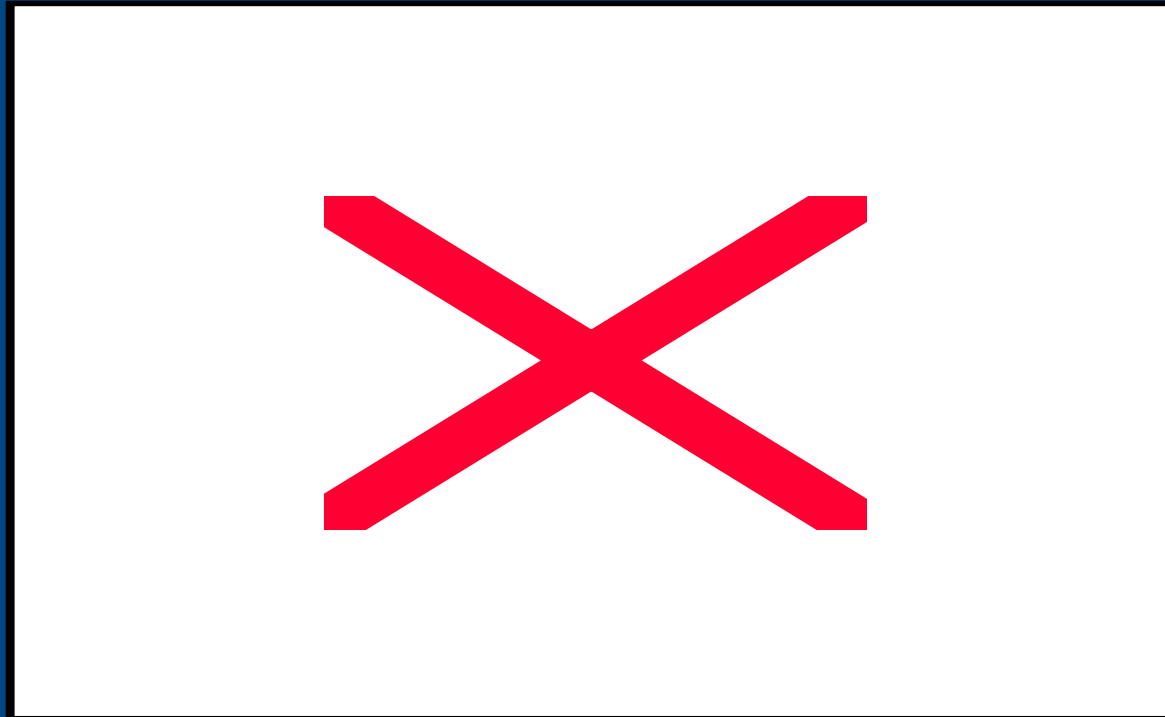
- Maintain consistent speed limits throughout the district.
- Identify road environment deficiencies during safety inspections.

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd



- One post to coincide with the extended centreline of the approach lane straight.
- A minimum of 3 EMP's to be visible at all times

Goal 1: To Ensure Road Users have a Consistent Road Environment cont'd



- One post to coincide with the extended centreline of the approach lane straight.
- A minimum of 3 EMP's to be visible at all times

Goal 2: To Consider Safety at all Stages of Roading Projects cont'd

- **Maintenance Programme.**

- maintenance Contractors are required to intervene before routine maintenance items become significant safety hazards
- Contractors are to be assisted to prepare their own Safety Intervention Plans



Goal 2: To Consider Safety at all Stages of Roading Projects cont'd

- **When developing safety programmes.**
 - maintain a database to track reports of safety deficiencies
 - consider wide range of safety information
 - identify and construct minor safety and construction projects
 - consider network safety in Forward Works Programme

Goal 2: To Consider Safety at all Stages of Roading Projects cont'd

- **Safe operation on the road.**
- **Require Contractors, Consultants and SDC to prepare Health and Safety Plans and Traffic Management Plans for all construction and maintenance projects, professional services contracts and investigations on roads.**
- **Other operators to obtain permits before working on the road.**

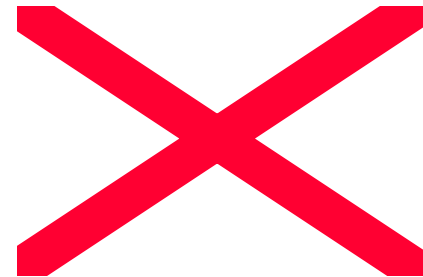
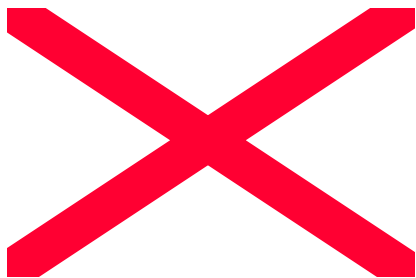
Goal 2: To Consider Safety at all Stages of Roading Projects cont'd

- **Safety Audits.**

- participate in Transfund “Safety Audit of Existing Roads” programme
- undertake additional regular safety audits of existing roads
- undertake pre-design safety audits on all seal extension projects
- random safety audits of projects at all stages of project development
- safety audits at all stages of all safety projects

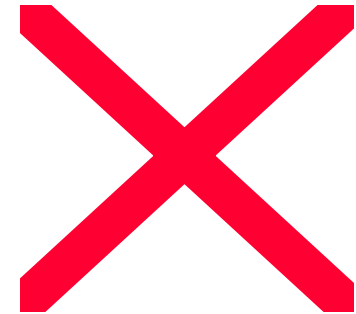
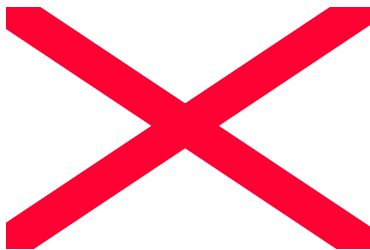
Goal 2: To Consider Safety at all Stages of Roading Projects cont'd

- Undertake before and after studies.



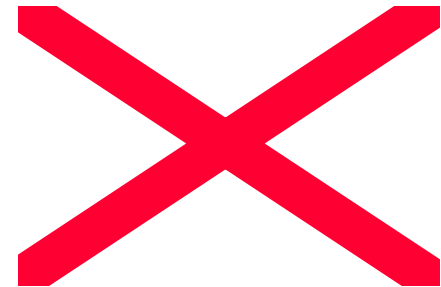
Goal 3: To Identify and Investigate Deficiencies

- Undertake detailed systematic safety inspections.
- Measure is SDC Policies, Standards, Guidelines, Species, etc. for each road level (under development).
- Five year cycle.



Goal 3: To Identify and Investigate Deficiencies : cont'd

- **Safety Inspection Items include:**
 - geometry
 - carriageway and shoulder widths
 - clear zones
 - roadside planting
 - signs
 - marking
 - hazard marking
 - surface conditions
 - intersections
 - delineation
 - adjacent development
 - temporary traffic control

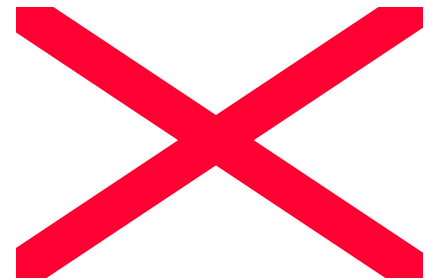
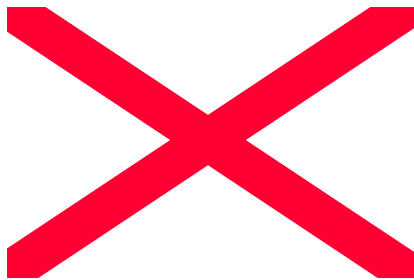


Goal 3: To Identify and Investigate Deficiencies cont'd

- **Take a Proactive Approach to Safety.**
 - Develop a Crash Reporters Network to capture unreported crashes
 - Maintain a Hazardous Sites Database
 - Operate a Safety Deficiency Database
 - Use LTSA Crash Database, Road Safety Report
 - Identify grey spots
 - Undertake Crash Reduction Studies

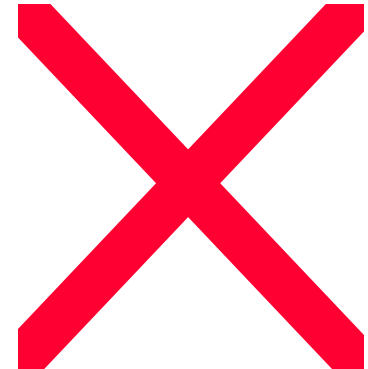
Goal 3: To Identify and Investigate Deficiencies cont'd

- **Undertake Mass Actions.**
 - Overview all available information
 - Identify district wide deficiencies
 - Take mass action to remedy



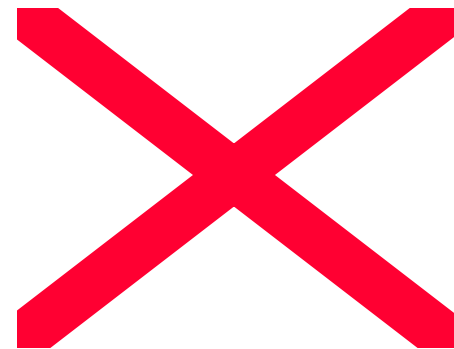
Goal 4: To Ensure that the Safety Requirements of Special User Groups is Considered in all Projects

- Consider the different modes of transport
- Provide all for Disabled Road Users
- Consider the needs of young and elderly road users



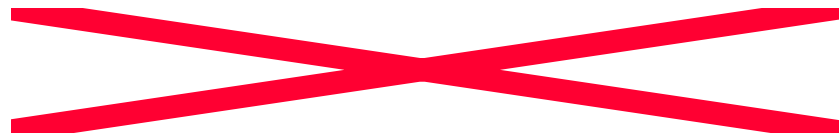
Goal 5: Develop A Safety Culture Among all Road Users and Organisations

- Develop, adopt and promote a safety culture within Council, Consultants and Contractors.
- Utilise education initiatives and targeted enforcement in the wider community.



Goal 6: Maintain an Effective Information Management System





- Databases need to be developed, maintained, updated and interrogated.



Where to from Here?

- **The SMP will improve road safety over time.**
- **Community buy in is important for its success.**
- **Work on the Operations section of the SMP has started:**
 - communication plan in progress
 - trial safety inspections undertaken
 - crash reporter network being established
 - safety intervention plan about to start

How Can You Help Implement the SMP and Improve Road Safety?

-  **Promote the SMP to the Community.**
-  **Promote a safety culture by your own life style choices and networking.**
-  **Use your own networks to help establish the crash reporters network.**
-  **Participate in development of the Operations section of the SMP, particularly the Safety Intervention Plan.**

Safety Intervention Plans (SIP's)

- Relatively new.
- Early SIP's prepared by consultant.
- Most now a joint effort by contractors and consultants.
- Information / education / guidance tool.
- Usually a mix of words, photos, diagrams and plans.

Southland's Safety Intervention Plan (SIP)

- **SIP is to be developed in conjunction with contractors.**
- **Purpose : Yet to be defined, ideas are:**
 - To provide guidance to maintenance staff on how to ensure road users have a consistent road environment
 - To provide guidance to maintenance staff on how to ensure road users have a no surprises road environment
 - To provide guidance to maintenance staff when maintenance intervention is required
 - Your ideas welcomed

Southland's Safety Intervention Plan (SIP) cont'd

- **Who will use the SIP ?**
- **Who are “Maintenance Staff” ?**
 - Contractors Field Staff ?
 - Foremen ?
 - Contractor Management ?
 - Consultants ?
 - SDC Staff ?
- **Who is the main audience ?**

How Many SIP's Should There Be For Southland Roads ?

- There are 3 contract areas.
- Each contract area has a:
 - Maintenance contract
 - Pavement Marking contract, and a
 - Signs contract
- **Maximum scenario 9**
- **Medium scenario 3**
 - Maintenance
 - Pavement Mark
 - Signs
- **Minimum scenario 1**
- There are pros and cons for each option

Where to From Here ?

- How can we best develop an SIP / or SIP's for Southland ?
- What are you willing to contribute ?

DRAFT

Building a Health & Safety Culture in Transport Services

Objective:

To use appropriate best practice to provide a safe environment for all NSCC staff (on or off-site), contractors and the general public.

Safety Management System

For all key issues identified from previous Health & Safety Reports – Issues must have goals and each goal should have

- Objective
- Methods
- Performance measures
- Outcomes

Safety Culture

All stakeholders will work to develop and maintain a safety culture that will enable each person in their organisation to optimise their own contribution to a work environment that is:

- Consistent
- Safe
- With no surprises.

Achievement of this will require partnership and co-operation between the council executives, council staff, contractors and other stakeholders. The aim is to develop a cooperative 'no-blame' culture where all stakeholders work together to develop a safer work environment.

How do we achieve this?

1. Regular reporting system from staff & contractors

This system will help the council identify potential hazards that will prevent injuries. However introducing a new system may not necessarily be successful unless we introduce an incentive programme. By way of example:

Be in to win - A trip to Queenstown for two

1. Identifying a potential hazard in North Shore City
2. Filling out the form with your details
3. The more you identify the more entries you have.
4. All entries will be entered by Actionline and validated by the working group.

Some companies encourage their staff to participate by creating project teams and joining competitions until they get use to the system.

2. Safety Intervention Plan (SIP)

The purpose of the SIP is to optimise Contractors contributions to the provision of a consistent, safe work environment, with no surprises, over the entire NSCC network.

The adoption of the SIP formalises an increased focus on safety in the management of work environment. The SIP outlines the Safety Culture that is to be developed, provides information on a safe work environment and the factors that contribute to injuries outlines the actions required by Contractors and provides information on what contributes to a safe work environment.

3. Strategic Enforcement

- Define staff responsibilities through job descriptions and performance indicators
- Inclusion of SIP in all contracts

DRAFT FOR THE FLYER

Heard about the Safety Management System (SMS)?

North Shore City Council is developing a Safety Management System to improve the quality and safety of its roads.

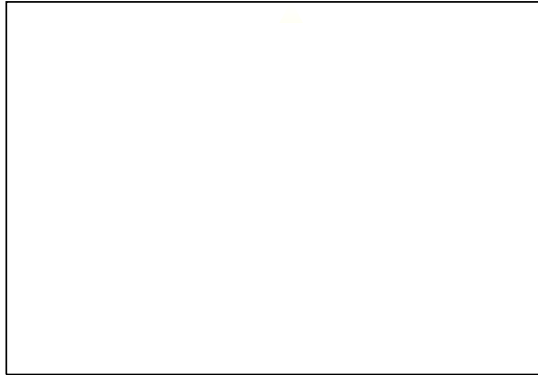
We need everyone's help to put it in place.

This flier is aimed at introducing the project to you. The new system will affect the way you do your work. We will let you know further details on how it will be implemented as we move forward. Our first step will be to survey staff and then start some training. We also want to develop some projects to pilot some road safety innovations.

If you have any questions please call Maxe Janssen on ext. 8003 or visit the Transport Services intranet site to view the SMS manual we have developed.

What is SMS?

- Helps the North Shore City Council ensure that strategies, policy standards and procedures are consistent
- Will form an integral part of the overall management systems for our road networks



What are the benefits of SMS?

- Documenting risk management and road safety knowledge and expertise within council
- Protecting the council from litigation
- Providing a framework for achieving safety objectives and measuring performance
- Improving consistency in the implementation of road safety procedures
- Providing a useful communication aid
- Providing a training aid



Part 4-F: Opportunities for improvements and SMS gaps

Part 4-F: Opportunities for improvements and SMS gaps

Contents

1 Marlborough Roads SMS gaps and opportunities for improvements

This example describes the status of all the SMS components and allows for a programme of implementation to be included where required.

2 Action list

This example of an action list from Far North District Council shows how the improvement opportunities identified by the Council or the continuous improvement process will be addressed. It identifies who will address the items and when. This may also be called a gap analysis or opportunities for improvement.

Component	Status O = Operational D = Draft T = To be developed	Initial Due Date	Cycle
SMS Actions			
Safety Intervention Plan (SIP)	T		6 monthly
Safety Culture Programme	T		Once
Hazard Register (part of SIP)	T		6 monthly
Safety Deficiency Database	T		
Safety Audits	O		As required
SMS External Review	T		
Grey Spots Report	T		Annual
Mass Action Reports	T		Annual
LTSA Annual Road Safety Summary Report	O		Annual
Pedestrian Crossing Audit Report	T		
Crash Reduction Studies	T		Annual
Adjacent Development Crash Review	T		Annual
District Plan Provision Effectiveness	T		As required
District Plan Review	T		10 yearly
Safety Inspection Reports	T		6 monthly first year, thereafter annually
Safety Inspections to include: <ul style="list-style-type: none"> • Signs Geometry • Markings • Clear Zones • Intersections • Vegetation • Delineation • Bridges, barriers and markers • Road Surface, Potholes, Chips, Gravel • SIP 	T		Day Time & Night Time Arterials: 100% 6 monthly in year 1, thereafter 100% annually Collectors: 50% 6 monthly in year 1, thereafter 50% annually Local Roads Sealed: 26% 6 monthly in year 1, thereafter 20% annually Local Roads Unsealed: 12.5% 6 monthly in year 1, thereafter 10% annually Note: The intention is to inspect on a cyclic basis so that all roads in the District are inspected. Special Inspections: Selected routes for inspections with a particular focus.
Maintenance Inspections Referred to in SMS			
Intersection signs maintenance	O		2 ward/month
Unsealed road surface maintenance	O		Ongoing inspections annual
Potholes, chips, gravel	O		Ongoing inspections annual
Signs	O		2 ward/month
Cycle facilities	T		1 ward/month or 1 ward/township/month

Component	Status O = Operational D = Draft T = To be developed	Initial Due Date	Cycle
School signs (PW-32)	O		2 wards/month (signs maintenance contractors)
Blue Road Name Blades	O		2 wards/month (signs maintenance contractors)
Missing Rapid No's	O		2 wards/month (signs maintenance contractors)
Fire Hydrants	T		Township/engineer/month
Pedestrian Provisions	T		
Destination Signs	T		2 wards/month
Chevron and Chevron Curve Indicator Maintenance	O		2 wards/month
Speed Limit Sign Maintenance	O		2 wards/month
Temporary Traffic Control Spot Checks	O		Spot checks 2 x weekly
Stock or Farm Vehicles	T		Part of travel
Documents Plans or Schedules Referred to in SMS			
Operations Document Status Table	D		Annual
Code of Practice (List of Standards, Policies, Guidelines, Species)	T		Annual
SDC Destination Signs Policy	D		Once
SDC Information Signs Policy	T		Once
SDC Delineation Policy	D		Once
SDC Rest Area Policy	T		Once
SDC Roadside Planting Policy			
SDC Pedestrian Strategy			
SDC Cycling Strategy			
Emergency Response Plan	O		As required
Health and Safety Plan	O		As required
Traffic Counting Programme	O		
Minor Safety Programme	O		6 monthly
Cycling Demand Database	T		
Road Margins Activity Database	T		
Query Database	O		Monthly
Crash Database	O		Annual
Non-conforming Roads (geometry) Schedule	T		Annual
Roads, Bridges, Shoulders Requiring Widening or Kerb and Channel Schedule	T		Annual
Roads Requiring Curve Widening	T		Annual

Component	Status O = Operational D = Draft T = To be developed	Initial Due Date	Cycle
Schedule			
Objects in Clear Zone Schedule	T		Annual
Vegetation in Road Reserve Schedule	T		Annual
Road Marking Schedule (RAMM)	T		Annual
School Sign Deficiency Schedule	T		Annual
Slope-Meter Testing Programme	O		As required
Delineation Schedule (RAMM)	O		Annual
Fire Hydrants Schedule (GIS)	O		Once
Pedestrian Crossing Schedule (RAMM)	O		Once
SCRIM Testing and Analysis for Deficiencies	O		Annual
RAMM	O		Annual
LTSA Crash Monitoring	O		Annual
Forward Works Plan: Resealing	O		Annual
Forward Works Plan: Maintenance	O		Annual
Ice Intervention Report	T		Once
No Passing Lines Inspection Programme	O		6 monthly
Speed Limits Review	T		3 yearly

Far North District Council Safety Management System Action Plan

SMS Reference	Action	By Whom	By When	Progress to date
1.6.1	Ensure SMS is available for all appropriate contractors/consultants (Put on Website).	Greg Ingham Marius Gabriels	As soon as edits following stage 3 are completed but no later than Dec 2005	
2.1.1	Far North District Council is currently developing the Road Safety Strategy, referencing the example of the Land Transport NZ website and the Regional Strategy. This task requires completion. To revise existing road safety KPI's from LTCCP	Greg Ingham Ann Fosberry John Garvitch	May 2005	
3.5.1	For future physical works contracts and professional services contracts that will have an impact on safety within the FNDC network, specific clauses are to be included that require compliance with the SMS. Note that these include contracts such as those related to Parks and Reserves, Streetlight maintenance etc. Presentation of SMS to Contractors – general introduction available for all to attend (eg Council Staff) followed by presentation specific to physical works contractors	NMM related contracts - Craig Connelly Other contracts Greg Ingham Ann Fosberry Bill Greenwood Craig Connelly	Contract renewal dates July 2005	

SMS Reference	Action	By Whom	By When	Progress to date
3.5.2	<p>Develop Consultants Implementation Plan.</p> <p>Develop Contractors Intervention Plan</p>	<p>Craig Connelly</p> <p>Mike Grimshaw (McBreen and Jenkins)</p> <p>Kevin Hoskin (Fulton Hogan)</p>	<p>Dec 2005</p> <p>June 2006</p> <p>June 2006</p>	
4.2.2	<p>Liaise with Human Resources to ensure that gap analysis between existing skills and competency matrix and training requirements are included as part of staff reviews.</p> <p>Include SMS brief as part of all new staff inductions.</p> <p>Note: Applicable to Council, Consultant and Contractors</p>	<p>Greg Ingham</p> <p>Craig Connelly</p> <p>Mike Grimshaw</p> <p>Kevin Hoskin</p>	<p>Annually at staff appraisals / performance reviews. June/July.</p> <p>Brief at staff inductions to be ongoing and introduced by July 2005</p>	
Activity Sheet C7	Improvement Project database and Analysis spreadsheet to be developed by extending the existing minor safety database to include all safety projects.			
Activity Sheet C8	Develop Road Environmental Safety Hazard Register			
Activity Sheet C13	Develop simple FNDC guideline for implementation of LATM's			

Activity Sheet C19	Consider development of Cycle Strategy			
Activity Sheet C27	Stock Crossing Procedure - under development			
Activity Sheet C28	Develop policy for effluent disposal facilities for stock trucks and camper vans			
Activity Sheet C29	Policy for rest areas, weighbridges and other facilities to be developed			
Standards and Guideline list	List to be edited by Far North DC and Network Consultant to indicate which of the documents are currently in use			



Christchurch City Council City Streets Unit

Road Safety Audit and Inspection

**Riccarton Road
Deans Avenue to Curletts Road**

June 2002



Christchurch City Council City Streets Unit

Road Safety Audit and Inspection

Riccarton Road Deans Avenue to Curletts Road

June 2002

Prepared By Jeff Kaye (signed under Audit Statement Page 28)
Mark Millar (signed under Audit Statement Page 28)
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Date: June 2002

Reference: Draft

Status: g:\christch.cc\vrklc5.00\report.sa - use.doc

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APPENDIX A

Health and Safety and Temporary Traffic Management Plan

APPENDIX B

SIDD (Safety Inspection Deficiency Data)

Road Safety Inspection Output

APPENDIX C

Black and Grey Spot Analysis

APPENDIX D

LTSA (AIS & CAS Data)

1 Introduction

1.1 Purpose of the Route Safety Audit

The objectives of this process are:

- To identify real and potential safety hazards/problems for all road users;
- To ensure that measures suggested to eliminate or reduce the hazards/problems, which have been identified, are fully considered.

The Route Safety Audit will:

- Audit the achievement of the Christchurch City Council, as a Road Controlling Authority, in complying with Transfund New Zealand's objectives of providing a safe and efficient roading system;
- Minimise the number, risk and severity of crashes that may be attributed to the existing condition of the road and its furniture;
- Reduce the whole life operating costs of the road.

The Safety Audit team carried out the audit inspections along the route of Riccarton Road including Main South Road between Deans Avenue intersection and Curletts Road intersection.

1.2 The Team

The Safety Audit and this report was commissioned by and undertaken for Mr Bill Greenwood, Transportation Safety Engineer, Christchurch City Council, City Streets Unit.

The fieldwork for the audit was undertaken on the following dates:

- Daytime Safety Audit/Inspection – 4 & 5 June 2002;
- Night-time Safety Audit/Inspection – 4 June 2002.

The Audit Team comprised:

- Mr Jeff Kaye, NZCE, TMIPENZ.
State Highway Corridor and Road Safety Manager
National Highway Safety Co-ordinator
Opus International Consultants Ltd
Christchurch

- Mr Mark Millar, NZCE (Civil), REA.
Network Road Safety Engineer
Opus International Consultants Ltd
Christchurch
- Mr Jeff Owen
Community Engineer
Christchurch City Council
Christchurch
(As an audit observer)

1.3 Inspection and Reporting Format

The methodology used for the audit and this report is generally as defined in the Transfund New Zealand Document – *Report No RA 97/623S “Safety Audit Procedures for Existing Roads – December 1998”*. This audit differs from these procedures in that the full extent of the road including the intersections within the route were audited, rather than the representative sample as prescribed in the Transfund NZ procedures.

The methodology for the Road Safety Inspection and recording of defects identified, broadly follows the process described in the *Transit New Zealand “State Highway Asset Maintenance Manual – Chapter 2”*, and the *Opus International Consultants Ltd, Safety Management Strategy*.

- ***Entry Meeting***

At the request of the client, the Christchurch City Council and as detailed in the request for service, an entry meeting was held on 16 May 2002 at 2.00pm in Conference Room B at the Christchurch City Council. Those present at the meeting were:

- Christchurch City Council - Mr Bill Greenwood, Mr Don Cameron and Mr Brian Neill;
- Opus International Consultants - Mr Jeff Kaye, Mr Mark Millar;
- Montgomery Watson Harza - Mr Marten Oppenhuis, Mr Mike Smith;
- Beca Carter Hollings & Ferner Ltd - Mr Shane Turner, Mr Paul Durdin.
- ***Background Information***

The client supplied copies of the Christchurch City Council Policy for:-

- Road Marking - (Maintenance and Traffic Management) detailing the required standards;

- A schedule of Street Lighting Categories detailing the target lighting levels;
- The RAMM data for the route to be audited detailing the route positions and traffic count data.
- ***Exit Meeting***

Details of the exit meeting to be held on the 27th of June 2002 will be included in the final report

- **Inspection Methodology**

The audit/inspections were undertaken over the total length of the route from Deans Avenue and Curletts Road.

The deficiencies identified were recorded on the inspection check sheets under the two broadly defined headings:

- Maintenance Items;
- Level of Service Items.

Defects were also recorded in our Safety Inspection Deficiency Database (SIDD). A copy of the SIDD output is included in this report in Appendix B. An electronic copy of the SIDD data exported to MS Excel, will be supplied with the Final report.

The length of the route was inspected as followed:

- The road was driven several times in both directions at “normal” road user speed, both during the day and at night;
- The team then undertook the detailed inspection survey of the total route “on foot” noting defects and specific items of concern. This was necessary due to safety issues, the high traffic volumes, to observe factors affecting pedestrians and disabled users and to observe factors affecting cyclist. Items of concern were recorded by dictaphone and in written form.

The inspections, both day and night were carried out during periods of fine and overcast weather. The road was dry for both the day and night inspections.

- ***Post Inspection Meeting/Report Notes***

Following each type of audit inspection, the team reviewed the previous inspection and compiled notes on all points of concern. These notes, and the SIDD output were used during the production of this report.

- **Risk Levels**

The assessment of risk levels, with respect to inappropriate standards or road safety problems, involved a judgement call by the audit team to assist in prioritising:

- Remedial works;
- Implementation on studies/strategies;
- Consideration for changes to standards and policies.

Recommendations: Have been included in the safety audit section of this report.

The recommendations have been assigned a risk level rating ranging through Urgent, High Risk, Medium Risk to Low Risk. The assessment of risk levels has been undertaken in terms of the matrix shown in Appendix 5 of the *Transfund NZ Procedures for Safety Audits of Existing Road*, and involved a judgement call by the audit team. The following is an explanation of the risk level ratings:

- **URGENT** These items should be scheduled for immediate attention as it presents a severe safety hazard which is likely to result in a fatal or serious crash in the near future.
- **HIGH** This item should be scheduled for action under normal maintenance programmes, within a six month period, as it presents a crash-promoting situation, but is not considered urgent.
- **MEDIUM** This item will generally include improvements to the overall service level of the road. The item presents an occasional remote risk of a crash occurring. The implementation of recommendations should be considered within a 12 to 24 month period.
- **LOW** This item will generally include defects of a minor nature and present a remote risk of a crash occurring. The implementation of recommendations should be programmed to be undertaken in conjunction with reconstruction or cyclic maintenance works on the road.

- **Priorities (SIDD output – Appendix B)**

The assessment of priorities, contained in the SIDD output, identifies the recommended timeframe accorded to the action, with respect to the deficiency, to the following scale:

- (i) **A** – the safety of the road user is being endangered, work should be implemented urgently (priority work) to rectify the deficiency;
- (ii) **B1** – improvement to the safety of the road will result. Work to rectify the deficiencies should be scheduled as part of the normal maintenance cycle, but requires a timeframe to be stated (maximum 30 days);
- (iii) **B2** – improvement to the safety of the road will result. Work to rectify the deficiencies should be scheduled as part of the normal maintenance cycle, but requires a timeframe to be stated (maximum 90 days);
- (iv) **B3** – improvement to the safety of the road will result. Work to rectify the deficiencies should be scheduled as part of the normal maintenance cycle, but requires a timeframe to be stated (maximum 1 year);
- (v) **C** – a decrease in operating/environmental costs or improvement to the aesthetics of the Christchurch City Council’s road will result. These are lower priority works, which should be completed over a time frame that best suits the overall roading network;
- (vi) **PF** – project feasibility, relates to more significant work, which should be added to the list of projects requiring funding to establish the project’s feasibility. An opinion on the perceived urgency of the work to be undertaken should be stated under the “description of defect” listing.

NOTE:For many items, the comments and recommendations shown in “Section 3 Safety Audit Report”, will override the comments made in the SIDD output. This is a result of the field observations, recorded in SIDD being subject to further consideration by the team, following the fieldwork.

1.4 Location of the Study

The study area for this Safety Audit covers the full length of the route from Deans Avenue/Riccarton Road roundabout to the Main South Road/ Curletts Road intersection.

For the purpose of location of defects and features along the length of the study area, route position distances have been quoted from Deans Avenue to Curletts Road as set out in the following table:

RS/RP	Side	Road Name	Intersecting Road	Other Feature
0/0.000	B	Riccarton Road	Deans Avenue	
0/0.147	R	Riccarton Road	Darvel Street	
0/0.200	L	Riccarton Road	Barlett Street	
0/0.279	R	Riccarton Road	Mona Vale Avenue	
0/0.30	B	Riccarton Road		Railway Crossing
0/0.510	L	Riccarton Road	Mandeville Street	
0/0.535	R	Riccarton Road	Harakeke Street	
0/0.653	L	Riccarton Road	Picton Avenue	
0/0.847	R	Riccarton Road	Straven Street	
0/0.847	L	Riccarton Road	Clarence Street	
0/0.982	L	Riccarton Road	Rotherham Street	
0/1.024	R	Riccarton Road	Rimu Street	
0/1.113	L	Riccarton Road	Division Street	
0/1.216	R	Riccarton Road	Kauri street	
0/1.370	L	Riccarton Road	Matipo Street	
0/1.574	L	Riccarton Road	Wainui Street	
0/1.673	R	Riccarton Road	Puriri Street	
0/1.688	L	Riccarton Road	Rattray Street	
0/1.742	L	Riccarton Road	Shand Crescent East	
0/1.856	R	Riccarton Road	Konini Street	
0/1.883	L	Riccarton Road	Shand Crescent West	
0/1.948	L	Riccarton Road	Paeroa Street	
0/2.039	L	Riccarton Road	Euston	
0/2.085	R	Riccarton Road	Clyde Road	
0/2.135	L	Riccarton Road	Wharenui Road	
0/2.470	R	Riccarton Road	Balgay Street	
0/2.542	L	Riccarton Road	Field Terrace	
0/2.630	R	Riccarton Road	Ilam Road	
0/2.650	L	Riccarton Road	Middleton Road	
0/2.830	R	Riccarton Road	Newnham Terrace	
0/3.035	L	Riccarton Road	Auburn Avenue	
0/3.106	R	Riccarton Road	Waimairi Road	
0/3.153	L	Riccarton Road	Hansons Lane	
0/3.220	B	Riccarton Road		Pedestrian Xing Point
0/3.285	R	Riccarton Road	Main South Road Yaldhurst Road	
0/3.668	B	Main South Road	Curletts Road	

2 Description of the Road

2.1 Geographical Features and Zones

- The whole of the route is flat and travels through a range of land use zones;
- RP 0/0.000 to 0/0.535 - is bordered by local business centre and residential zones;
- RP 0/0.535 to 0/1.370 is bordered by business districts and inner city industrial zones;
- RP 0/1.370 to 0/3.106 is bordered by the local business centre and residential zones;
- RP 0/3.106 to 0/3.285 is bordered by central business district zone;
- RP 0/3.285 to 0/3.668 is bordered by residential zone.

2.2 Traffic Volumes

From the information supplied by the Christchurch City Council the most recent estimated AADT's are:

- RP 0/0.000 to 0/0.535 - 25,000;
- RP 0/0.535 to 0/1.370 - 25,000;
- RP 0/1.370 to 0/1.688 - 27,500;
- RP 0/1.688 to 0/1.948 - 27,000;
- RP 0/1.948 to 0/2.650 - 26,000;
- RP 0/2.650 to 0/3.035 - 25,750;
- RP 0/3.035 to 0/3.153 - 25,500;
- RP 0/3.153 to 0/3.285 - 24,000;
- RP 0/3.285 to 0/3.668 - 20,000.

2.3 Road Environment

The road audited is surfaced with either chip seal, asphaltic concrete, friction course or short sections of paving stones. Generally this provides the road user with a relatively poor running surface.

The surface has the following defects:

- Flushing/bleeding;

- Pavement cracking;
- Bandaged cracking which is the cause of delineation identification problems;
- Minor potholes;
- Uneven surface texture;
- Rough ride; and
- Uneven service covers, some with slippery surfaces.

The pavement width varies from 10-14 metres.

The environmental speed over sections of the audit route varies and is generally too fast when there is traffic congestion and / or queuing at the signal controlled intersections.

The speeds are generally still within the legal speed limits.

The audit team felt that drivers using the road would not be exposed to unnecessary hazards and safety would not be compromised if they:

- Drove to the legal speed limits;
- Drove to suit the weather and road conditions when affected by the weather;
- Exercised due caution at roundabouts and traffic signals.

Existing delineation of the roads audited varies over different sections. Generally this is as follows:

- Centreline and flush median marking with white RRPM's;
- Reflectorised edge lines;
- Some red RRPM's.

The delineation is generally of a poor quality and of varying standard. It appears to have been designed and installed in a piecemeal fashion, section by section. The existing markings are not consistent throughout the route audited.

The directional signing is generally to a good standard but of varying quality and type.

Cyclists/Pedestrians/Disabled are catered for to varying standards with a less than desirable quality generally over most of the route audited.

2.4 Crash Data

The team obtained the LTSA, AIS & CAS data relating to the route for the period 01 January 1997- 23 May 2002.

A total of 461 crashes were recorded on the data:

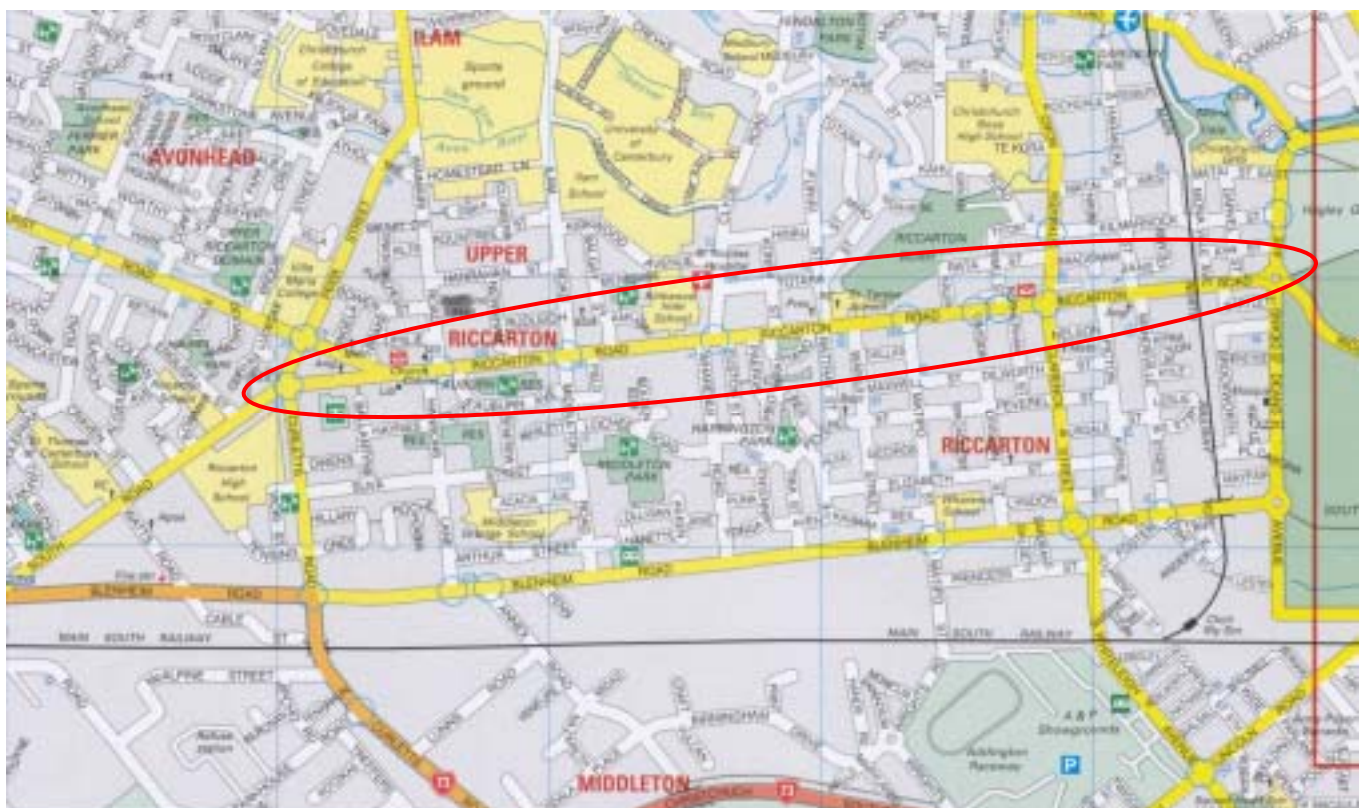
- 29% Mid Block crashes and 71% Intersections crashes;
- 22% or 101 crashes were injury crashes;
- 14 were serious injury crashes;
- 87 were minor injury crashes;
- 360 were non-injury crashes.

The crash types occurring on the route are:

- Overtaking 4%
- Lost Control/Head On 6%
- Pedestrian 4%
- Intersection 49%
- Rear end/Obstruction 37%

The Black and Grey Spot analysis for the route was referred to prior to and during the audit inspections. This analysis can be found in Appendix C.

2.5 Map of Area Denoting Roads Audited



3 Safety Audit Report

3.1 Maintenance Items

3.1.1 Route Delineation

- **Problem – Variations in Delineation**

The existing delineation of the route audited generally consisted of:

- Centreline and lane line markings with white RRPMS;
- Central flush median in some sections but not on other sections of the route that appeared to suit the installation of this feature;
- Reflectorised edge lines;
- Some red RRPM's on edge lines adjacent to obstructions;
- Edgeline tapers of varying lengths;
- No stopping lines of varying lengths and styles;
- Some redundant markings that were still visible;
- Inconsistent markings at intersections, in particular the location of intersection control limit lines.

All road markings were generally in poor condition.



Example of redundant markings that are still visible – Clyde Road



Example of an obstruction, which is not delineated with red RRPM's – Kauri Street intersection.

Recommendation

- Install RRPMs and pavement marking as identified in the safety inspection section (SIDD output) (see Appendix B) to ensure a consistent standard and quality throughout the length of the route audited;
- Prior to the next scheduled remark consider undertaking a pavement marking design over the full route to ensure consistency over the total length;
- Risk level “**High Risk**”.

3.1.2 Speed Limit Signs

- **Problem – Lack of Speed Limit Signs**

The legal speed limit on the route audited is 50 km/hr throughout the full length.

The route has **no** speed limit signs installed.

Considering that Riccarton Roads is a major route, the auditors considered that some advise to the road user of the Posted Speed limit is essential.

Recommendation

- Install 50 km/hr Speed limit signs at appropriate positions and spacing along the full length of the route;
- Install additional speed limit signs adjacent to major feeder intersections long the route;

- Risk level – “**Medium Risk**”.

3.1.3 Signage

- **Problem – Inconsistent Signage**

Signage is inconsistent throughout the route audited and generally includes all types of signs.

- Street nameplate signs are of varying standard and in many cases are located in positions where they are not visible to road users on the main route;
- Parking control signs are of varying standard, are generally in poor condition and are erected at varying heights and angles to the main route;
- The signage associated with the railway crossing is in poor condition and is to the “old’ standard;
- Many intersection control signs are damaged and some have been erected over the old shape signs. The latter feature makes the identification of the side road control type difficult for main route road users.



Example of damaged intersection control sign installed over “old” style sign – Kauri Street intersection



Example of a badly located Street Name Plate that is not visible from Riccarton road – Bartlett Street intersection.

Recommendation

- Install consistent signage throughout the route in the appropriate location with additional signs as required;
- Use MOTSAM Part 1 as a reference to standardise signage type, installation and location;
- Review current Street Name signage with a view to upgrading. The installation of any new signs should generally be on dedicated supports and located where they can be clearly seen by main route road users;
- Install advanced warning signs for intersection, which have turning restrictions;
- Upgrade the Railway Crossing signage immediately;
- Risk level “**High Risk**”.

3.1.4 Vegetation Control

- **Problem – Lack of vegetation maintenance/control within road reserve.**

Vegetation is obscuring signs, blocking visibility and sight distances, overhanging the carriageway and footpaths and affecting pedestrians. See photograph below.



Example of vegetation overhanging footpath and blocking visibility to signage

Recommendation

- Trim or remove existing vegetation within the road reserve and implement maintenance programme;
- Give notice to property owners to trim or remove existing vegetation and follow up regularly;
- Risk level “**Medium Risk**”.

3.1.5 Traffic Signals

- **Problem – Traffic signals are misaligned, not visible and too low.**

Some traffic signals have been hit, twisted or damaged, while others are located out of view from approaching traffic. In many cases the signal aspects are mounted too low. Examples of defects are:

- Traffic signals at intersections being too low;
- Traffic signals behind poles, verandas or trees – example at Division Street intersection;
- Traffic signals that are rotated on their poles or have been hit, and are either damaged or broken.

Recommendation

- Review traffic signal location and heights;
- Check maintenance performance and review to ensure damage and rotation of signals is repaired;
- Risk Level – “**High Risk**”.

3.1.6 Pedestrian/Disabled Persons Facilities

- **Problem – Inadequate facilities for the Users**

Footpaths and pedestrian cut downs are in poor condition and in need of immediate review and modification.

- Cut downs at kerb and channel interface are generally of poor condition and require reconstruction to remove steps and improve slopes for mobile scooters and wheelchairs as well as pedestrians;
- Surfacing on footpaths is very rough and uneven/stepped in many places;
- Surfacing across the carriageway at road crossing points is rough and stepped in many places;
- In some locations remedial work on service trenches is of a poor standard. When this defect occurs in a pedestrian travel path the resulting trip hazard is of concern.



Example of poor pedestrian cut downs, trenches that have been poorly repaired and could be trip hazards and slippery service cover plates.

Recommendation

- Review existing condition of pedestrian cut downs, footpath and crossing point surfacing and manage replacement with remedial actions being prioritised to ensure the removal of the most hazardous defects first;
- Investigate the real needs required for disabled persons at crossing points and implement remedial repairs ASAP to effect immediate improvements for users of mobile scooters and wheelchairs;
- Risk level – “**High Risk**”.

3.1.7 Road Surface

- **Problem – The Road Surface is variable throughout this route**

The surface of the road throughout the route varies from nearly new fine textured surfacing through to badly worn friction course or chip seal surfacing. The major defects observed are: -

- Service trenches that have been installed with surfacing that provides a poor level of ride;
- Surface crack repairs (bandaging) and trench edge repairs that are slick. At night and in poor light conditions these repairs can be mistaken for centreline and lane or edge line delineation and transverse limit lines and the like;
- Some sections of the road are showing signs of polishing and flushing, which may result in reduced skid resistance and differential variations in skid resistance;
- Sections that have been surfaced with friction course are showing signs of heavy wear particularly at intersection turning paths and at intersection high demand braking areas.

Recommendation

- Consider undertaking skid resistance and texture depth testing of the road surface throughout the route to determine the current level of the top surface condition;
- Consider undertaking immediate remedial repairs to polished and flushed areas and sections of the road with surface and subsurface failures such as potholes as a holding measure;
- Consider developing a strategy to cater for the resurfacing of the total route and prioritise this action within the Councils resurfacing programme. This is a high use road that requires a good standard of ride and braking skid resistance;
- Risk level – “**High Risk**”.

3.2 Level of Service Items

3.2.1 Uncontrolled and Controlled Intersections

- **Problem – High Exposure for Right Turn Motorists**
 - Right turn bays were observed to be functioning well although in many cases the stacking length was inadequate resulting in queuing occurring in the through lane;
 - The installed flush median generally continued through the intersections with no gaps and associated right turn stacking areas. This may lead to road users being reluctant to move onto the flush median prior to the turn position;
- Some examples are:
- Riccarton Road/Matipo Street Intersection
 - Riccarton Road/ Wainui Street Intersection
 - Riccarton Road/Puriri Street Intersection
 - Riccarton Road / Rattray Street Intersection
 - Riccarton Road/ Bush Inn Shopping Centre Entrance
- Some sections of the road without a flush median have a high crash rate associated with rear hit and turning type crashes. These sections of the road generally have high use roadside development such as motels and medical facilities on both sides of the road.

Recommendation

- Consider the installation of a central flush median to increase the safety for vehicles turning into both residential and commercial properties. The Auditors recommend that the flush median be installed as per MOTSAM at the following locations:
 - R.P 0/0.00 to 0/ 0.850 – Deans Avenue to Clarence Street/Straven Road intersection;
 - R.P. 0/1.11 to R.P.0/1.37 – Division Street to Matipo Street intersection;
 - R.P. 0/2.135 to R.P.0/3.035 – Wharenui Road to Auburn Avenue Intersection.
- Modify the existing flush median to provide right turn bays at intersections where required;

- Consider the extension of right turn stacking areas at all right turn bays where queuing will affect the ability of through traffic to pass the section of road on the left hand side of vehicles waiting to make a right turn;
- Risk Level - “**High Risk**”.

3.2.2 Street Lighting

- **Problem – Standard of existing street lighting along the route.**
 - The standard of lighting varies over the route audited and generally would comply with the requirements of the previous “Main Road” standard. However the majority of the route will not comply with the requirements of Category V2;
 - The recently completed reconstruction from Matipo Street to Puriri Street was one of the worst lit sections of the route and would almost certainly not comply with the requirements of Category V2;
 - Generally intersections are not lit to a standard which is higher than the main route and some conflict areas are lit to quite a low standard – example Clarence Street/Straven Road intersection;
 - Conflict lighting on all gazetted pedestrian crossing does not appear to have a minimum of 20 Lux illumination over the total “Zebra” crossing.

Recommendation

- Consider an investigation of the current level of street lighting along the total route;
- Consider implementing a prioritised lighting upgrade strategy for this busy road;
- Review the installed lighting standard on the section of road from Matipo Street to Puriri Street;
- Risk Level - “**Medium Risk**”.

3.2.3 Railway Crossing

- **Problem – Railway Crossing set up not to new standards**
 - The audited team observed that the Railway Crossing at the eastern end of the road does not have signs and pavement markings that comply with the latest standard as described in MOTSAM;
 - The surfacing of the road adjacent to the crossing is very rough which provides poor ride characteristics;

- There is a pedestrian verses vehicle conflict on the north eastern side of the crossing, where the footpath is not defined. This could lead pedestrians into conflict with eastbound vehicles left turning into Mona Vale Avenue;
- The roadside barriers on both sides of the road adjacent to the crossing are a timber post and rail and are in poor condition. In the event of a wayward vehicle impacting the barriers the rail could be a hazard that may increase the severity if the crash.



View looking west showing the pedestrian/vehicle conflict area where the footpath terminates and the roadside barrier.

Recommendation

- Review and implement Railway Crossing signage and road marking in terms of the latest standards as shown in MOTSAM;
- Implement a project to upgrade the carriageway/railway crossing junction including surfacing, pedestrian facilities and safety barriers;
- Risk Level - “**High Risk**”.

3.2.4 Cyclist Facilities

- **Problem – Inconsistent Cyclist Facilities**
 - Generally there are few provisions for cyclists on the route;
 - Some of the cyclist provisions, which are currently in place, are inadequate, may be dangerous and in some cases may be better removed instead of providing a false impression of a safety zone for cyclists;

- Where there are no provisions at all, it was observed that there is a definite need to specifically cater for cyclists due to the numbers using the route;
- The future provision cycle facilities may result in the need to provide alternative routes for cyclists and restricting cyclist access to certain parts of the route.



View looking east, on the approach to Deans Avenue Roundabout, showing an inadequate cycle lane. Note position of sump grate.



Close up, showing narrow cycle lane and cycle marking extending into live lane

Recommendation

- Fully review all options available to cyclists and align these to other facilities provided in the Christchurch City Council Cycle Strategy and in accordance with MOTSAM standards;
- Consider the provision of off road facilities and the possibility of restricting access to certain sections of the route;
- Risk Level - “**High Risk**”.

3.2.5 Advertising signage

- **Problem – Free standing sandwich board signs on Road Reserve**

The audit team observed on a number of occasions the complete over use and obstruction caused by sandwich board signs, which were erected on footpaths and berms. This combined to the excessive amount of signage mounted on buildings and in private property must be a source of driver distraction for road users. These problems include:-

- Sandwich boards that reduce the available footpath area – this must be a problem for disabled users;
- Signage that is mounted on fences, buildings and private property that could be the cause of driver distraction;
- Signage of all types that are blocking visibility and / or sight lines;
- High numbers of internally lit signs adjacent to traffic signal controlled intersections that may cause the road users attention to be diverted from the driving task. An example of this is the McDonalds site on the corner of Riccarton Road and Matipo Street - 5 illuminated white strips on the roof, an illuminated red and yellow McDonalds sign on the roof, and two pole mounted illuminated signs (Drive in and Mc Café).



Example of excess signage – Puriri Street intersection



Example of excess signage – Church Corner.

Recommendation

- The Christchurch City Council should review the advertising signage policy for Riccarton road in term of the Bylaw for Signs in Public Places and to take enforcement action where this is warranted;

- Where appropriate the Christchurch City Council should review conditions of Resource Consents for roadside activities, with respect to advertising signage and where necessary take appropriate enforcement action;
- Risk Level - “**Medium Risk**”.

3.2.6 Pedestrian Crossing Points

- **Problem – Pedestrian Crossing location**

The audit team observed pedestrians crossing the road in large numbers close to but not at the provided crossing points.

This practice was occurring at the pedestrian crossing to the east of Bartlett Street, at the Westfield Shopping Centre (where no formal crossing place is installed) and adjacent to the pedestrian refuge located near the Countdown car park area.

Details of the problems are as follows:

- Bartlett Street crossing – appears to be located too far to the east with relation to the bus stops. School children and others are tending to not use the crossing place but to cross the road directly, hence putting themselves at risk. The existing Bartlett street pedestrian crossing does not stand out to the road users as no bulbous kerbs and central splitter islands have been installed;
- Adjacent to the Westfield Shopping Centre – no formal crossing place. Pedestrians are in the main crossing the road adjacent to the bus stops on both sides of the road. This presents a real hazard for pedestrians on a section of the route where drives attention may be diverted by looking for access to the shopping centre and the McDonald’s outlet;
- Adjacent to the Countdown car park – Church Corner. The pedestrian refuge seems to be in the right place but access for the car park area does not line up with the access to the refuge. The problem is compounded by the entrance to and exit from the Countdown car park onto to Riccarton road, which is located between pedestrian access to the car park and the location of the refuge.

Recommendation

- Consider relocating the pedestrian crossing at Bartlett Street further to the east and installing Bulbous kerbs and a central splitter island to accent the existence of the crossing;
- Consider the installation of a pedestrian refuge adjacent to the Westfield Shopping Centre adjacent to the redundant vehicle crossing at No 140 Riccarton Road. See photos below.



Suggested Pedestrian crossing point location adjacent No 140 on the north side of Riccarton Road



Suggested Pedestrian crossing point location on the south side of Riccarton Road. Note the pedestrian access from the shopping centre car park may need to be relocated.

- Consider providing pedestrian directional signage (maybe modelled on the TW- 32 type signs) pointing towards the crossing point. Also consider closing the vehicle access and exits to the Countdown car park from Riccarton Road to improve pedestrian safety. This would require all access to the car park to be from Hansons Lane with access to Riccarton Road via the traffic signal controlled intersection;

- Risk Level - “**High Risk**”.

3.2.7 Intersection Redesign

- **Problem – Existing Complex Intersections**

The audit team observed three main intersections had significant problems inherent to the intersection design. These are:

- Riccarton Rd./Straven Rd./ Clarence Street;
- Riccarton Rd./Ilam Rd./Middleton Rd;
- Riccarton Rd./Main South Rd./Yaldhurst Rd.

Problems associated with these intersections are:

- Road user confusion with the some what strange right turn directions and movements;
- Queuing and lane confusion;
- Intersection exit merging conflicts;
- Traffic signals position, operation and guidance;
- Lack of advance intersection directional signs;
- Pedestrian and disabled persons facilities within the current intersections;
- Visibility for all road users.

Recommendation

- Consider the urgent redesign of intersections including the factors listed above and the increase in traffic flows since the existing intersections were installed;
- During the design process consider the provision for dedicated right turn lanes and controls for this movement;
- Incorporate provisions for cyclists, pedestrians and disabled users into the designs;
- The designs should aim at reducing the intersection conflict areas to a minimum;
- Risk Level - “**High Risk**”.

3.2.8 Intersection exit merge areas

- **Problem – Insufficient merge lengths at Intersections**

Many intersections were observed to have exit merge area of an insufficient length to allow the manoeuvre to be undertaken safely as the two lanes merge into one. This problem generally occurs on the exit from traffic signal controlled intersections.

Examples of this problem are as follows:

- Matipo Street intersection – west bound – edge line starts too soon after the intersection. This encourages motorists on the LH side to move towards the centreline too early. No merge advisory signs installed;
- Clyde road – east bound – no stopping restriction east of the intersection too short. No merge advisory signs installed;
- Wharenui Road intersection – westbound – Two lanes at the traffic signal controlled intersection are forced to merge into one lane through the intersection because of parked cars on the west side exit. No merge advisory signs installed;
- Ilam Road - east bound - no stopping restriction east of intersection too short. No merge advisory signs installed;
- Waimairi Road exit – westbound adjacent to Bush Inn Shopping centre entrance - edge line starts too soon after the intersection, no stopping restriction east of intersection too short. No merge advisory signs installed.



Looking west on approach to Wharenui Road intersection - Note two through lanes



Looking west on exit from Wharenui Road intersection - Note no merge length because of parking area - two lanes must merge through intersection.

Recommendation

- Matipo Street intersection – west bound - Install PW- 43 merge sign. Remove edge line back to bus stop and extend lane lines west of intersection;
- Clyde road – east bound – Install PW- 43 merge sign. Extend No Stopping restriction to 1st driveway;
- Wharenui Road Intersection – westbound – consider removing parking or providing setback parking to allow the two lanes to merge after the intersection exit. Install PW- 43 merge sign;
- Ilam Road - east bound - Install PW- 43 merge sign. Extend No stopping restriction to 1st driveway;
- Waimairi Road exit – westbound adjacent to Bush Inn Shopping centre entrance – Remove parking from in front of the Super Liquor outlet, extend the No Stopping restriction and start the edge line taper after the west entrance to the BP service station. Install PW- 43 merge sign;
- Consider redesigning the east bound entrance to the Bush Inn Shopping Centre east of Waimairi Road, to remove the concrete channel from the left turn lane and lengthen the left turn lane for the car park entrance;
- Risk Level - “**High Risk**”.

4 AUDIT TEAM STATEMENT

We certify that in the preparation for and during this safety audit we have used the following documents:

- Transfund New Zealand – Safety Audit Procedures for Existing Roads – December 1998 –Report No RA97/6235.
- Transit New Zealand – State Highway Asset Maintenance Management Manual – Chapter 2, Safety Management Strategy – February 1996.
- Road Location and Distance Data, including AADT’s – supplied by Christchurch City Council ex RAMM data.
- The Pavement Marking and Street lighting target standards - supplied by Christchurch City Council.

We have inspected the road over the length detailed in the report. We have endeavoured to identify features of the road and intersections on this road, which could be removed, modified or upgraded to improve safety. The problems identified have been included in this report, together with assessed risk levels and recommendations, which should be considered for implementation and/or remedial action.

Signed: Date:

JEFF KAYE, National Highway Safety Co-ordinator, Opus International Consultants Ltd, Christchurch.

Signed: Date:

Mark Millar, Network Road Safety Engineer, Opus International Consultants Ltd, Christchurch.

APPENDIX A

Health and Safety and Temporary Traffic Management Plan

APPENDIX B

**SIDD (Safety Inspection Deficiency Data)
Road Safety Inspection Output**

APPENDIX C

Black and Grey Spot Analysis

APPENDIX D

LTSA (AIS & CAS Data)

Safety Management System



2003



Prepared by:



19 August 2003

Foreword

To be developed by Council

This document is an initial draft and is subject to further work being undertaken, management approval, internal and external (including public) consultation.

Record of Amendments

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Philosophy

The Safety Management System (SMS) is a live document and will see amendments and additions as a result of on going development, policy decisions, emerging trends and specific requirements. However, it is considered to be a management tool, which can be effectively used by Client, Consultant or Contractor.

An essential component of the Safety Management System is the continued development of a "Safety Culture" with all the stakeholders associated with the Rodney District Council (RDC) Road Network. It is imperative that the road network be viewed in the "eyes of the road user", ensuring that a consistent standard of information is presented, and conflicts are eliminated.

Whilst the document addresses Rodney District Council's formal requirements, several new or developing initiatives are proposed and will be implemented over a planned timeframe.

A totally integrated Safety Management System comprises of the key elements of both engineering and non-engineering aspects of Road User Safety.

The key engineering elements will be detailed in the Road Engineering Safety Management Plan, these being:

- Safety Objectives
- Identification of Safety Related Deficiencies and Issues
- Development of Safety Databases
- Implementation, Supervision and Monitoring of Identified Safety Deficiencies

The non-engineering elements of the Safety Management System are the Community based components that are either directly or indirectly related to Road Safety. These involve the elements also currently undertaken by National Bodies, but whose responsibility may change under the current reforms. These will be developed in association with the Road Engineering: Safety Management System, under the separate headings of:

- Education / Publicity
- Enforcement

Road Safety Strategy

Vision

The Council challenges the District to meet the vision of:

“To engage with our partners to achieve a level of safety that is as safe or safer than similar Local Authorities in New Zealand.”

The Big Picture

Many organisations are involved in the drive to improve road safety in New Zealand.

Some organisations, such as the Land Transport Safety Authority (LTSA), were formed solely for this purpose. For other organisations, such as the *Rodney District Council*, road safety promotion is an integrated part of the multifaceted governance role.

Rodney District has a wide range of safety ‘stakeholders’. For those working in the field of road safety it is important to understand the objectives of each stakeholder and to identify where there may be shared safety opportunities. The sharing of resources and skills to target these opportunities will enable the development of a focused safety culture in Rodney District.

Current Road Safety Strategy

The document “Rodney Land Transport Strategy” was produced by the Rodney District Council, in conjunction with public consultation and is valid for the period **1999-2004**. The document is currently under review(2003). The Rodney Land Transport Strategy defines the road safety issues and goals for the District.

The strategy assists the Council in enhancing road safety throughout the District and to help integrate the activities of the public, maintenance activities and all interested parties.

In the short term the strategy emphasises key road safety issues and targets. It identifies responsibilities, develops a set of action plans to address the key road safety targets and encourages a co-ordinated community approach to use resources efficiently

The Road Safety Co-ordinating Committee consists of representatives from the major partners in road safety, plus occasional guests from other interested parties, representing both groups and individuals.

This process is implemented through "Road Safety Partnerships".

Road Safety Partnerships

The Council recognises that it cannot expect to achieve the desired progress without the involvement and co-operation of key outside bodies and views this strategy as a 'partnership' extending beyond Council to include professional associations, Police, ratepayers association, road users, etc.

Rodney District Council is undertaking a review of the current organisational structure for road safety. It is proposed that the new structure will include a mechanism that allows consultation, and process development, with organisations such as those listed below.

It is anticipated that the following organisations or individuals will be represented on the Rodney District Road Safety Co-ordinating Committee:

- Land Transport Safety Authority
- Rodney District Council
- Transit New Zealand
- NZ Police
- Police Education
- NZ Automobile Association
- Road Transport Association
- Auckland Regional Council
- Crown Public Health
- Te Ha O Oranga Ngati Whatua
- [Please note RDC has a MOU with Ngati Whatua O Kaipara]
- Rodney District Road Safety Co-ordinator (Jacki Dawson)

In addition to helping develop the Rodney Road Transport Strategy it is proposed that the above group meet quarterly to discuss and attempt to solve road safety issues. These are identified by the following means:

- Identification from the structured SMS approach,
- From statistics and target groups identified in the key road safety documents
- From direct approach by other community groups and members of the public

Consultation

Other community groups with a focus on road safety are actively encouraged to participate in the development of road safety within the Rodney District Council.

These include groups such as:

- Plunket
- Mobility groups (vision impaired / mobility impaired)
- General public consultation

The main conduit for the community consultation process is the Road Safety Co-ordinator, who is employed by Rodney District to co-ordinate, facilitate and manage local efforts to address identified road safety problems.

Problem Analysis

The key problems in the area are analysed via the outcomes of the SMS process and annually via the LTSA Road Safety Data Report and the LTSA Road Safety Issues Report. These reports also enable comparison with the appropriate peer group and the country generally. A local database of crashes not reported to the police is to be developed and utilised.

Details of crashes and at risk groups are identified through both the RDC and LTSA annual reports.

Key Safety Target Areas

Road safety problems for Rodney District, identified from the LTSA Road Safety Issues¹ Reports are:

- Crashes on bends
- Roadside Hazard
- Speed
- Drink Driving

Primary rural issues **[to complete]**

This will be accomplished through an integrated approach under the SMS - Engineering, Enforcement, Education - and ties to RSS 2010.

Underlying each of these target road safety problems is the overall issue of road users behaviour and attitudes. Changing attitudes so all road users take responsibility for road safety is necessary to improve road safety. Local actions and campaigns supporting National campaigns addressing attitudes and responsibility are necessary to develop a good road safety culture and reduce the overall crash problem. A copy of the latest year Road Safety Issues Report is attached in Appendix M.

The five key road safety problems are therefore:
ad safety problems are therefore:

- Attitudes and Responsibilities
- Crashes on bends
- Roadside Hazards
- Speed
- Drink Driving

¹ Rodney District; Road Safety Issues 2003

These key safety problems will be reviewed annually upon the release of the LTSA Road Safety Reports to ensure focus with identified issues.

Underpinning this strategy, Rodney has set both a short term and long term goal. These are:

- Short term goal - to achieve an annual reduction in the number and severity of road crashes.
- Long term goal - to reach a level of best road safety practice in New Zealand by 2005.

These goals were consistent with the objectives of the National Road Safety Plan and are complemented by the Auckland Regional Land Transport Strategy², the Auckland Road Safety Plan³ and the 2010 Strategy.

Network Diversity

The greater Rodney District Council road network is dominantly rural in nature, and suffers all the problems inherent to a rural network. Rodney District is currently going through high growth in areas over the network [to complete] [where / how much / predicted growth]

However care should be taken to recognise and maintain those areas of the network that are urban in nature. These are predominantly associated with the Hibiscus Coast. However it is recognised that there is future demand in locations such as Helensville, Kumeu, Warkworth or areas zoned for future urban development. These urban road networks have their own inherent needs and issues that require consideration.

The task of this Safety Management System is to identify a process that will recognise and address the issues for each environment, and allow an integrated process to achieve a common goal that produces safety improvements over the whole of the network.

² Auckland Regional Land Transport Strategy 2003; Auckland Regional Council

³ Regional Road Safety Plan 2003 - 2006; Roadsafe Auckland, 2003

1 Purpose of the SMS

The objective of the Safety Management System is “to provide a comprehensive set of procedures and programmes to effectively implement Rodney District Council’s “**Road Safety Strategy**”.

The Safety Management System has initially been developed for the Engineering section of the Rodney District Council. Key components of the document will be discussed with other sections of the Council, with the long term goal of the development and integration of all sections of Council under a unified Safety Management System.

The Safety Management System allows the integration of all facets of road safety. These include *Enforcement, Education / Publicity, Road Engineering* and *Encouragement & Empowerment*. **District Planning?????** **These facets are collectively known as “4E”.**

All of these key components allow for the delivery of a safety process that benefits Rodney District Council and its road users.

Figure 1 below outlines the relationship that the Safety Management System and the Road Safety Strategy has to the key components.



Figure 1: Key Components of a Safety Management System

The desired outcome of the Safety Management System is to achieve consistency and from that a reduction in the number of conflicts and in the number and severity of crashes on the network.

As time goes on new sections can be added to the Safety Management System reflecting Council requirements.

The document has been written so it can be viewed and utilised in its entirety by the Rodney District Council, Consultant’s and Network Contractor’s Management

Teams. Equally it can be read in part, which allows a specific focus e.g. Intervention Plan which Contractors can use as a basis for promoting the desired culture among their workforce.

1.1 Development of Components

The sections the follow therefore introduce each of the 4E's, and apart from Engineering, will be fully developed by Council over a timescale yet to be determined. However Rodney District Council has many ongoing activities involving Enforcement and Education and these can be simply introduced into the SMS document as the opportunity arises.

2 Education / Publicity

The Rodney District Road Safety Co-ordinator, in partnership with other community groups, is involved in a number of community education projects. The catalyst for these projects are identified either by members of the community or the Rodney District Road Safety Issues Report.

As well as working with the co-ordinating committee a number of external groups carry out their own education programmes. These include the LTSA Code Red campaigns, LTSA education campaigns, Accident Compensation Commission (ACC) and Police campaigns to name a few. Where possible, measurable results are noted.

The Road Safety Co-ordinator reports bi-monthly to the Rodney District Council (Strategic Group) The Road Safety Co-ordinating Committee.

The key stakeholders will develop the education initiatives based on both local and national strategies.

3 Enforcement

To be developed - under consultation leading para

The Rodney District Council, Transit, Land Transport Safety Authority and the Police meet six-monthly to discuss Risk Targeted Patrol Plans. Police are also represented on the Road Safety Committee and take part in a number of community initiatives each year.

The Rodney District Road Safety Co-ordinator, the LTSA Regional Education Advisor and the **Roading Manager** actively liaise with the New Zealand Police for the allocation and evaluation of Police hours for the strategic outputs in the New Zealand Road Safety Programme.

The key stakeholders will develop the enforcement initiatives based on both local and national strategies.

4 Encouragement / Empowerment and Environmental Planning Enforcement.

The Rodney District Council.....

The key stakeholders will develop the encouragement and empowerment initiatives with communities and stakeholders based on both local and national strategies.

To be developed - under consultation [state aims and desired outcomes]

5 Road Engineering - Safety Management Plan

A Safety Management Plan defines the processes, methodologies and programmes for achieving a consistent road environment based on recognised standards and guidelines aimed at reducing the number and severity of road crashes where a deficiency in the design, traffic management or maintenance of the road is a casual or contributing factor. These systems are subject to financial constraints.

An effective Safety Management Plan:

- Is a detailed method of managing the road network to improve safety;
- Documents road safety strategies, policies, standards, procedures, programmes, staff expertise, management and audit systems of Rodney District Council;
- Is an integral part of the overall management system for the road network.

The document has been prepared based on a firm partnership between the Rodney District Council, Consultants and the various physical works Contractors, with input also from external agencies; AA, Road Transport Association, LTSA, NZ Police, adjacent Road Controlling Authorities, etc and the public. Accordingly the Road Engineering: Safety Management Plan (RE:SMP) is subdivided into various parts, designed to be targeted at the various key players to assist them in carrying out their respective roles within the partnership.

A feature is that the various parts of the RE:SMP can and will be viewed and utilised separately where necessary to target a specific component or partner.

Road Engineering Components

In broad terms, the road safety system for Rodney District Council's road network can be categorised under three components these being *Primary Components*, *Secondary Components* and *Safety Partnerships*.

- *Primary Components* are where road safety is a clear key focus.
- *Secondary Components* have an alternative key focus but with a strong road safety requirement.
- *Safety Partnerships* developed to ensure a consistent and united approach nationally and locally.

This three way relationship is illustrated in Figure 2. All Council staff, network consultants and contractors engaged in safety related activities need to understand and contribute to this relationship.

A rectangular box containing the text "Rodney District C".

Figure 2: Road Safety Components

The following sections of the RE:SMP detail a summary description of each component, and the safety related aspects associated with it. The summary description introduces the worksheets breaking the component into tasks where appropriate. For a specific task there may be more than one worksheet, dependent on how that task impacts on, or is influenced by other tasks.

The worksheets in Appendix B provide design, safety issues and operational direction including maintenance, for activities within the road reserve. These templates are for use by Council staff, their consultants and contractors as well as to inform the public.

Primary Components

5.1 Safety Inspections

The main objective of the inspection process is 'to ensure that drivers are getting the correct messages from the road'. Hence it is a primary means of gathering network deficiencies and issues.

The deficiencies identified through the inspection process need to be compiled into a central system to facilitate effective work programming and implementation. Where necessary identified issues shall be put forward into the Rodney District Council's Minor Safety Improvement and 10 Year Forward Works Programme.

A detailed map of the Rodney District road network is attached in Appendix C.

5.1.1 Routine Safety Inspections

Routine safety inspections will take the form of a combined Audit / Inspection process that will include both a detailed list of deficiencies as well as observations with due regard to the applicable road standards.

5.1.2 Mass Action Inspections

Mass action inspections provide focus and enhance the general inspection process. Mass action inspections are to be undertaken for two issues agreed either annually, or at the instruction of the Council, and implemented in both directions. Mass action inspections should also become a focus for staff when travelling from base to a work site. In addition this process should be incorporated with the routine maintenance inspections.

Examples of Mass Action inspections include:

- Intersection Visibility and layout;
- Intersection Control;
- Curve warning (Rural), Advisory speed and chevron protection;
- No overtaking lines;
- Object and Structure protection;
- Clear zone availability;
- Embankment protection.

SCRIM results will be examined on low radius horizontal curves as experience has shown that if SCRIM results are averaged in two lanes, some lanes in crucial locations are actually deficient. This action will be matched to the mass treatments proposed.

5.1.3 Programme of Inspections

Road hierarchy will determine the selection of road length sections as per Table .

Hierarchy	Frequency	Total Road Km	Inspection Road km / year
Strategic Route	100 % yearly	km	km
Regional Arterial Route	50 % yearly	km	km
District Arterial Route	20 % yearly	km	km
Collector	20 % yearly	km	km
Local	20 % yearly	km	km

Table 1: Road Selection Lengths

Those roads showing high crash rates will be considered for priority selection.

Trends evolving from inspections can be detected and if necessary, related to the remainder of the Network ahead of schedule, e.g. Via safety culture among contractors (signs covered by vegetation, etc).

This procedure allows for the full coverage of the lower status roads on the network on a five year cycle.

Safety inspections will be undertaken as requested for the following inspection types:

- Route Safety Inspections
- Daytime inspections
- Night time inspections (Pre winter)
- Transport Modes

Related Worksheets

WS 5.1.3 Network Maintenance Safety Inspections

WS 5.9.4 Road Hierarchy

5.1.4 Routine Maintenance Inspections (Safety Focus)

The Rodney District Council road maintenance staff, as part of the regular surveillance of the area and supervision of the Contractors work programme, undertake maintenance roadway inspections. As well as all other responsibilities associated with these inspections, road safety is a focus.

Maintenance inspections of works are undertaken by other sectors of the Rodney District Council. These can be from departments such as Parks and Recreation (Vegetation Control and Landscaping), Drainage (Drainage, waterways), The Engineering section will facilitate training programmes with these departments and their contractors to assist with the identification of safety issues on the network.

In addition, this process should be incorporated with the mass action inspections.

All deficiencies identified are to be recorded and entered into the appropriate database.

5.2 Public Safety Concerns

Safety Issues raised by the public are handled through the call centre log process. All incoming concerns are assessed for safety implications and are prioritised with pre defined response procedures.

The Rodney District Council call centre has a systematic process with pre-defined questions that enable call centre staff to assess the safety implication of any individual call.

An individual call log is entered into the call centre database and a work task is produced. An example of the Query Log form is attached in Appendix F.

- Mail: **To be developed**

- Phone: The Rodney District Council call centre will take the call and assign the call to the appropriate staff member. [call management system]
- Emergency events: Are actioned directly to the relevant physical works contractor.

Related Worksheets

- WS 5.2.0 Call Centre Operations
- WS 5.3.0 Safety Deficiencies Database

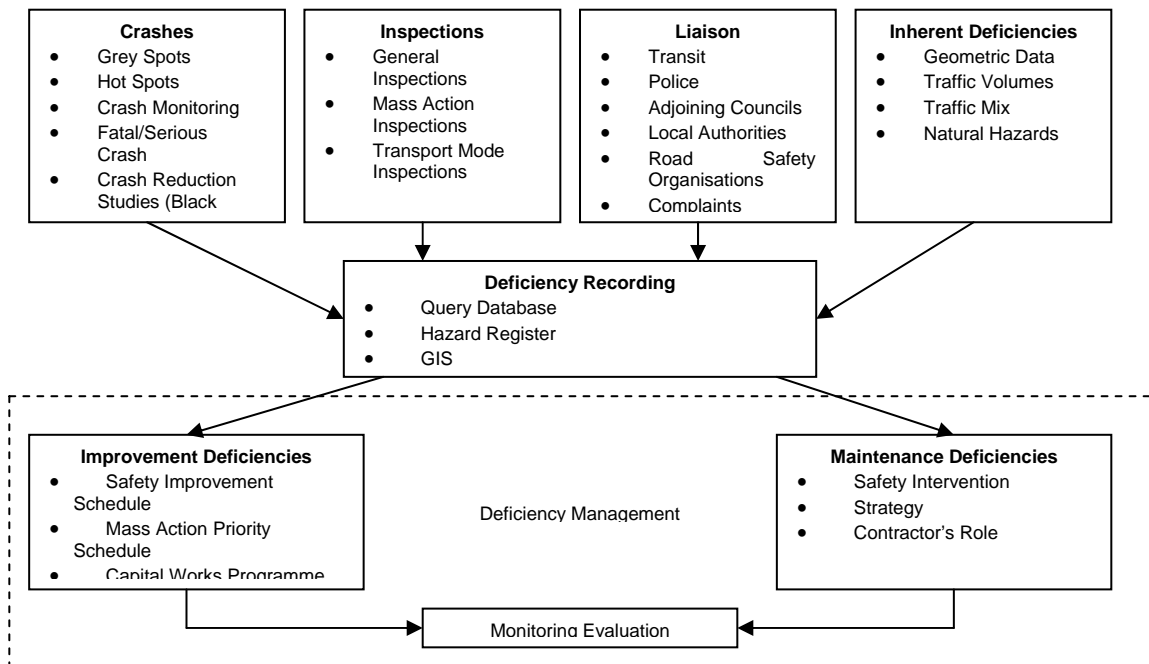
5.3 Safety Deficiency Database

It is important that safety deficiencies identified in the safety inspection process, along with queries received from; the Public, Consultant, Contractors, the Council staff, or other sources receive the appropriate attention and the necessary and correct follow up action.

All queries received and information acquired from inspections are input into a Safety Deficiency Database.

The Safety Deficiency Database is to handle all queries received plus information acquired during safety inspections. The database is designed to avoid double handling and hence once entered will be produced as a task list for implementation in the identified work categories.

The database will collate data from a wide variety of sources as detailed in the diagram below. The database shall provide for a consistent style of data collection to ensure compatibility of data.



The above diagram indicates how inspections fit into the overall safety framework to enhance the safety performance index and to drive safety into the network.

Related Worksheets

WS 5.3.0 Safety Deficiencies Database

WS 5.4.3 Crash Reduction Studies

5.4 Network Safety Deficiency Analysis

5.4.1 Grey Spot Studies

If problem sites are to be identified and treated at the earliest opportunity, a system that intervenes in a more proactive manner is appropriate. This process is the Grey spot analysis.

A grey spot framework for identification, treatment and monitoring is a prudent approach to deficiency management that includes site selection, desktop studies, site inspections and implementation plans.



The crash database is to be interrogated at three monthly intervals and the crash data analysed for those sites identified as potential Grey Spots. A desktop analysis is to be undertaken to establish whether road factors and commonality are present.

Those sites exhibiting these symptoms will be listed for field inspection. Inspection will normally take place during the next daytime safety inspection scheduled for the appropriate road level. Exceptions to this are those sites where Rodney District Council requests a more urgent action (either directly or at the recommendation of the consultant) or those sites where darkness is a factor. The latter are inspected during the next nighttime safety inspections for the appropriate road level, unless requested otherwise.

Sites where remedial action is recommended are entered onto the appropriate work schedule. Once implemented sites are monitored and will form part of an evaluation.

Relate
d
Works
heets



Database

WS 5.4.3 Crash Reduction Studies



5.4.2 Black Spot Studies

It is envisaged that the process detailed in Section 5.1.3 will eliminate most, if not all, of the potential for black spot sites to develop on the rural network roadways. Realistically however, this will not be the case in medium to dense urban areas and hence a review system to establish whether Crash Reduction Studies (CRS) are warranted for the road network in these areas is to be undertaken on an annual basis.

The CRS process will act as a backup also, should the occasional site on the rural network escape the Grey Spot Process and develop into a Black spot.

The remedial work resulting from both the Grey Spot and the Black Spot process are recommended for consideration in either the annual plan process, the minor safety improvement programme or general maintenance as required.

Rodney District Council will prepare a formal response, within three months, in reply to the findings of the crash reduction study.

Related Worksheets

WS 5.3.0 Safety Deficiencies Database
WS 5.4.3 Crash Reduction Studies

5.4.3 Crash Reduction Studies

Following the release of the annual LTSA road safety report a review of the document will be undertaken to identify blackspot or greyspot crash sites for possible inclusion in a crash reduction study.

The decision for Rodney District Council to carry out a crash reduction study or implement a crash prevention programme is made in consultation with the LTSA. It is considered best practice within Rodney District to undertake a crash reduction study on a three (3) yearly cycle.

If warranted, the crash reduction study will be conducted in accordance with the Accident Investigation Procedures⁴ and involve a team concept, made up of members from the Rodney District Council, LTSA (if available), the Consultant (if to be involved) and others as and if relevant.

Refer also to Sections 5.4.1 and 5.4.2

Related Worksheets

WS 5.3.0 Safety Deficiencies Database
WS 5.4.3 Crash Reduction Studies

5.4.4 Crash Record Analysis

A vast array of information relating to the existing condition or deficiencies of the network is available from traditional sources. Examples of these include the LTSA AIS/CAS database and Annual Road Safety Reports.

⁴ Accident Investigation Procedures; Transit New Zealand (1991)

Further information regarding asset performance can be obtained from mechanised surveys including RAMM, BARR and skid resistance surveys.

This data set can be complimented even further through inspections of the road network and through interaction with concerned bodies such as the Police, Ambulance, Fire Service, tow-truck services, farmers, Community Boards and pro-active safety groups.

Although it is recognised that the major source of crash data will stem from the LTSA's AIS / CAS records, the operation and development of a secondary means of acquiring crash data through the establishment of a voluntary notification network (Network of Contacts) is essential. This network will involve the contractors' staff, landowners, reliable adjoining owners, G.P's, emergency services, tow-truck facilitators, service station staff, TLA personnel, transport companies etc.

This data will be recorded in the unreported crash file of AIS / CAS.

The data supplements the main crash database and the combined database is used to monitor crash trends, particularly Grey Spots. It is particularly important in remote areas where crashes reported to the Police are known to be under-reported.

It is essential that voluntary reporting is not a one-way process. Rodney District Council will provide feedback on the outcome of action taken to all respondents. Regular newsletters will be sent to all agencies on a six monthly basis. New agencies will be actively pursued and encouraged to participate so that comprehensive network coverage is achieved. An ongoing liaison will be developed with these agencies to ensure efficient operation.

A list of network crash reporters is attached in Appendix E

An example of the crash report form is attached in Appendix D

The data will be electronically linked to the LTSA database under the unreported crash file.

Related Worksheets

WS 5.4.4 Network of Crash Reporters
WS 5.3.0 Safety Deficiencies Database

WS 5.4.3 Crash Reduction Studies

5.4.5 LTSA and Unreported Data Sources

The crash data received from the LTSA database and Network of Contacts databases will facilitate the identification of network safety concerns where the road environment has been a causal or contributing factor.

- **LTSA AIS / CAS**

The Rodney District Council and network consultants will each have access to the LTSA's Accident Database (AIS / CAS). This data is updated quarterly by the LTSA.

- **LTSA Annual Road Safety Reports**

Safety Reports covering the previous five-year time frames are annually received from the LTSA for the Rodney District.

These reports give important crash trends for the preceding five-year period and highlight key safety issues, which are relevant to individual areas. These form part of the overall data sources available when reviewing the network.

Related Worksheets

WS 5.4.4 Network of Crash Reporters

5.4.6 Fatal and High Profile Serious Crashes

Rodney District Council require the timely notification and reporting of Fatal and High Profile Serious crashes on its road network. A high profile crash is one where a high media or community interest is generated, or may be generated.

Early notification of issues is required to enable accurate factual information for the Council's Spokesperson.

Related Worksheets

WS 5.4.4 Network of Crash Reporters

WS 5.4.3 Crash Reduction Studies

WS 5.4.6 Response to Crashes

5.4.7 Monitoring, Trend and Performance

The monitoring of the network road safety for developing trends and performance allows the road controlling authority to continually review its safety performance. Rodney District Council will develop a monitoring system that reviews trends and performance of the road network on a regular basis.

Performance trends for specific maintenance items will be recorded for all strategic and arterial routes through the safety inspection process.

Key items will be selected for graphing of trends. Examples of items for consideration can include:

- SCRIM - % of network / # of sites
- intersections
- Faded or ineffective signs
- Deficient temporary traffic management
- Vegetation

Rodney District Council has a vision of "**Being the safest place for Road Users in New Zealand by 2005**".

To monitor the performance of this vision Rodney District Council will trend the number of crashes [vkt?] by time for actual crashes, RDC target, best in south island

and national targets for local roads. This will allow the establishment of developing trend lines and allow a comparison to road controlling authorities of a similar group.

A graph of key performance trends is attached in Appendix K.

Related Worksheets

- WS 5.3.0 Safety Deficiency Database
- WS 5.4.3 Crash Reduction Studies
- WS 5.4.7 Road Safety Performance

This section is to be further developed by Council.

5.5 Project Safety Audit

Safety audits are a proactive road safety process used to identify safety issues before they become a factor in conflict, the worst of which will be crashes. It is a formal examination of capital works projects carried out by an independent team who document and identify road safety concerns.

Initially, these Safety Audits will be undertaken on projects that have a direct influence on road operations.

Over time the Rodney District Council will develop a policy of auditing of all projects that either directly, or indirectly, affect the road network.

5.5.1 Project Safety Audit

For capital works there are 4 stages where Road Controlling Authorities typically undertake safety audits:

- Stage 1 - Feasibility/Concept
- Stage 2 - Scheme/Preliminary Design
- Stage 3 - Detail Design
- Stage 4 - Post Construction

Project Safety Audits shall be carried out on significant minor safety works, construction projects where safety is a driver, and railway crossing upgrades. These will be determined on a project by project basis. All Project Audits will be undertaken in accordance with the procedures detailed in the TNZ Safety Audit Policy and Procedures Manual⁵

Rodney District Council will specify the criteria and types of projects on an annual review.

Related Worksheets

- WS 5.5.1 Auditing [To be developed]
- WS 5.5.2 Existing Road Audits [To be developed]

⁵ Safety Audit Policy and Procedures: Transit New Zealand (1993)

5.5.2 Safety Audit of Existing Roads

Safety audits of existing roads are generally undertaken by external agencies to ensure a consistent application of national standards.

LTSA and Transfund carry out safety audits of existing roads in accordance with their national priorities from time to time.

The Council actively encourages external audits of their existing road network by agencies such as Transfund and LTSA.

All existing road safety audits will be undertaken in accordance with the procedures detailed in the Guidelines for Auditing Existing Roads⁶.

Related Worksheets

- WS 5.5.1 Auditing [To be developed]
- WS 5.5.2 Existing Road Audits [To be developed]

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Related Worksheets

- WS 5.5.1 Auditing [To be developed]
- WS 5.5.2 Existing Road Audits [To be developed]

⁶ Guidelines for Auditing Existing Roads: Transfund (2000)

⁷ Safety Audit Policy and Procedures: Transit New Zealand (1993)

5.6 Recurring Hazard Register

Rodney District Council maintains a hazard register that includes a list of sites with potentially recurring hazards, e.g. flooding / vegetation / land slips. These are sites where the network safety is at risk due to the type of event, but a cost-effective solution is not available in the foreseeable future.

Issues such as adverse rain events that occur during periods of high tide can make roads unsafe for the road user or impassable.

The Council recognises that an out of character event generally triggers these risks, and that the event can be random in frequency. New hazard sites will be identified, evaluated and included into the recurring hazard register.

Often these sites are in locations where the driver has an expectation of normal road use. The creation of these hazards as a result of an event, without the appropriate safety intervention, can lead to drivers traversing the problem in an unsafe manor.

To ensure that the highest level of safety is maintained on the network, the maintenance contractor is tasked to attend these sites with priority as the event develops. A copy of the recurring hazard register will be made available to all maintenance contractors.

The register is contained in tabular form (Appendix H) and is presented in graphical form on Rodney District Council Plan xxxxx. [to be developed] This register is essential for maintenance contract management.

The register is to be reviewed and updated at least annually and used by the maintenance contractor to ensure that any maintenance work effectively targets recurring hazards.

Rodney District Council has established procedures for:

- Adverse events
- Civil Defence events
- Disaster recovery
- Welfare

Related Worksheets

WS 5.13.1	Emergency Response		[Cross reference to Civil Defence procedures]
WS 5.10.15	Road Closures	WS 5.2.0	Call centre procedures [To be developed]
WS 5.7.0	Temporary Traffic Management		

5.7 Temporary Traffic Management

Temporary traffic management is required wherever a work activity alters the normal operating conditions of a road, irrespective of whether the activity is on a carriageway, on a footpath, on a road shoulder or in some situations, outside the road reserve.

The application of temporary traffic management is to enable traffic and the public to pass alongside or through a work site in safety, and to ensure the creation of a safe workspace within which workmen and machinery can safely operate to undertake the required works.

The greater Auckland area has developed a comprehensive document for the safe operation of works on the road network. This document, "*Code of Practice for Working in the Road*" (COPWR), details the requirements for road openings, required levels of temporary traffic management, road closure requirements and the engineering requirements for inspections, audits, approvals and traffic management co-ordination. Rodney District has adopted this document to assist the implementation of temporary traffic management on the District road network.

The document is maintained by **xxxx** with inputs from the greater Auckland advisory group. This document is directly linked to the "*Code of Practice for Temporary Traffic Management*"⁸

Rodney District employs its own Audit Team, tasked with the supervision and auditing of road work activities on the Council road network.

Rodney District Staff will undertake random inspections of work sites (all types), as part of their general work activity, to ensure compliance with the relevant code. Inspections of temporary traffic management will take the following forms:

- Formal audit of temporary traffic management
- Random inspections

Inspections / Audits are to be carried out by suitably qualified staff as defined in Worksheet WS **5.12.1**. Section **20.8 of xxxxx** authorises Council staff to shut down non-conforming temporary traffic control sites.

All audit and inspections will be recorded in the central database on contractor performance for future reference. This register will be utilised for the evaluation of contractor performance with specific regard to temporary traffic management in future contracts and tender evaluations.

Related Worksheets

WS 5.10.14b	Safe Work Sites
WS 5.10.14a	Consent to Operate in the Road Reserve
WS 5.7.0	Temporary Traffic Management

⁸ Code of Practice for Temporary Traffic Management; Transit New Zealand 2002

5.8 Minor Safety Projects

The minor safety projects programme will use the findings of the black and grey spot analysis, outcomes from the annual plan process, network safety inspections, fatal and high profile crash investigations, and the LTSA unreported crash database to put forward projects that are of a minor nature. They generally do not justify the time and expense of calculating and submitting an economic evaluation to Transfund's criteria.

The minor safety budget has the ability to be used on road safety deficiencies that have not resulted in crashes. Thus the Minor Safety Programme under the current funding regime is one of the only opportunities to remedy and mitigate sites with a high crash risk (but no or minor recorded crashes) using Transfund subsidised funds.

Project Safety Audit's are required on minor safety projects with a capital cost greater than \$10,000.

Related Worksheets

WS 5.8.0 Minor Safety Projects[To be developed]

Secondary Components

5.9 Planning Process

5.9.1 Access Management

Access location in relation to the road and street layout has an important safety function on the network. Poorly located access points can impact on the safe function and capacity of the road network, in addition to the safe operation of the access or adjacent access points. These safety issues can include:

- Sight distances
- Length to meet vehicle turning requirements
- The location at intersections needs to be a function of the Road Hierarchy
- Offsets between accessways and roads

Thus prior to RDC issuing a building consent, or alteration of an existing access, a permit must be approved in accordance with the vehicle crossing bylaw, access bylaws and the relevant sections of the District Plan.



The Council's Standards for Engineering Design and Construction details the standard of construction for vehicle crossings and entrances.

Council policy (2280 & 2285) defines the roles and responsibilities for the formation / upgrading of vehicle crossings.

Is the link strip part of the District Pla~?

Who signs off on safety??

Related Worksheets

- WS 5.9.1 Access Management
- WS 5.10.2 Footpaths & Vehicle Crossings

5.9.2 Land Use & Planning

There are many safety issues that need to be considered when an alteration of land use is proposed under the resource consent process. Sections 29 and 31 of the RDC District Plan and Section 3 of the RDC Standards for Engineering Design and Construction cover the standards for any new roads and accessways, and the modification of existing road layouts.

Any consideration for land use planning issues is undertaken by the planning section utilising the guidelines set down by Council. These guidelines set trigger levels for all aspects of the consent application, and define the processes and departments to be consulted for further consideration of the application. Where necessary a Traffic Impact Report may be requested.

Land Use planning at the RDC is split into two departments, namely 'Plan Development' and 'Planning Administration'. The Plan Development department develops the District Plan and sets the framework to allow growth and development to take place. The Plan Administration Department applies the District Plan to the Resource Consents lodged. The staff in the Administration Department checks and approve development plans ensuring that any proposal that involves a transportation issue is checked against the rules in the District Plan and the guidelines in the Standards for Engineering Design and Construction. In situations that are not fully covered by the Plan and Code advice is sourced from the relevant Transportation department of RDC.

Safety Audits of the resource consent applications are not routinely carried out, however developments of a large or unusual nature will be Safety Audited (refer Section 5.5). The Council may request an independent safety audit of a proposed development, where the Council consider this to be necessary.

Responsibility to sign off on safety issues on behalf of Rodney District Council has been delegated to ????

Related Worksheets

- WS 5.9.2 Road Network Planning

5.9.3 By-Laws

The RDC have many by-laws that have a significant safety component. A list of those by-laws with a safety component is detailed in Appendix A - 'List of standards and guidelines'. By-laws detailing parking restrictions and speed limits are examples of the type of by-laws with a safety component.

Section to be developed in consultation with other sections of Council.

Related Worksheets

WS 5.9.3 By-laws [To be developed]

5.9.4 Road Hierarchy

A road network is comprised of various road types, each of which performs a particular service in facilitating vehicular travel between trip origins and destinations, and in providing access to property.

Road classification is the orderly grouping of roads according to the type of service they provide to the public. Classification assists in establishing the geometric design standards for each group of roads, consistent with the short and long term operational needs of that particular group. Road systems operate most safely and efficiently if each class of road is designed to serve its intended purpose.

The road hierarchical structure adopted by Rodney District is based around traffic function. The network is classified according to the following structure:

Hierarchy	Total Road Km
Strategic Route	km
Regional Arterial Route	km
District Arterial Route	km
Collector	km
Local	km
Rural Local	km

The defined road hierarchy levels are utilised in the ranking of minor safety projects, and contribute to the establishment of funding priorities.

Related Worksheets

WS 5.9.4 Road Hierarchy [To be developed]

5.10 Engineering Process

[Introduction]

5.10.1 Road Design

A road environment that is consistent with both national and Rodney District Council standards is important to ensure that the road operates with 'no surprises' to the road user. As roadside development and traffic volumes increases, the standard of the existing road geometry may no longer be appropriate. The roads that experience this type of development present a number of safety issues to the road user. These include:

- Conflict with other road user;
- Outdated alignment;
- Intersection intervisibility;
- Lack of visibility;
- Inappropriate cross-section and
- Insufficient width (including narrow bridges)

These issues can be amplified at locations where the road surface is unsealed, creating a higher risk of loss of control.

Urban road networks often present the challenge of juggling the balance between moving vehicles and access to property. The Council has established design standards for varying road geometry based around hierarchy and functionality.

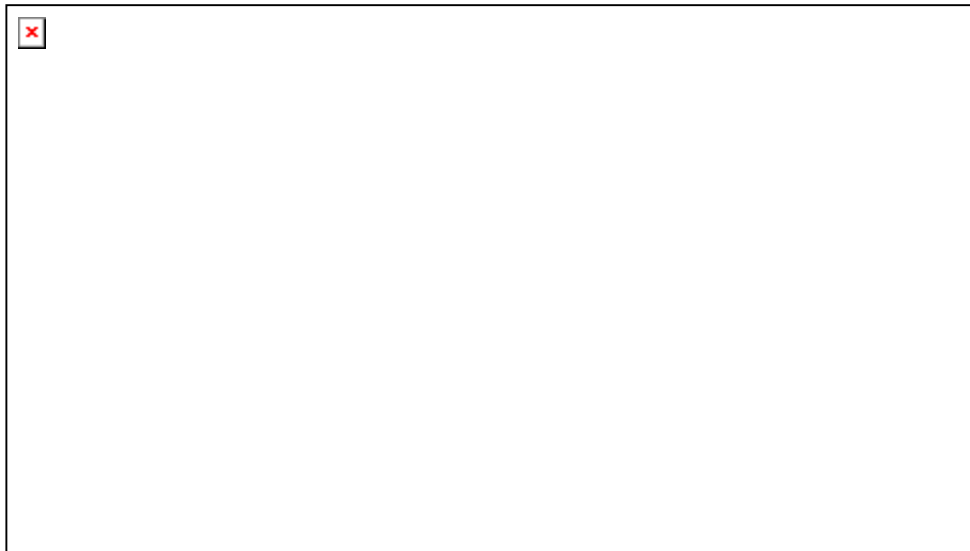


Figure 3: Road Type and Function⁹

Rodney District Council's Standards for Engineering Design and Construction is utilised as the primary guideline for geometric road design. This standard is

⁹ Austroads Part 9: Arterial Road Traffic Management

supplemented with the relevant Transit, LTSA, and Austroad's guidelines. Full additional documents are detailed in Appendix A - List of Standards and Guidelines.

New road design will follow the Standards for Engineering Design and Construction and any departure from the minimum standards set will be documented and mitigated by the installation of appropriate street furniture (barriers, signs, increased delineation). Approval for departure from existing standards will require authorisation from ???.

Existing road design elements that do not meet the minimum requirements of the Standards for Engineering Design and Construction will be documented during routine inspections. This process will be undertaken on the basis of road hierarchy, with the intention of total network coverage over a XX year period. The Council will target road geometry improvements, where it is cost effective to do so.

The Council will prioritise the upgrading of locations or routes. The highest priorities shall be afforded to those routes identified within the Council's road hierarchy specifically for arterial and distributor function.

Related Worksheets

WS 5.10.1 Geometric Design - To be developed
WS 5.9.4 Road Hierarchy

5.10.2 *Footpaths*

The Council presently uses its road hierarchy to specify where pedestrian services are to be installed based on the function that each road provides within the District. Primarily, pedestrian services are confined to existing urban areas.

All new facilities will be designed in accordance with the geometric standards detailed in the RDC Standards for Engineering Design and Construction document. This standard is supplemented with the relevant Transit, LTSA, and Austroad's guidelines.

Consideration to special needs groups will be undertaken in the detailed design to ensure appropriateness of the facility.

Related Worksheets

WS 5.10.2 Footpaths & Vehicle Crossings

5.10.3 *Cycle Facilities*

The Council is currently developing a comprehensive cycle strategy, which will be well advanced by the end of 2003. Pertinent safety references will be included as appropriate within this document.

[safety issues]

Related Worksheets

WS 5.10.3 Cycle Facilities

WS 5.10.1 Geometric Design - To be developed

5.10.4 *Street Lighting*

Street lighting in the urban environment has an important road safety function to enable night time drivers to see the road edges on either side of their vehicles, particularly at intersections, and to make their vehicle more visible to other drivers. Street lighting also needs to light the footpath for pedestrians for personal and road safety reasons.

Many lights have historically been installed on existing service poles and whilst being a low cost approach, the lighting quality is dependant on the pole spacing, distance from the carriageway and achievable height. As the District develops and traffic volumes increase, the need for an improved standard of lighting is envisaged. This along with the removal of overhead reticulation lines will result in the need for frangible lighting columns.

New street lighting is to be installed to Council's Standards for Engineering Design and Construction. A comprehensive standards development is currently⁽²⁰⁰³⁾ being considered.

Rural flag lights at intersections also provide a safety function by highlighting the intersection location during the hours of darkness. RDC maintain the existing flag lights present on the network, however at intersections without flag lights reflectorised street name blades are installed to highlight the intersection location.

Flag lights will only be installed at rural intersections were identified as being necessary by the Roding Manager.

A database is currently being developed for the recording of the lighting asset. Once complete this will record details such as pole support, luminair type, maintenance, crash history etc. SLIMS (**expand**) is currently being utilised by the Council.

Related Worksheets

WS 5.10.4 Street Lighting

5.10.5 *Safety Barriers*

Barriers are primarily installed and maintained to protect road users from hazardous road side objects and have a secondary function of increasing delineation. Barriers may take several forms however the common types are W section safety barrier and wire rope systems. A mixture of end terminals is installed throughout the network.

Outdated end treatments will be updated to current standards where and when able to be associated with improvement works.

Rodney District will undertake a progressive analysis of the road network detailing the location and risk of embankment drop-off locations that will warrant the installation of safety barrier. This list will form the basis of priority selection of sites to be treated as funding becomes available.

Safety barriers requiring higher test level performance are also readily available where the higher performance is warranted.

Sight boards, handrails and other systems not built and maintained to the appropriate barrier code are detailed in Section 5.13.2 Maintenance of Traffic Control Devices.

Related Worksheets

- WS 5.10.5 Safety Barriers [to be developed]
- WS 5.10.5A Street Furniture

5.10.6 Traffic Counting

Traffic counting is not a specific safety issue however the information gathered from the traffic counting programme will be used in the analysis of safety related projects. The xxx section of the Rodney District Council undertakes the traffic counting programme on a regular rotational basis.

The Council has a well established traffic counting programme. Generally these counts record volume, speed and traffic composition.

Most counts are undertaken on a two-year rotating cycle. However there are a number of permanent traffic count stations established.

Each location where traffic counting is undertaken is located on a plan as follows:

- Plan No xxxxx (Rural)
- Plan No xxxx sheets 1 -z (Urban)

The plans can be found in Appendix G

In addition to the above programme, the Council undertakes counts at locations as required for specific projects, or at the request of other sections of the Council.

Related Worksheets

- WS 5.10.6 Traffic Counting [to be developed]

5.10.7 *SCRIM Evaluation*

The Council keeps a register of slippery seal sites that suffer from a high surface polish rate. These sites are monitored via a developed programme of SCRIM measurements. Sites may be added to, and removed from, the register as the network seal ages.

Related Worksheets

WS 5.10.7 SCRIM Evaluation [To be developed]

5.10.8 *Over-dimension Loads*

Over dimension loads (over weight / height / width) are generally confined to the major routes within Rodney District. All over dimension loads are required to obtain an appropriate permit from either the Rodney District Council (Over weight) or LTSA (Over height / width).

The movement of all overdimensional loads shall be undertaken with full consultation and approval of the Road Manager for Rodney District Council. This is to include the movement and / or relocation of buildings and structures.

All overdimensional loads will be required to give the Road Manager one weeks notice of intended movement. Upon receipt of an approved permit, the Road Manager will detail all road works sites along the route, recommended detours and contact numbers for the contractors undertaking the road works.

Existing and future structures and roadside features can compromise these routes. The Council maintains a map of the selected routes to be used when considering applications for over dimension loads.

The identified routes will be considered for the placement of street furniture that allows the transportation of over dimensional loads. Where possible, removable street signs, mountable islands, fold down traffic lights and movable overhead gantry's will be installed. All over dimensional transports will require a register of street furniture removed / altered and reinstated during the movement. Random audits of movements will be undertaken to ensure reinstatement compliance.

All applications for transportation on routes outside those approved in the general conditions will require a route specific review prior to approval.

Considerations should be made to safety implications of the load type and size when considering these routes.

This section is to be developed by Council.

Related Worksheets

WS 5.10.8 Over Load / Over Weight / Over Dimension Loads

5.10.9 Forestry Activities

Rodney District has a rapidly increasing demand being placed on the network from population growth.

Running in parallel to this is the additional demand placed on the road network from the timber extraction from a large number of well established forests within the Rodney District network area.

This has particular demand on low trafficked rural roads, where an increase in trucking activity is most noticeable.

The Council maintains a close liaison with the major forest owners to assist with the short term planning for localised situations where changes in traffic patterns will occur.

The Council identifies the following issues as having safety implications to the road network through the development of timber extraction.

- Surface roughness due to failure of pavement layers through increased loadings
- Inadequate road width for vehicle composition
- Limitation of intersection visibility
- Poor acceleration profiles of laden vehicles on grade
- Vehicle turn-paths of logging truck units.

Geometric design (or improvements) of intersections and road sections will take due consideration of the requirements of logging vehicles on identified routes.

Related Worksheets

WS 5.10.9 Forestry Activities [to be developed]

5.10.10 Parking

The safe movement of vehicles into and out of parking spaces is essential to reduce vehicle conflicts. These conflicts can often lead to a reduction in capacity of the through road and can have impact on the safety of other road users such as pedestrians and cyclists.

Public car parking falls into the categories of on-road and off-road. On-road parking can never be taken for granted. As traffic grows this "kerb side" type parking often has to be removed to provide additional lane for moving traffic and maintaining safety.

It is therefore essential that emphasis is placed on the provision of off-road parking and that developers be required to make provisions accordingly. Other situations will arise where contributions are made towards communal facilities.

'Parking Restriction' - Parking document **[details to follow]** details resolutions of Council / location / type [living document]

Related Worksheets

WS 5.10.10 Parking

5.10.11 *Traffic Lights*

This section is to be developed by Council.

Related Worksheets

WS 5.10.11 Traffic Lights [To be developed]

5.10.12 *Clear Zones*

If a vehicle leaves the carriageway, the severity of the resulting crash is influenced strongly by whether or not any objects are hit and whether the vehicle overturns. Ideally the whole of the area that a vehicle is likely to traverse after leaving a road should be traversable and free of objects. This area is called the clear zone.

A Clear Zone is defined as the area bordering the roadside, starting at the edge of the travelled way, available for the safe use by errant vehicles. This space is of a sufficient distance to allow a driver to stop or return to the road before encountering a hazard or overturning.

This includes any adjacent auxiliary traffic lanes, shoulders, medians, verges, footpaths and traversable batters. This width is related to site specific conditions such as predicted traffic volume, traffic speed, road geometry, side slope, weather, development adjacent to the road and environmental conditions. Obstacles located in the clear zone should, where possible, be removed, relocated, made breakaway, or shielded by guardrail or crash cushions.

Shoulders should be well compacted and no steeper than 1:5. The width of the shoulder will vary depending on the nature of the road. Services have legislation which enables them to be located within the road reserve. For safety reasons, it is desirable for services to be underground, however, this is not always achievable. It is desirable for safety reasons that any service poles should be at or beyond the road boundary. Culvert headwalls should be flush. Any trees within the clear zone should be frangible. Any objects should be removed from within the clear zone. Any objects or hazards that cannot be removed from the clear zone should be shielded.

The clear zone widths vary dependant on road geometry, speed and traffic volume. These widths are detailed fully in the National Highway Institute Highway Safety Features Workshop Course Notes.

Clear zone widths can be particularly difficult to achieve in rolling to mountainous terrain. It must be accepted that the road network in Rodney District is essentially built at present. Much of the existing road network has restricted clear zone widths and it is not practicable to immediately retrofit full clear zone widths.

The initial approach to be taken is that the clear zones on the network should be improved where practicable and the current situation should certainly not be made any worse when other works, including maintenance, are undertaken. The Council is working towards developing a longer term strategy.

[include parked vehicles]

This section is to be developed by Council.

Related Worksheets

WS XXXX

5.10.13 *Service Utilities*

The extensive development of Rodney District requires the transmission of services along the road corridor. Historically this has been undertaken by the installation of overhead utilities supported on service poles.

The matrix of available road width and the number of services to be installed complicate the conveyance of services along these road corridors. As society needs expand with technology, the number of services required can grow. The development of independent suppliers further complicates the situation.

The incorrect location of above surface service utilities can have a large impact on road user safety on the Council road network.

Often loss of control crashes on a road network is survivable, or injury is minimised, when the vehicle is given clear space adjacent to the roadway. Where service utility poles are installed at incorrect locations, the resulting crash with the service pole can take on serious consequences.

Rodney District Council is planning the adoption of a Memorandum of Understanding with current and future service providers to establish procedures for the removal, relocation or protection of those locations where there is a risk. This will be expanded further to the identification of suitable treatments for new installations.

The Council will maintain, in conjunction with utility providers, a list of crashes involving pole strike. This list will be utilised in the selection of sections or locations on a road network that require both short term and long term treatments.

This section is to be expanded by Council. [council services?]

Related Worksheets

WS 5.10.13 Utilities

5.10.14 *Road Opening Notice*

A site specific "Road Opening Notice Application" (RONA) is required for all road openings within Rodney District. The RONA defines the temporary traffic control needs for the site, the type of work, timeframes and special conditions imposed.

The Council operates and maintains a database for the approval and tracking of road openings over the network. This database allows easy recovery and identification of contractors and conditions imposed for the road opening.

A copy of the road opening notice application is attached in Appendix L

Related Worksheets

WS 5.10.14 Consent to Operate in Road Reserve

5.10.15 Road Closures

Availability of the road to road users is essential to the safe operation and capacity of the Rodney District network. Disruption to this availability can cause delays or create unsafe conditions for road users.

Road closures can be defined as either planned events or emergency events.

Planned events are to be authorised in writing by the Rodney District Council. The Council has established policies and guidelines for the consideration of planned events. They detail the process for application, the time frames required for notifications and the process of implementation for the road closure.

Planned road closures can include:

- Public parades
- Sporting Events
- Cultural Events
- Programmed road works

Emergency events are unforeseen events that may impact on the functionality and availability of a road, or road network. There is little time for preplanning of the closure, and often it is undertaken in a staged manner as the event unfolds.

Emergency road closures can include:

- Fatal crashes
- Unsafe road conditions (slips / floods)
- Civil Defence emergencies
- Emergency events by other parties (Police / Fire)

Critical to the successful implementation and management of these types of events is the establishment of pre designed management practices and methodologies.

Where road closures are undertaken it may be necessary to install a detour route around the site. All detour routes to be installed must be approved by the Council. Furthermore, liaison may be required with adjacent road controlling authorities (ie Transit New Zealand) for authority to use their road network.

The Council maintains a list of pre-established and approved routes where possible.

The Council has established procedures both within the Council, and with Council maintenance contractors to deal with these emergencies. This *Emergency Management Plan* is a living document that will be continually updated as new work practices and procedures develop.

This section is to be developed by Council.

Related Worksheets

WS 5.10.15 Road Closures

5.11 Speed Management

5.11.1 Speed Limits

Currently Rodney District Council reviews speed limits in response to public concern. The present practice is for the Council to identify and list the roads subject to review. This list is discussed with other road stakeholders for comment. Formal evaluation and rating of the road sections is undertaken and consultation is undertaken with the Land Transport Safety Authority.

However, with the introduction of the Speed Limit Setting Rule, RCAs will become responsible for setting speed limits in areas under their jurisdiction. An annual review of speed limits will be undertaken. In addition review can be initiated if triggered by development growth, eg new subdivisions.

Council will develop a policy on how it will manage its speed limit changes and will do this in conjunction with the LTSA.

Related Worksheets

WS 5.11.1 Speed Limits

WS 5.11.2 Traffic Management Features

5.11.2 Speed Management Devices / Local Area Traffic Management

The basic purpose of local area traffic management is to control the movement and speed of traffic in residential or local area traffic precincts to discourage through traffic, minimise crashes and improve the level of community amenity. It involves the use of various techniques such as road closures, reduced pavement width or slow points, traffic islands, one way streets, local speed limits, road humps and the like.

Associated with this are the features that have a more direct influence on road speed. These include:

Thresholding ∇ some thresholding has been carried out at approaches to townships, however there it is applied on an ad-hoc basis.

Traffic calming ∇ limited to the main streets of Orewa, ????? and is now actively discouraged/ implemented as a suitable intervention [because]

School Zones ∇ To be considered only where warranted on a case by case basis

Speed precincts ∇ area wide speed limits are being investigated in rural areas, in particular where there has been significant lifestyle block growth.

Council will develop a policy on the application and type of speed management devices to be applied on its road network.

Related Worksheets

- WS 5.11.1 Speed Limits
- WS 5.11.2 Traffic Management Features

5.12 Vulnerable Road Users

The draft regional land transport strategy identifies vulnerable road users as pedestrians, cyclists and equestrians. Rodney District Council also identifies that safety considerations should be addressed for other vulnerable road users such as the mobility impaired, vision impaired and hearing impaired to name a few.

A process of regular consultation is undertaken to identify issues for these groups within Rodney District. Where possible these issues are incorporated into proposed future work to assist users with special needs.

The Council undertakes a number of studies that focus on the vulnerable road user. These are undertaken in conjunction with the Disability Advisor within Council. These include:

- Central Area Access Study (Pedestrians / Cyclists)
- Area Studies (Tactile Paving / kerb set downs)
- Target Area Studies (direct input from vulnerable road user groups)

Assistance is also gained for issues from Special Interest Advisors from within Council.

The Council has a defined Cycling Strategy and Walking Strategy that places special emphasis on the needs of school children. These strategies are also available to other interested parties in the community.

A 5 year proactive plan has been developed for each Community Board. This proactive plan is reviewed on an annual basis.

Consideration as part of all aspects of engineering design will be given to issues such as:

Urban

- Council ensures that in any upgrades of roads and footpaths features such as pram crossings / mobility scooter crossings are included in the new design.

- Tactile paving is considered
- Cycle lanes on principal roads in City Plan
- Footpath on one side of road unless there is a significant number of pedestrians or traffic volume
- Vegetation overhang onto footpaths
- NZ Standard for mobility

[To be developed by Council]

Rural

- Footpath/cycleway provision near rural schools,
- Shingled pull-off areas for rural buses
- Advice to bus operators regarding safe routes where requested.
- Metalled bus turn-around areas depending on needs
- School bus route, only provided where alignments leads to poor visibility
- Horse signs, only provided where alignments leads to poor visibility
- Signs provided for elderly mobility scooters

In addition Rodney District Council places a high emphasis on the appropriate level of temporary traffic control around those work sites that affect the vulnerable road user.

5.12.1 *Footpaths*

Footpaths must be designed and constructed to give safe passage for pedestrians and mobility impaired.

5.12.2 *Cycleways and Cycle Lanes*

To make cycling more attractive by providing facilities to enhance its convenience and safety. Cycleways & cycle lanes must be designed and constructed to give safe passage for cyclists.

The cycle user groups are listed below. The function of the cycle facility needs to consider the cycle user group most likely to use the facility and make appropriate allowances in design and maintenance.

- Commuter
- School
- Recreational
- Tourist

5.12.3 *Pedestrian Crossings*

Pedestrian crossings provide a safe crossing point for pedestrians where traffic flow is heavy. Pedestrian crossings need to meet a warrant prior to installation as detailed in the Traffic Regulations and summarised below:

- **School Kea Crossings:** Number of vehicles per half hour x number of pedestrians per half hour exceeds 3000.

- **School Pedestrian Crossings:** Number of vehicles per half hour x number of pedestrians per half hour exceeds 5000, and number of vehicles exceeds 100 per half hour.
- **Other unsignalised pedestrian crossings:** Number of vehicles per hour x number of pedestrians per hour exceeds 45,000 and number of vehicles exceeds 300 per hour.
- **Signalised pedestrian crossings:** Crash numbers at an unsignalised crossing are unacceptably high.

Safety Issues

- Drivers expect pedestrians to wait for them to pass before crossing.
- Pedestrians think all traffic will stop for them.
- Visibility of pedestrians at night.
- Pedestrians crossing affects the flow of traffic.

Related Worksheets

- WS 5.12.3 Pedestrian Facilities
- WS 5.10.3 Cycle Facilities
- WS 5.10.2 Footpath and vehicle crossing

Enforcement

Police Education Officers aim to visit all schools in the District to teach road safety skills. These programmes will be undertaken in conjunction with the Enforcement and Education / Publicity sections of the Safety Management Systems

A schedule of school visits will be developed in conjunction with the Police Education Unit.

5.13 Maintenance Activities

5.13.1 Emergency Response

Emergency response is required following events that compromise the safety of the road user. These can be climatic, geological, environmental or physical events that occur without warning on the road network (including crashes).

It is imperative that following these events the road network is made safe in the shortest possible timeframe. This relies on a co-ordinated response to events by the Rodney District Council, network maintenance staff and other stakeholders on the road network.

Adverse weather warnings obtained by Rodney District Council via the Civil Defence system, and other related systems, will be distributed to the network maintenance contractors, maintenance supervisors and consultants.

All after hour's notifications of emergency events will be forwarded directly to the network emergency contact for the maintenance contractor and Rodney District Council. The network maintenance contractor shall receive, prioritise and action all

emergency requests transmitted. Notification of an emergency event actioned by the network contractor shall be undertaken at the earliest possible opportunity.

Rodney District Council has an extensive **Adverse Events Plan** for emergency events. This document is located with the Civil Defence Officer.

Related Worksheets

WS 5.13.1 Emergency Response

WS 5.2.0

Call centre procedures

WS 5.10.15 Road Closures

[Cross reference to Civil Defence procedures]

5.13.2 *Maintenance of Traffic Control Devices*

Traffic Control Device¹⁰- means any device used on a road for the purpose of traffic control; and includes any:

- (a) sign, signal, or notice; or
- (b) traffic calming device; or
- (c) marking or road surface treatment.

Traffic control devices assist with the definition and control of the road network and warning of out of character geometric elements. They include regulatory, permanent, temporary and seasonal warning signs; road markings; edge marker posts (EMP)[rural only] and raised reflectorised pavement markers, etc.

The consistent and correct application of traffic control devices is crucial in ensuring the accurate definition of the road network to guide the driver and when well done assists in the reduction of demand on the driving task. These items form the backbone of the safety of the road network and have a large bearing on the reduction of network crashes.

An essential element in the use of traffic control devices is the regular inspection and maintenance intervention appropriately targeted at each of the road hierarchy levels.

Identification of traffic control device maintenance deficiencies is gathered through a number of differing levels of inspection and data processes. These range from the formal network safety inspections to the routine network maintenance activities undertaken by the network stakeholders, and public feedback.

All staff travelling the road network are encouraged to maintain vigilance and identifying the road network are encouraged to maintain vigilance and identify and report deficiencies affecting traffic control devices. This ensures a continual review of the network and the early identification and remedial treatment of these deficiencies. Rodney District will develop a standard form for all stakeholders to utilise.

¹⁰ Land Transport Rule – Traffic Control Devices; Yellow Draft February 2003;

The success in the application of this process is the appropriate training on stakeholders in the identification of deficiencies and the culture of a safer network. Rodney District Council will facilitate training for all stakeholders to ensure a safety culture is developed.

Rodney District Council requires that all road maintenance staff be suitably trained in the identification of safety deficiencies for traffic control devices. It actively encourages those working on the network to participate in the formal safety inspection process as part of the safety culture partnering initiative. This early identification and intervention process is described in detail in Section 5.1.

Identified safety deficiencies are recorded and remedial treatment will be affected either through maintenance work or by the introduction of a specific safety project.

Deficiencies identified with traffic control devices will be prioritised for work in accordance with the relevant sections of the respective maintenance contracts. Where work is not covered by these existing contracts, specific authorisation for the commitment to maintenance work shall be sought from the Rodney District Council.

The procedure adopted for obtaining Council approval prior to carrying out the necessary remedial treatment work will follow that specified in Table 2:- Approach for Instigating Remedial Works below.

Treatment may be applied to a specific site, route length (involving different types of treatment) or to an entire area.

Remedial Measure Type	Action
Reactive maintenance work	<ul style="list-style-type: none"> Maintenance contract manager will task appropriate Network Maintenance Contractor to programme implementation, or execute works immediately if urgent
Maintenance-type remedial works which are not normal reactive maintenance activities and which are non-urgent.	<ul style="list-style-type: none"> Contractor to advise client and obtain approval before tasking work This work is subject to normal economic justification, funding and programming restraints Area treatments may necessitate changes to treatment length and Maintenance Intervention Strategy in the Ten Year Programme
Urgent remedial works which are not reactive maintenance activities	<ul style="list-style-type: none"> Contractor to advise Client within two working days of identifying the problem/solution and obtain Client instruction on how implementation is to be actioned and funded
Safety Projects - i.e. non maintenance-type remedial works and construction works	<ul style="list-style-type: none"> Maintenance contract manager to schedule the Projects to be investigated within the roading programme, which is to be reviewed and updated bi-annually.

Table 2:- Approach for Instigating Remedial Works

Maintenance intervention levels are defined in the Network Maintenance Contracts let by Rodney District Council. These intervention levels are defined for each of the road hierarchy groups to ensure that a consistent application is achieved.

Rodney District Council encourages a proactive response from all stakeholders for the maintenance of traffic control devices. A progressive improvement strategy is

implemented within the Rodney District for the continual improvement of traffic control devices, and the application of revised processes and standards.

[how and what - provide linkage - to be developed]

Related Worksheets

WS 5.13.2a Delineation

WS 5.13.2c Road Signs

WS 5.13.2b Pavement Marking

WS 5.2.0 Call centre procedures

5.13.3 Drainage Systems

Drainage systems are designed and installed to ensure that water is transported away from the road asset and the risk of flooding of the road network is minimised. Drainage systems comprise of land drains, swale (side) drains, kerb and channel, culverts, stormwater sewers, catch pits and sumps.

While the drainage will generally cater for normal events, it is recognised that the drainage system installed is designed for a specific, defined storm intensity. Storm events during adverse weather that exceed the design criteria may result in the rainfall intensity exceeding the capacity of the drainage system. This results in surface flooding and water over the carriageway.

Surface flooding and standing water on the road surface place the safety of the network at risk. Vehicles hitting this water at speed are frequently subjected to a loss of control through aquaplaning, loss of steering due to excessive water depth, or road washouts. Maintenance crews will ensure that known and developing surface flooding areas are targeted as first response under heavy rain events, with the rapid deployment of signs, cones, barriers and drain clearing equipment as required.

A regular, proactive system of inspection and maintenance by the network maintenance contractor is essential to ensuring that the capacity of the drainage system is maximised at all times. eg removal of any potential blockages.

A policy of drainage improvement will be implemented where heavy maintenance, resealing operations or road reconstruction is undertaken. This process will allow improvement to the road drainage network through general road activities.

Flood events notified to the call centre will be referred directly to the maintenance contractor for action.

Related Worksheets

WS 5.13.3a Kerb and Channel

WS 5.13.3d Open Drains

WS 5.13.3b Roadway Drainage

WS 5.2.0 Call centre procedures

WS 5.13.3c Catchpits / Sumps

5.13.4 *Bridges and other structures*

Bridges are designed and installed to ensure safe and effective access for all road users (including pedestrians) across waterways, gullies, high volume roads and railway lines.

The safety issues that need to be considered in the maintenance of existing bridges and structures, and design and construction of new bridges are as follows:

- Ensuring that the structural adequacy is appropriate for the road use.
- Barrier, and/or handrail system is appropriate for the road use and alignment.
- Alignment and approaches are consistent with the speed environment.
- Surface flooding and standing water is minimised.
- Ensuring warning signs adequate and maintained

Related Worksheets

WS 5.13.4	Bridges	WS 5.13.2c	Road Signs
WS 5.13.2a	Delineation	WS 5.10.1	Geometric Design - To be developed
WS 5.13.2b	Pavement Marking	WS 5.10.5	Barriers

5.13.5 *Landscaping and Vegetation control.*

Vegetation within the road reserve can improve the aesthetics of the driving environment, however if tree trunks become non-frangible they result in a hazard / object that errant drivers could strike. Often these crashes result in injury or fatal crash.

Excessive or inappropriate vegetation within the road reserve can obstruct the use of shoulders, impede intersection intervisibility, and restrict intervisibility sight lines on the inside of horizontal curves.

Any vegetation placed within the road reserve should be frangible to maintain a safe clear zone (refer to Section 5.10.12: Clear Zones). Vegetation should be maintained to eliminate the obstruction of all roadside signs and furniture.

Specific attention is required at intersections to ensure that intervisibility sight lines are maintained. The Council has an adopted vegetation control standard for intersections as detailed in [document]. This details the visibility requirements for various road configurations and junction types.

Overhanging vegetation in the urban environment poses additional safety risks to pedestrians and cyclists, as well as obstructing roadside signs. This is identified through the an annual inspection of the urban environment where deficiencies are recorded and actions tasked in accordance with Council policy, and also through intervention by the relevant maintenance contractors.

The Reserves section of the Council maintains urban streetscape vegetation. All maintenance issues raised are actioned through service requests to the Reserves section.

The Council recognises that there are situations where shelterbelts are planted on private land alongside the roadway. These shelterbelts have a primary function of weather protection for the adjacent property. However, a consequence of their placement can be vehicles losing control due to the likelihood of loss of control in strong cross-winds, or as a more rare event of ice formation as a result of shading of the carriageway.

Where shelterbelts are required, the Council encourages the placement of appropriate deciduous vegetation and encourages a partnership in road safety with the landowner.

The Council has developed a policy for the planting of new vegetation within the road reserve. This policy lists approved species type and placement restrictions to be used in new developments.

Related Worksheets

WS 5.13.5a Landscape

WS 5.13.2c Road signs

WS 5.13.5b Vegetation Control

5.14 Public Transport

[Council to consider policy on Public Transport. Area in development]

Congestion is a serious concern in Rodney District. It is the initiative of the Rodney District Council that where possible, a modal shift will be encouraged through improvements to the Public Transport System. Rodney District can not undertake this modal shift on its own - it recognises that a unified approach with adjacent road controlling authorities and the Auckland Regional Council is essential to having an impact.

Where possible, facilities will be incorporated into network projects and developments that allow for an improvement in the Public Transport System. These improvements can include:

- Dedicated bus routes
- Signalised priority for public transport
- Enforcement of facility occupancy by excluded vehicles

This section is to be developed by Council.

Related Worksheets

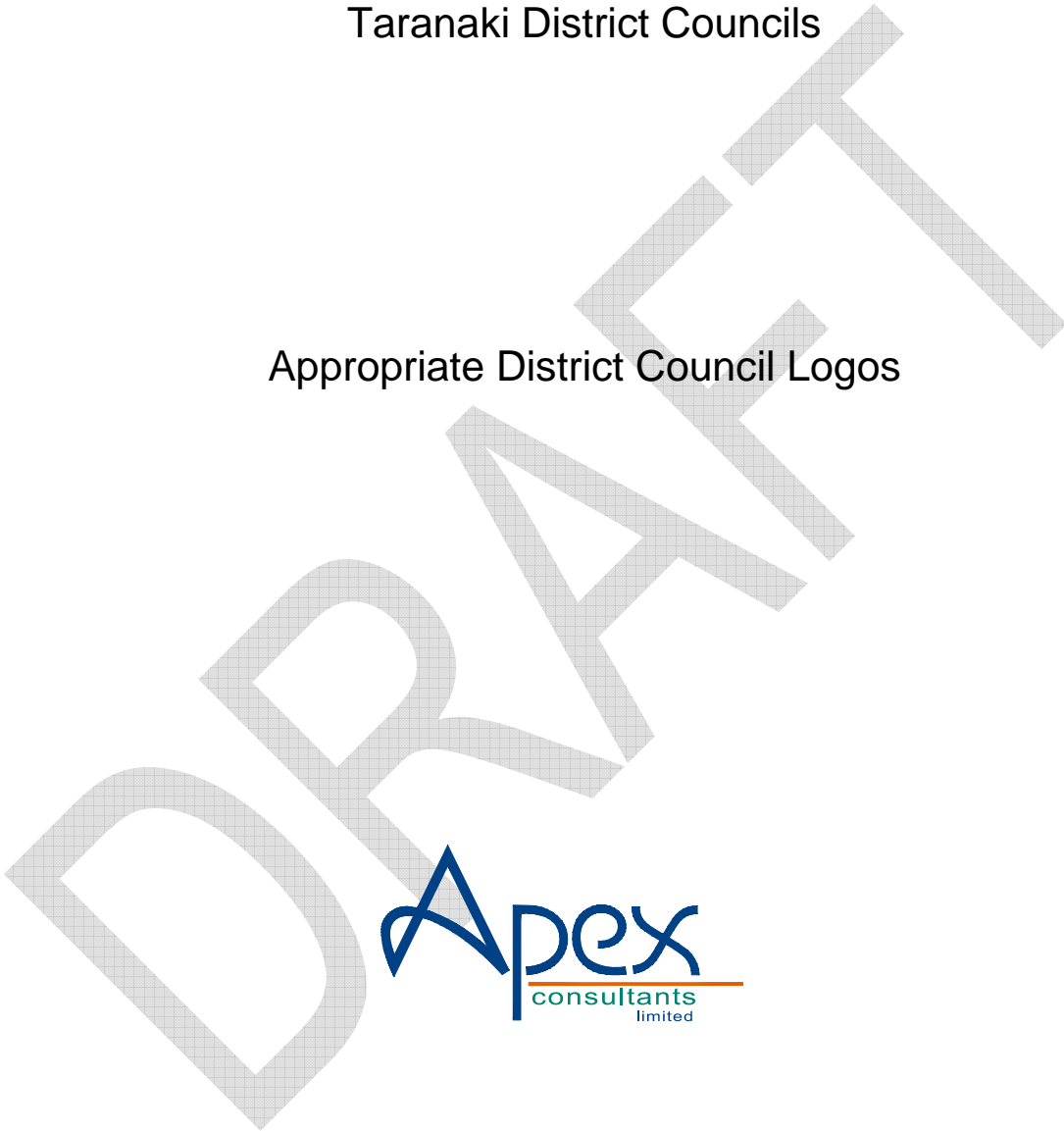
WS 5.14.0 Public Transport [to be developed]

Safety Management Plan

Prepared for

Taranaki District Councils

Appropriate District Council Logos



Safety Management System

SAFETY MANAGEMENT PLAN

DRAFT

DOCUMENT CONTROL

Issue to: _____

Date: _____

Copy No.: _____

Revision No.: 0 Date: 24/06/2005

1 Date:

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APPENDICES

One

RCA Specifics

Two

Related Worksheets SMP 1 - 6

SMP1 – Safety Deficiency Database

SMP2 – Crash Report

SMP3 – Inspection Checksheet

SMP4 – Hazard Register

SMP5 – Safety Deliverable Programme

SMP6 – Deviation Schedule

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 operation of the network.

Consultant

RAMM

Road Asset Maintenance Management

RCA

Road Controlling Authority

Roading Asset Manager	RCA employee responsible for managing the roading asset
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 Team	Safety Champions from the three participating RCA's and their Network Consultants
TMP	Traffic Management Plan
XXDC	XXXXXXXXXXXXX District Council

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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.

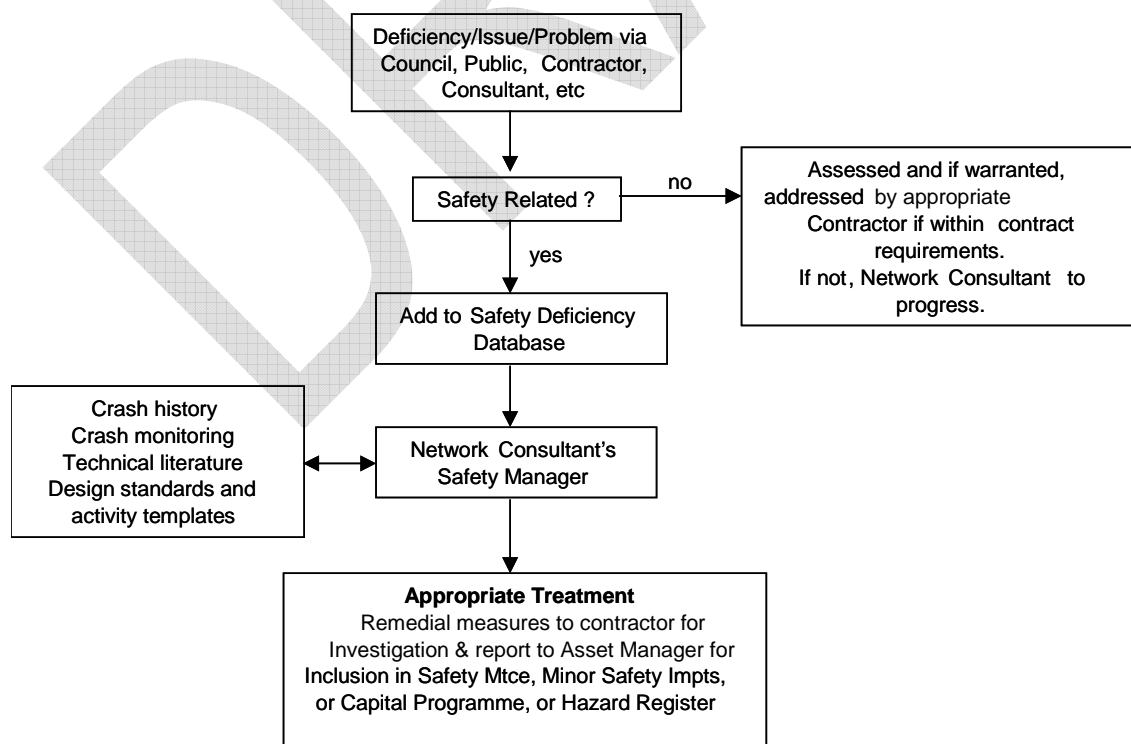


Figure 1: Safety Deficiency Process

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

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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 dependant 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.

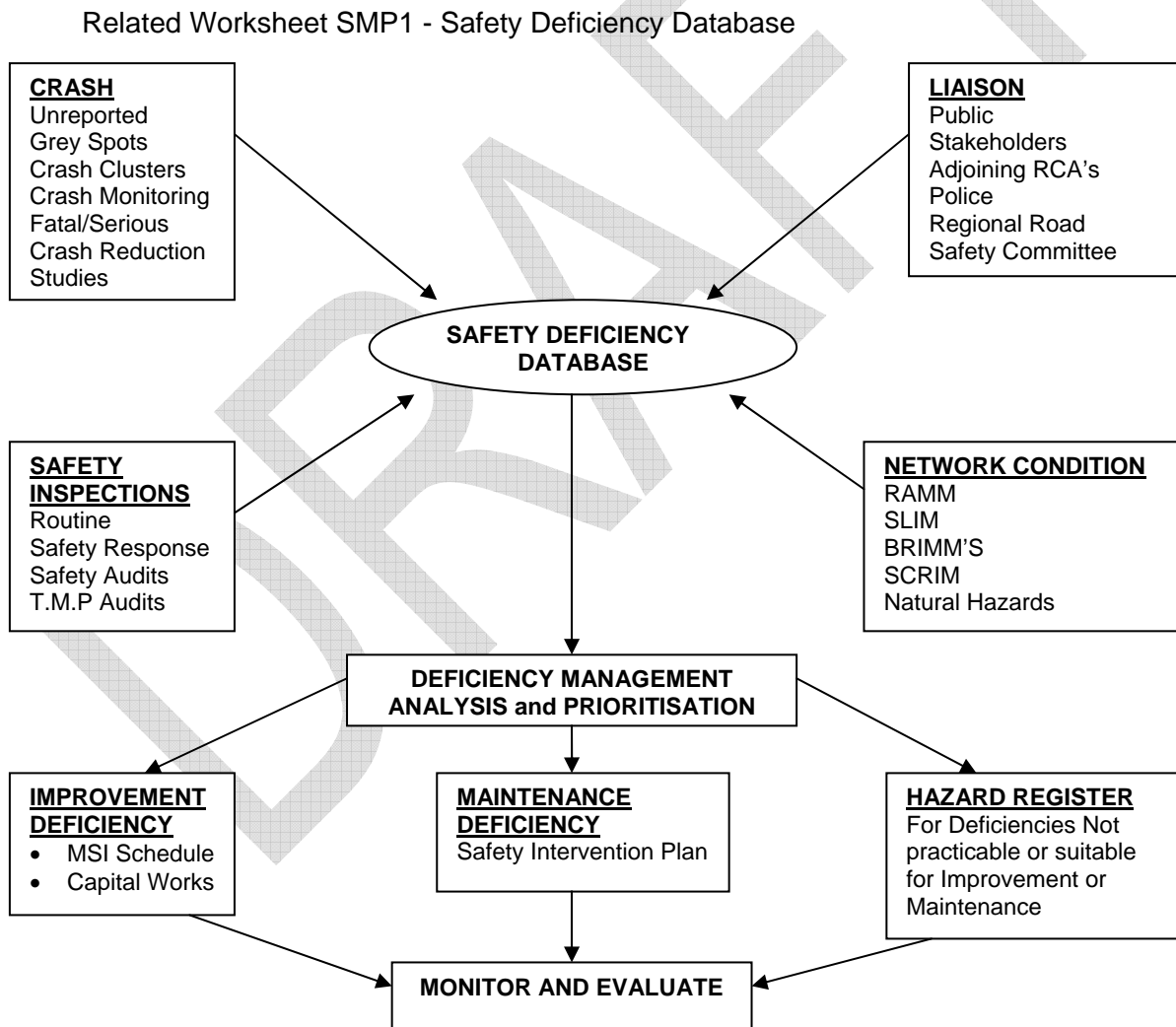


Figure 2: Safety Deficiency Database

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 Road 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 Road 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 Roothing 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 Roothing 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 Roothing 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.

There is currently no recurring hazard register in place for XXXXXXXXXXXXXXXX.

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

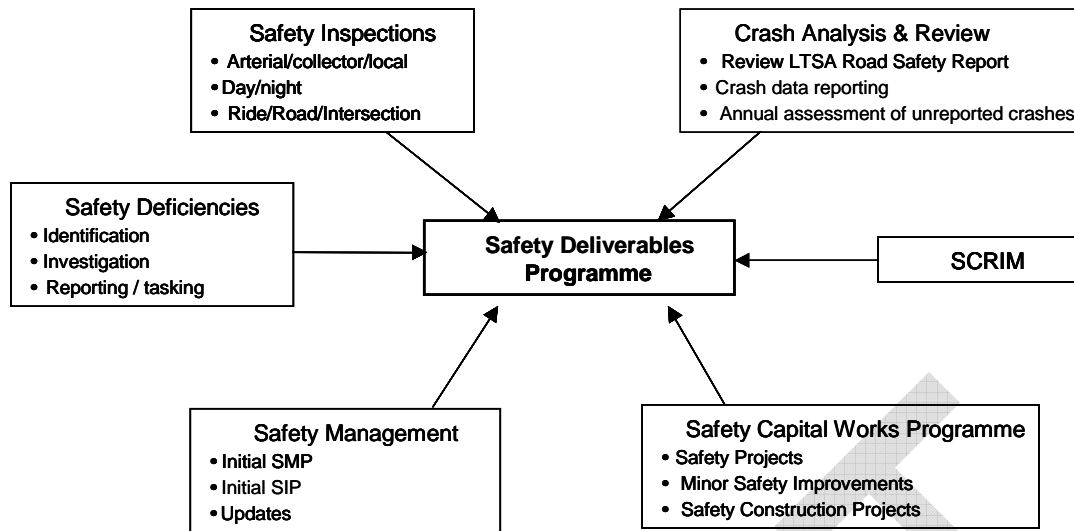


Figure 3: Safety Planning

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 Roding 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 Roding 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 Roding 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.

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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.

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Appendix I - RCA Specifics

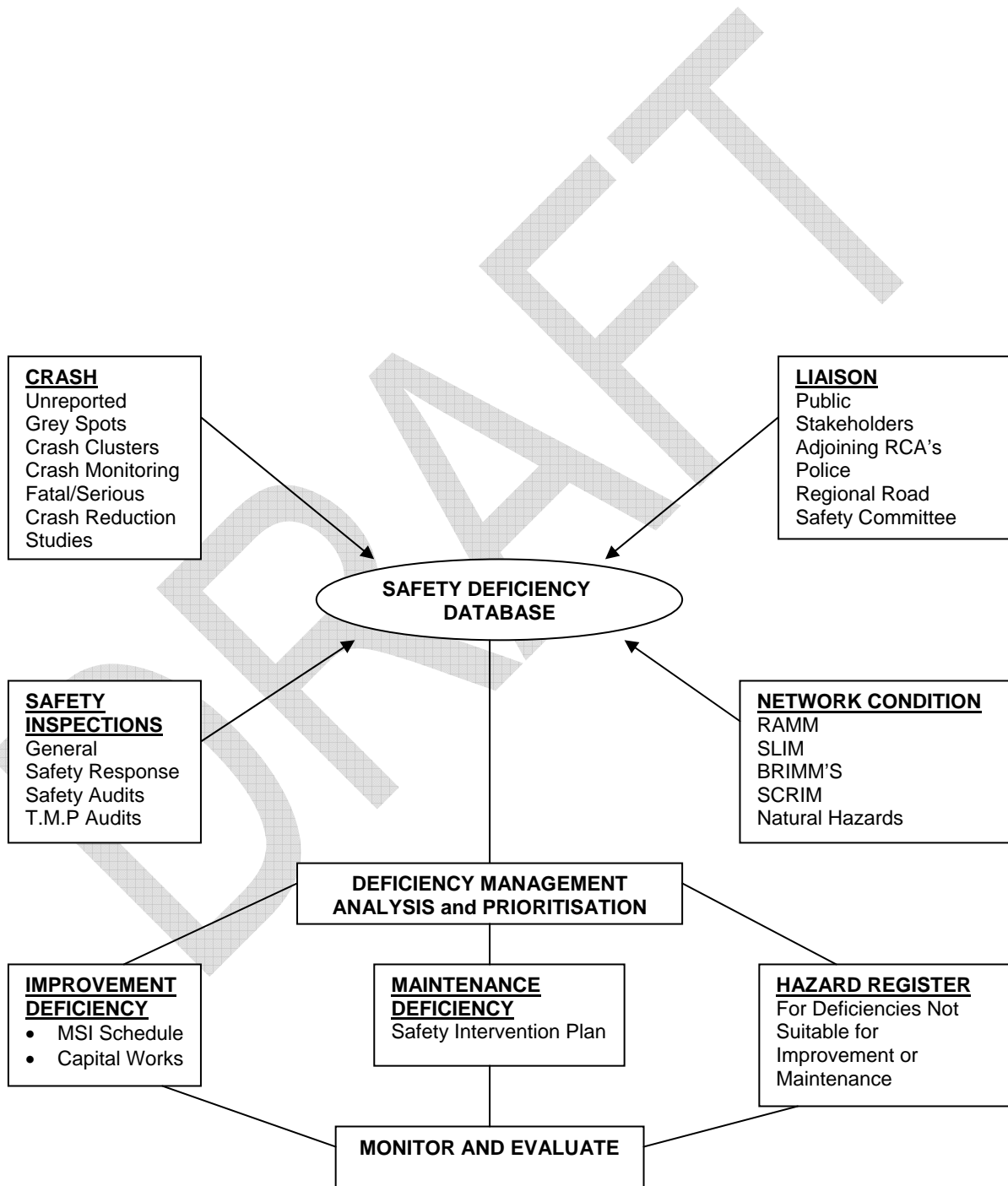
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Appendix II - Related Worksheets

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SMP1 – Safety Deficiency Database



SMP2 - Crash Report

ACCIDENT N^o

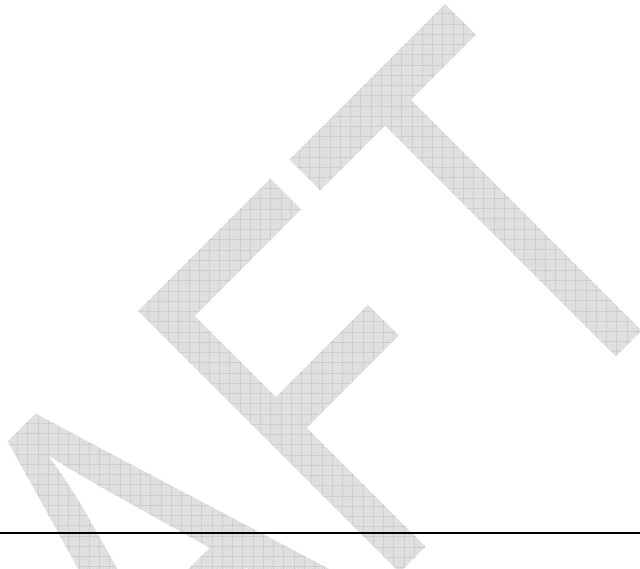
FILE N^o

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.

<p><u>Location</u></p> <p>Place: ▽ or At..... m / km N/S/E/W of</p> <p>Local Road:</p> <p>.....</p> <p>(side road / feature)</p>	<p><u>Injury</u></p> <p>Worst Injury</p> <p style="text-align: center;">Serious / Minor / None / Unknown</p> <hr/> <p><u>When Crash Occurred</u></p> <p>Date / /</p> <p>Time am / pm</p> <p>Day Su / Mo / Tu / We / Th / Fr / Sa</p>																																				
<p><u>What Happened</u> ie. Van travelling south on Unnamed Road lost control on right hand bend (space for diagram on following page).</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>																																					
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><u>Codes</u></td> <td style="width: 15%;"><small>(office use only)</small></td> <td colspan="3"></td> <td colspan="3" style="text-align: center;">Non Vehicle Factors</td> </tr> <tr> <td>Object</td> <td>Mvmt</td> <td>V1</td> <td>NSEW Street</td> <td>Fac1</td> <td>Fac2</td> <td>Fac3</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> <td>.....</td> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td colspan="4">Reported by</td> <td colspan="3" style="text-align: center;">Driver/Vehicle Factors</td> </tr> <tr> <td colspan="4"></td> <td colspan="3">.....</td> </tr> </table>		<u>Codes</u>	<small>(office use only)</small>				Non Vehicle Factors			Object	Mvmt	V1	NSEW Street	Fac1	Fac2	Fac3	Reported by				Driver/Vehicle Factors								
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<p><u>Conditions</u> (please enter / circle)</p> <p>Speed Limit (km/h)</p> <p>Curve Advisory Speed / NA</p> <p>Road Type 1 way / 2 way</p> <p>Curvature StRaight / Easy / Moderate / Severe</p> <p>Surface Sealed / Unsealed</p> <p style="padding-left: 20px;">Wet / Dry / Icy</p> <p>Light Bright Sun / Overcast / Twilight / Dark</p> <p>Lighting On / Off / None / UnKnown</p> <p>Number of lanes</p>	<p>Paint Markings Pedestrian Xing / Raised Island / Painted Island / Centre Line / No Passing Line // Nil</p> <p>Road Feature Bridge / Motorway / Rail Xing Flat / Hill</p> <p>Junction Driveway / Roundabout / Cross / Tee / Y / More than 4 legs</p> <p>Control Traffic Signals / Stop / Give Way / UnControlled / School Patrol</p> <p>Weather Fine / Mist / Light Rain / Heavy Rain / Frost / Strong Wind</p>																																				

Continued

Diagram



Damage

Was any damage sustained to guard rails, signs, bridges etc?

Please identify.....
.....

Driver and Vehicle Details (if known)

Name.....M / F Age..... Vehicle 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. Roding Asset Manager, XXXXXXXXXXXXXXX District Council.

SMP3 - INSPECTION CHECK SHEET

Road Name
or description.....

Start Position
(RS or side road).....

Finish Position
(RS or side road).....

AADT.....

Weather.....

Date / /

Completed By.....

	Running Distance kms (Outgoing)	0.00	1.00	2.00	3.00	4.00	5.00	6.00
Pavement	Surface Condition/Ride							
	Shoulder Condition/Edge Break							
	Side Slopes/Roadside Hazards/Water Table							
	Drainage Features (culverts etc)							
	Guardrails (exist) (requiring maintenance)							
	Vegetation (obstructing visibility & signs)							
	Delineation/ Markings	Centreline						
RRPMs								
Edge Lines								
Marker Posts								
Curve Warning/Chevrons								
Other Warning/Advisory								
Intersections	Intersection Marking & Signs							
	Destination Signs							
	Regulatory/Side Road Control							
	Lighting							
	Running Distance kms (Return)							

(Note: Fill in before return trip)

SMP4 – Recurring Hazard Register

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

Safety deliverable programme

SMP6 – Deviation Schedule

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



Southland District Council



Southland District Council

**Contractors
Safety Intervention Plan**



This Contractor's Safety Intervention Plan is endorsed and adopted by the following organisations, who are partners to the Southland District Council Contractor's Safety Intervention Plan.

Fulton Hogan Ltd	Russell Hawkes	_____
Hawkins Building Contractors	Tanea Hawkins	_____
MWH New Zealand Ltd	John Laskewitz	_____
Southland District Council	Dave Adamson	_____
Southland Road Safety Co-ordinator	Jane Ballantyne	_____
SouthRoads	Greg Erskine	_____
Works Infrastructure Ltd	Ray Hamilton	_____



Southland District Council

Contractors Safety Intervention Plan

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Appendix 1: Issue Report Form

Appendix 2: Contractor Contact Details

Preface

Southland District Council has recently adopted a Safety Management Plan for its road network. The aim of the Safety Management Plan is to:

“Use Appropriate Best Practice to Provide a Safe Road Network”.

The Safety Management Plan is a three part document. Part 1 is the Safety Management Strategy, Part 2 is the Safety Management System and Part 3 is the Safety Management Operations.

Part 1: Safety Management Strategy

The Safety Management Strategy outlines:

- the philosophy
- scope
- stakeholders and partners to the strategy.

This is followed by:

- the aim of the strategy
- identification of key safety issues for the District
- setting of targets
- the goals for the strategy.

Part 2: Safety Management System

For each of the goals in Part 1: Safety Management Strategy

- objectives
- methods
- performance measures
- outcomes and
- deliverables

are developed.

Appendix 1 of the Safety Management System contains a list of Standards, Policies, Guidelines and Specifications which are relevant for maintenance, new work, and assessing applications that may impact on safety.

Part 3: Safety Management Operations

Part 3 is a reference list to a number of standalone Policies, Plans, Databases, Schedules, Reports and Programmes that together provide the tools to implement the Safety Management Strategy.

The Contractors Safety Intervention Plan is a Part 3 Safety Management Operations document.

Other documents will be prepared that are aimed at other stakeholders such as Police, community groups and the public.

1. Introduction

This Contractors Safety Intervention Plan (SIP) is a component of Part 3: Safety Management Operations of the Southland District Council Safety Management Plan. The SIP was developed through an initial workshop involving representatives from all of the road maintenance Contractors, Southland District staff, the Road Safety Southland Co-ordinator and Consultants from MWH. A working group involving representatives from the above organisations then followed it up and developed this document. The working group comprised of:

- Russell Hawkes, Fulton Hogan Ltd
- Tanea Hawkins, Hawkins Building Contractors
- Greg Erskine, SouthRoads
- Charlie Wilson, SouthRoads
- Ray Hamilton, Works Infrastructure Ltd
- Neville Bishop, Southland District Council
- Jane Ballantyne, Southland Road Safety Coordinator
- Denise Anderson, MWH
- John Laskewitz, MWH

This document is the output from the working group.

2. Purpose of the Contractors Safety Intervention Plan

The purpose of the SIP is to optimise Maintenance and Construction Contractors' contributions to the provision of a consistent, safe road environment, with no surprises, over the entire Southland road network.

The adoption of the Safety Management Plan formalises an increased focus on safety in the management of the road network. While Contractors have a Contract which includes standards, specifications and performance standards to be met, and road maintenance and construction does make a significant contribution to road safety, the philosophy and reasons for the Contract requirements are not always obvious and can be lost in the details of the work. This can mean that the Contractors' contribution to road safety is not optimised.

The SIP:

- outlines the Safety Culture which is to be developed,
- provides information on what contributes to a safe road environment
- the factors that contribute to crashes, and
- outlines the actions required by Contractors

3. Use and Distribution

The way that the information in this document is distributed to staff will vary depending on how each organisation works. The information in this document should be readily available to all staff,

especially those in the field. The concept and reasons should be promoted to staff and involvement encouraged.

4. Review

The SIP is a living document and the contents will be updated over time to take account of changes in policies and standards or if any gaps or inconsistencies are identified.

The document will be reviewed every six months from the adoption date. The review will consist of a meeting of representatives from the current contractors, consultants and the Council, including the Road Safety Co-ordinator. Gaps and inconsistencies are to be identified as well as changes in policies and standards. The updated document is to be endorsed by the partners to the document.

5. Format

There are three parts to the SIP:

- General
- Actions Required
- Components of a Safe Road.

6. General

6.1 Safety Culture

SDC Maintenance Contractors will work to develop and maintain a safety culture that will enable each person in their organisations to optimise their own contribution to a road environment that is:

- consistent
- safe
- with no surprises

over the entire Southland road network.

Achievement of this will require partnership and co-operation between Contractors, Consultants, SDC and other Stakeholders. The aim is to develop a cooperative no blame culture where all stakeholders work together to develop a safer road network.

6.2 Safe Road Environment

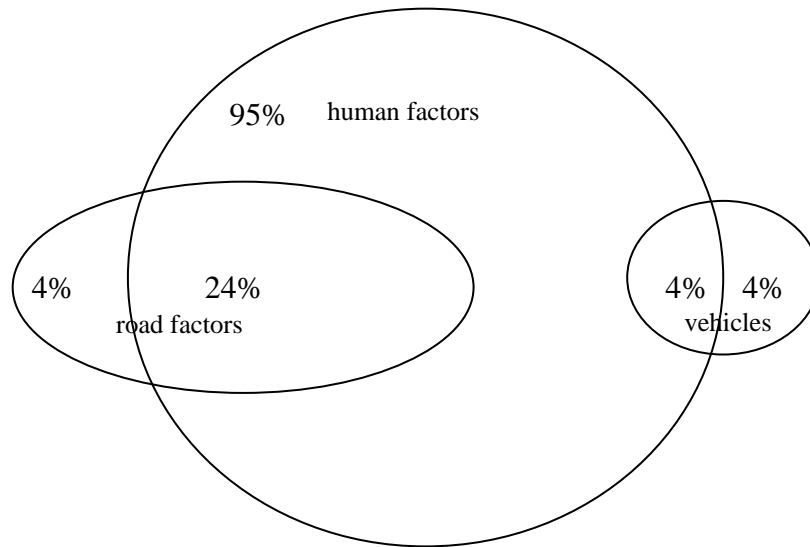
To achieve a safe road environment drivers will be:

- **Warned** of substandard or unusual features.
- **Informed** of conditions to be encountered.
- **Guided** through unusual sections.
- **Controlled** through conflict points or sections.
- **Forgiven** for errant or inappropriate behaviour.

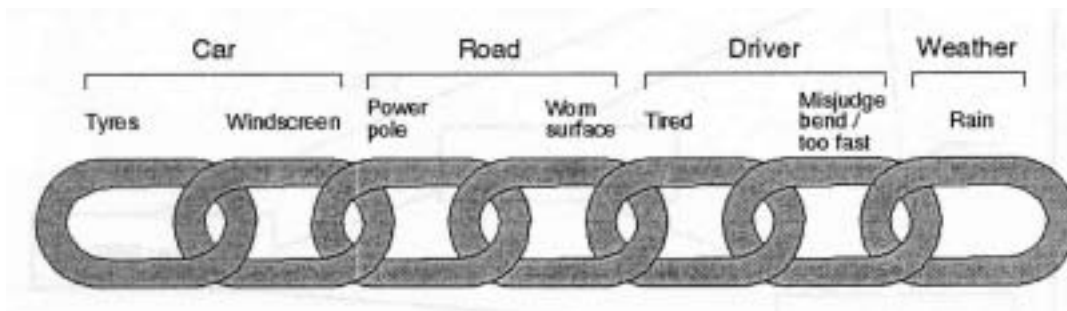
6.3 Factors in Crashes

There are 3 major factors in crashes:

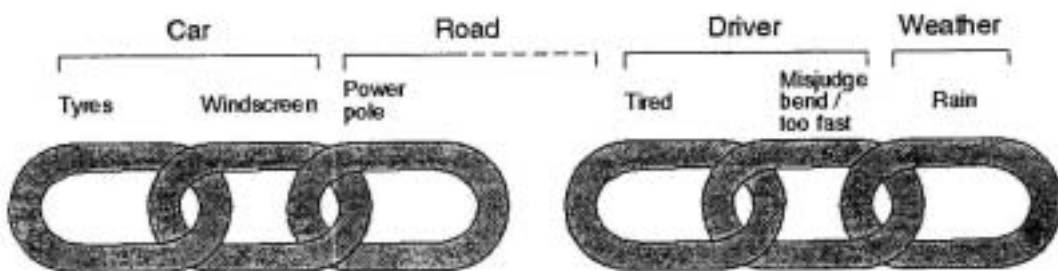
- Human
- Road Environment
- Vehicle.



Crashes occur because of a chain of events.



Help break the chain of events.



Road maintenance can influence the road factors and reduce the number and severity of crashes.

6.4 Definition of Road Environment

Road environment is anything that affects or influences drivers when they are driving. Road environment includes:

- the road
- roadside development
- road user factors
- external factors eg weather, time of day, smoke etc
- vehicles.

Road maintenance has:

- a direct effect on the road
- some effect on roadside development, and
- only indirect effect on the other factors that make up the road environment.

7. Actions Required

7.1 Contractors: The Eyes and Ears of the Council

Contractors:

- are on the road every day, and
- can act as road safety eyes and ears of the Council.

You will see, hear things and notice changes that others may miss:

- surprises
- signs of crashes ie skid marks, holes in fences, damage to signs, crash debris
- crashes that you hear about
- near misses
- reoccurring hazards, and
- faults.

What to do about faults or damage outside your own Contract:

- Be proactive
- Assist other Contractors
- Operate a no blame culture

Improved road safety is the aim.

Early repair of faults will result in a safer road network.

You don't need to work out what the problem is, just record:

- **Who:** saw it
- **What:** you saw, heard or think happened
- **When:** you saw it or think it happened
- **Where:** you saw it.

The names of people in crashes are not necessary. If you think that the Police attended a crash, still record as much as you know. If the Police report doesn't show up in the LTSA crash records, the Consultant will follow through with the Police.

Why should you report an issue:

- the next driver may not have the skills to avoid a crash
- everyone may not walk away from the next crash
- the report will be added to the database and investigated.

What's in it for you:

- job creation: safety projects identified and funded because of your reporting
- you can avoid crashes, and
- issues are fixed early.

7.2 How to Report Issues

7.2.1 Contractor Action

Contractors should report any issues they see to the Consultant. The issue report form in Appendix 1 can be used.

If the issue is a fault under another Contract, you may also wish to informally contact other Contractors to advise them of the fault as soon as possible, particularly where it gave you a "surprise". This can speed up the repair process. Contact details are in Appendix 2.

Report ongoing issues at a site. Repeat crashes at a site mean that there is an ongoing issue that needs investigation and action. It is good practice to implement proven low cost remedial action before resorting to more expensive remedies.

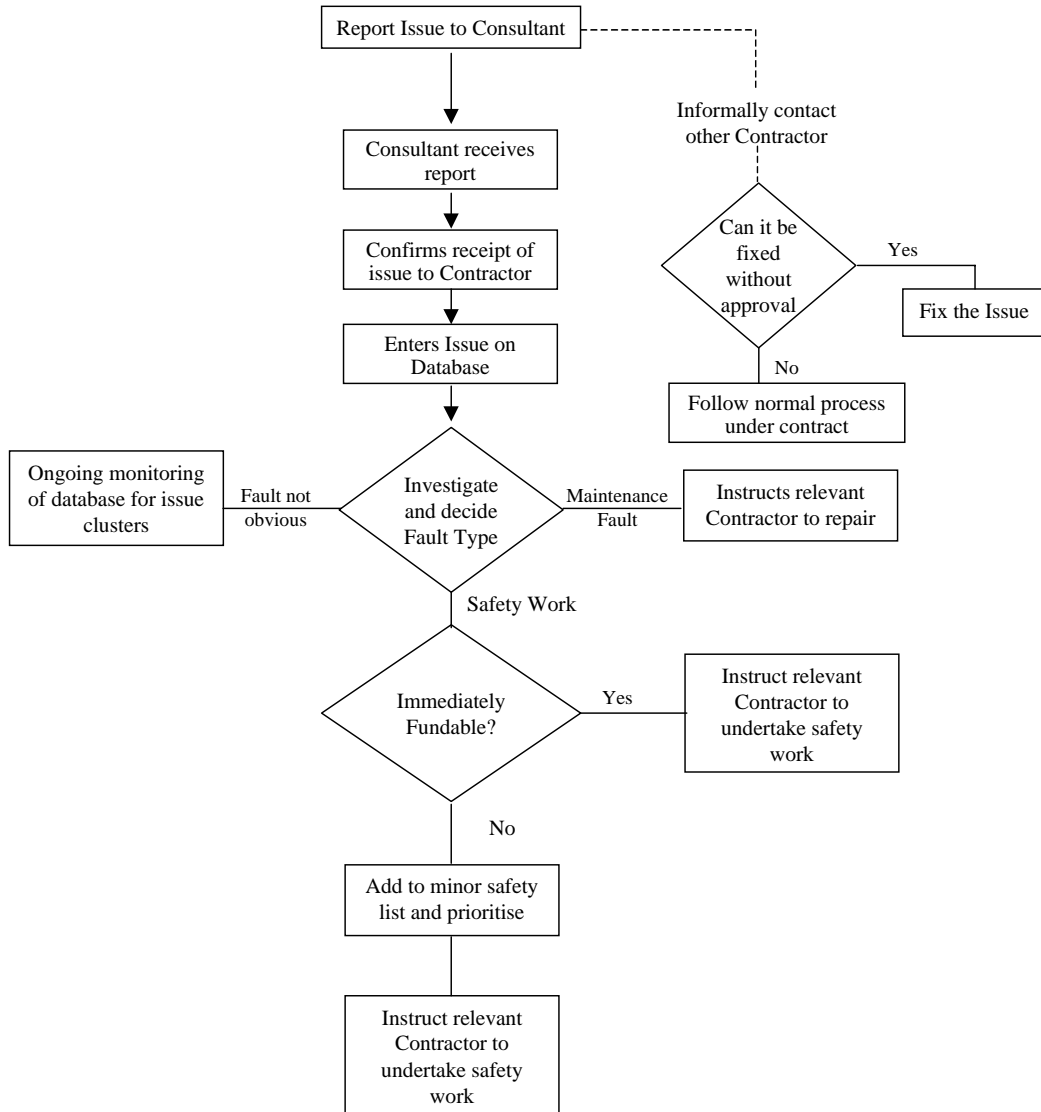
7.2.2 Consultant Action

The Consultant will:

- confirm that the issue has been received
- enter the issue on the database
- Instruct the contractor/s to repair any maintenance faults and / or
- Investigate the issue and instruct a contractor/s to undertake safety work and / or
- Add the fault to the minor safety works list and prioritise it.

It may take a couple of years before minor safety works are able to be funded. Any future issues at the same site will help to raise the priority of work.

Reporting Cycle



7.3 Hazard Register

Action

Develop and update the hazard register of known recurring hazards, ie. slips, ice etc. The hazard register is for each road within the network and is not limited to a particular contract.

Reason

Hazard registers can only be developed from experience on the job. New employees can learn more quickly with a register.

Hazard Register

Contact Area	Ward	Road Name	RP	Description
North West	Tuatapere Te Anau Five Rivers Waikaia			
Central	Wallace Riverton Winton Wallacetown			
South East	Te Tipua Waihopai ToeToes			

8. Components of a Safe Road

The components of a safe road are listed in the following sections so that Contractors can see how the work that they undertake contributes to a safe road environment.

8.1 Surface

A good safe well maintained road has the following:

Carriageway and Lanes:

- wide enough for the number and vehicle types using the road.

Sealed Road Surface:

- smooth
- no potholes
- no rutting and shoving
- no flushing and polishing
- no differential skid resistance (between a vehicle's wheel tracks)

- no debris
- even crossfall.

Unsealed Road Surface:

- relatively smooth
- running course
- no rutting, shoving, soft patches
- no debris
- even crossfall.

This will avoid sudden stops, swerves, loss of control, crashes and confusion by motorists.

8.2 Alignment

To avoid surprises, alignment is:

- consistent with terrain and road group
- no hidden or sudden changes in alignment
- hidden or sudden changes in alignment signed and delineated.

8.3 Delineation

To guide and confirm road alignment, delineation should:

- be consistent for road group
- hidden or sudden changes in alignment are signed and delineated
- perform day, night and in adverse weather conditions
- be clean and in good condition.

8.4 Shoulders

To help vehicles wandering out of the traffic lane to stay in control:

- no drop offs
- well compacted
- recoverable slopes.

8.5 Drainage Facilities

Drainage facilities are to be:

- adequate to drain road
- free of standing water
- traversable including water tables and side drains
- flush and drainage inlets, outlets, and structures are not to cause obstructions.

8.6 Clear Zones

Clear zones are the area beyond the road shoulder and they reduce crash severity. A policy is to be developed but the idea is that a clear zone should be:

- level and as clear as possible
- as free of unprotected obstacles as possible
- clear zone width is likely to vary with the road group.

8.7 Intersections and Accesses

Intersections and accesses are conflict points that will operate more safely if there is:

- adequate visibility
- adequate swept path for the vehicles using the intersection and access
- adequate profile for vehicles using it
- no gravel migration onto sealed roads
- rural mail boxes are out of swept path, frangible and not obstructing visibility
- infrequent junctions
- no accesses within intersections.

8.8 Landscaping and Vegetation

Can be:

- amenity
- guidance or a view block
- threshold
- national Parks or reserves
- controlling erosion.

It can also:

- block sight distance at intersections, accesses, signs, pedestrians
- ice roads
- grow to become obstacles to hit ie wilding trees.

8.9 Roadside Development

To avoid adverse effects on road safety, roadside development should have:

- simple, direct and relevant advertising
- no misleading advertising
- no distractions or confusion.

Access issues should be identified and remedied early.

8.10 Temporary Traffic Management

Work on the road requires temporary traffic management. Well designed and maintained temporary traffic management will:

- provide a consistent, no surprises safe road environment for motorists day and night
- result in increased compliance over the District
- achieve increased worker safety.

Appendix 1: Issue Report Form

SDC: Issue Reporting Form

Road Name: _____

Side of Road: _____

RP: _____

Description: _____

Your Name: _____

Company: _____

Contact Details: _____

Phone: _____

Fax: _____

Email: _____

Appendix 2: Contractor Contact Details

Contractor Contact Details

	Area	Name	Phone	Cell	Fax	Email
North West Maintenance SouthRoads Markings Fulton Hogan Signs Hawkins						
Central Maintenance Works Infrastructure Markings Fulton Hogan Signs Hawkins						
South East Maintenance SouthRoads Markings Roadmarkers Signs Hawkins						

Appendix 3: Safety Culture Programme

- Communication Plan Brief
- Report to Community Board

Southland District Council

SMP: Communication Plan Brief

1 Introduction

The purpose of the Communication Plan is to inform and educate the main stakeholders of the existence of the SMP and ensure that it becomes a living and useful document which is used, consulted and implemented. The desired outcome is an increased focus on road safety.

A presentation has already been made to the Councillors and they have adopted the SMP. It is now appropriate that Community Board Members, CDA's, SDC Staff, MWH Staff, and Contractors are brought into the loop.

2 Community Board Members and CDA's

Given that there are a total of 25 Community Boards and CDA's within Southland and they have separate local meetings, it is not viable to make separate presentations to these groups. It is proposed to write a report to be tabled at their meetings. It will be similar in content to the presentation made to the Council, but in report format.

To give the report the appropriate weight, a covering letter signed by the Chief Executive or the appropriate elected representative is recommended. The report can be followed up by the Urban Engineers to reinforce the issues over a period of time.

2.1 SDC Staff, MWH Staff and Contractors

A presentation is to be made to SDC staff, MWH staff and Contractors. Most of the audience will be new to the SMP. It will therefore need to cover the strategy with additional detail and focus on the system and operations. These people will have a strong influence on the policy implementation aspects of the SMP. Invitations should go to SDC Urban Engineers and Roading related staff. Building Inspectors and Planning staff should also be invited to provide an introduction to the SMP. At MWH, invitations should be extended to roading related staff. The Maintenance, Signs and Markings Contractors should also be invited. While in the interests of partnering it would be good to have the Contractors down to Foreman level, numbers would be unwieldy. The separate SIP presentation, the following day, detailed in the SIP proposal is an opportunity to brief these people.

As the level of detail is different for the different audiences it is agreed that:

- A detailed workshop for SDC and MWH staff (particularly Urban Engineers and Roading Managers) will be held on the morning of 11 June 2003.
- On the same afternoon the SMP will be outlined to contractors at a general meeting of SDC's contractors where it will be a 20 minute PowerPoint presentation on the agenda. It will provide an overview/introduction to the SMP.
- A cut down version of this PowerPoint presentation will be provided to Ian Marshall to enable a 10 minute presentation to be made to Road Safety Southland.

Ideally SDC will arrange to video the SDC/MWH presentation to enable those that can not make it, to view the presentation at a later date.

2.2 Programme of Services

Providing this brief is approved by 28 April 2003, presentation by 11 June 2003.

REPORT TO COMMUNITY BOARD

Meeting Date:

Group: ASSET MANAGEMENT

Subject: SAFETY MANAGEMENT PLAN

File No.:

Report by Denise Anderson of MWH dated 16 July 2003.

1. **SUMMARY OF REPORT**

The attached report from MWH outlines the Southland Safety Management Plan that has recently been adopted by the Council.

The Safety Management Plan is a comprehensive systematic approach to improving road safety that will involve the whole community. It will utilise safety engineering, safety culture and education as tools to improve safety on our roads.

The Plan is comprised of three parts, Safety Management Strategy, Safety Management Plan, and an Operations section which provide the Aim and goals, objectives of those goals and the implementation of the Plan.

The stakeholders are currently being informed about, and encouraged to promote the Safety Management Plan to the community, promoting a safety culture, and helping to establish a crash reporters network.

2. **RECOMMENDATION**

THAT THE REPORT IS RECEIVED.

Signature

Executive Staff

or

Chief Executive

To: Southland District Council Community Board

Re: Safety Management Plan

Safety Management Plan Update

1. Introduction

The Council is responsible for the operation, maintenance, standards and remedial works on its roads. In response to a desire to improve safety on its roads, Council has developed and adopted, in conjunction with MWH, the Safety Management Plan. The Safety Management Plan is a comprehensive systematic approach to improve road safety that will involve the whole community. The idea behind the plan is to reduce the number and severity of traffic crashes by making road safety an integral part of the day to day operations of all those who work on the road. The development of a safety culture amongst Council staff, Consultants, Contractors and the general public is an important proactive approach. It will utilise safety engineering, safety culture, enforcement and education as tools to improve safety on Southland's roads. One of the main outcomes is the provision of a consistent road environment on roads of equal status for road users

2. Structure of the Safety Management Plan

The Safety Management Plan is a three part document:

- Safety Management Strategy
- Safety Management System and
- Operations



2.1 Part 1: Safety Management Strategy

The Safety Management Strategy outlines the philosophy, scope, stakeholders and partners to the strategy. This is followed by the aim of the strategy, identification of key safety issues for the District, setting of targets and the goals for the strategy.

2.2 Part 2: Safety Management System

Each of the goals in Part 1: Safety Management Strategy is discussed and objectives, methods performance measures, outcomes and deliverables are developed. Appendix 1 of the Safety Management System contains a list of Standards, Policies, Guidelines and Specifications which are relevant for maintenance, new work, and assessing applications that may impact on safety.

2.3 Part 3: Safety Management Operations

The operations part of this document comprises of a reference list to a number of standalone Policies, Plans, Databases, Schedules, Reports and Programmes that together provide the tools to implement the Safety Management Strategy.

3. Safety Management Strategy

3.1 Aim of the Safety Management Strategy

The aim of the Safety Management Strategy is:

“To utilise the appropriate best practice to provide a safe road network”.

This aim fits well with Southland’s guiding principle of “People First Serving Communities Together”.

3.2 Road Safety Issues

The Safety Management Strategy identifies the current road safety issues in Southland. The LTSA Southland Road Safety Report 1997-2001 and the LTSA Southland District Road Safety Issues, August 2001 analyse the crash database and identifies road safety issues. In summary the crash statistics for SDC local roads are:

- Injury crashes are reducing at about the same rate as the whole of New Zealand for both urban and rural roads.
- Urban local roads have 61 crashes per 100 million vehicle – kilometres travelled compared with the average of 32 for districts with similar traffic and roading characteristics, and 31 for all New Zealand.
- Rural local roads have 22 crashes per 100 million vehicle – kilometres travelled compared with 24 for districts with similar traffic and roading characteristics, and 24 for all New Zealand.

- Crash reduction studies have resulted in a 74% reduction in crash numbers. This compares well with the 35% average reduction from crash studies on all New Zealand roads.
- Injury crashes in 2001 occurred 77% on rural roads and 23% on urban roads (On a per km basis, 96% are rural and 4% urban).
- The majority of rural road crash types are lost control or head-on on a straight or a bend.
- On urban local roads in SDC, just under half of the crashes are lost control or head-on on a straight or a bend.
- On both urban and rural roads, crashes on unsealed roads and wet roads are a problem.
- Crashes in the dark on urban roads in particular are an issue.
- Collisions with roadside objects also feature.

3.3 Target Setting

A target for crash reduction has been set in the Strategy. There are a number of factors that must be considered before setting any targets for crash reduction. While SDC provides, maintains and improves the road for road users, the Council can only indirectly influence road user behaviour, the ability of drivers, and the standard of vehicles used on the road network.

Numerous international studies have indicated that only 28% of crashes involve road factors, and 95% involve human factors. Of the 28% involving road factors, only 4% of crashes are solely related to road factors and 24% are a combination of human and road factors.

Given the above, a zero crash target is not reasonable, however a reduction in the overall number of crashes is reasonable.

The initial target set in the Strategy is to achieve a trending down of crash numbers, better than the national trend, within 5 years.

3.4 Goals

The strategy establishes six broad goals which relate to:

1. Road environment
2. Road projects
3. Deficiencies
4. Special User Groups
5. Safety Culture
6. Information Management System

4. Safety Management System

Within the Safety Management System, each goal is discussed and one or more objective, method with a corresponding deliverable and outcome is developed.

Goal 1: To ensure road users have a consistent road environment

This can be described in layman's terms as the provision of a "no surprises" road environment for all road users. The components of a consistent road environment are complex and are a combination of:

- geometry
- carriageway widths
- clear zones
- vegetation
- surface conditions
- intersections
- delineation devices
- hazard marking
- speed limits
- adjacent development.

Goal 2: To consider safety at all stages of roading projects

Consideration of safety at all stages of roading projects includes:

- road maintenance operations,
- the development and construction of safety projects
- when people are working on the road investigating and constructing projects
- Safety Audits at all stages of project development.

Goal 3: To identify and investigate deficiencies

There are deficiencies in the existing road network and it is important that these are identified and investigated. This includes using the following tools and information:

- undertaking detailed systematic safety inspections of the road network on a 5 year cycle
- LTSA crash database and Road Safety Report
- develop a Crash Reporters Network
- manage a recurring hazard sites database
- operate a Safety Deficiency database
- undertake Crash Reduction Studies
- identify grey spots
- undertake mass actions.

Goal 4: To ensure that the safety requirements of special user groups are considered in all projects

There are a number of different modes of transport, and different user groups with different needs that all use the road network. The Safety Management System aims to ensure that the safety requirements of all road users are considered in all projects. In particular, consideration and provision is required for:

- different modes of transport
- all disabled road users
- young and elderly road users

Goal 5: Develop a safety culture among all road users

Development of a safety culture by all stakeholders is likely to be an effective means of reducing the number and severity of crashes. This will be achieved by utilising education initiatives and targeted enforcement.

Goal 6: Maintain an effective information management system

There is a need to develop, maintain, update and interrogate the databases that are an integral part of the Safety Management Plan.

5. Operations

The operations section of the Safety Management Plan is a list of the components of the Safety Management Plan. These components are a mix of standards, policies, guidelines, databases, and ongoing tasks. While a number of the components are operational, there are others that have either yet to be developed or are in draft form at present and there are others which are ongoing cyclic tasks.

Following adoption of the Safety Management Plan, work on the Operations is underway.

A communication plan has been developed to inform stakeholders about the Safety Management Plan. This report is part of the Communication Plan.

The Crash Reporter Network is being established.

Trial Safety Inspections have been undertaken and the methodology is being refined for future safety inspections of the entire network. The specific problems identified during the trial inspections are being tasked to Contractors through the Maintenance Contracts or programmed for future action. The trial also identified the need to further develop and refine some policies and standards related to safety and we are in the process of getting this work under way.

Development of a Contractors Safety Intervention Plan for the Signs, Markings and Maintenance Contracts is under way. A working group of representatives of the Contractors, MWH and Council staff has been formed and are working together to develop one Contractors Safety Intervention Plan for Southland.

The Safety Management Plan will improve safety however development of the remainder of the Operations section of the Safety Management Plan will take time and money.

6. How Can You Help to Implement the SMP and Improve Road Safety

Community buy-in is important for the success of the Safety Management Plan. Without buy-in, we won't have reporting of crashes or current deficiencies. You can help to achieve Community buy-in.

1. Promotion of the Safety Management Plan to the community is important if community buy-in is to be achieved. The community are all stakeholders and they will all benefit when the Safety Management Plan is effective and reduces crash numbers and severity.
2. You can promote a safety culture by your own lifestyle choices and networking. A community with a safety culture will reduce the number and severity of crashes.
3. There are crashes which occur and which are not reported to LTSA. Reporting the location of any crash sites will help identify deficiencies on the road network. It is not important to have all the details of what happened and who was involved. All that is necessary is the name of the road, a description of where it was, and date that the signs of the crash were noticed. The patterns and locations of the crash reports will be analysed. A number of crashes in the same location will trigger an investigation. Often the problem will be able to be resolved with the implementation of low cost measures. If more major work is required, the reporting of the crashes will help to obtain a funding subsidy for the work earlier.
4. You have your own networks. Use your networks to help establish the crash reporters network. Provide us with the names and contact details of people that you think may be willing to be crash reporters. A copy of the crash reporters card is attached and additional copies are available from the Council.

Yours faithfully
MWH NEW ZEALAND LTD

Denise Anderson

Approval Recommended
SOUTHLAND DISTRICT COUNCIL

Ian Marshall
Asset Manager Rooding

Appendix 4: Safety Inspections Methodology

Southland District Council

Safety Management Plan

Ongoing Safety Inspections

Methodology – 14 August 2003

1 Project Objective

To undertake safety inspections of the network in accordance with the SMP and using a refined methodology following the 2003 Initial Safety Inspections.

2 Project Team

2.1 Client Project Manager

- Neville Bishop

2.2 MW Team

- Denise Anderson (Project Manager)
- Mike Smith
- Ross McCammon
- Irwin Harvey

3 Methodology

3.1 Develop Five Year Safety Inspection Cycle

We have gained experience during the initial safety inspections and as a result of that experience we propose some changes to the cycle of inspections from that proposed in the Safety Management Plan at Part 3: Safety Management Operations. The revised cycle is as follows:

Day time and Night Time

Group 1 & 2 Roads	Arterials	50% 6 monthly in year 1 thereafter 50% annually
Group 3 Roads	Collectors	50% 6 monthly in year 1 thereafter 50% annually
Group 4 & 5 Roads	Local Roads Sealed	25% 6 monthly in year 1 thereafter 25% annually
Group 7, 8 & 9 Roads	Local roads unsealed	12.5% 6 monthly in year 1 thereafter 10% annually

We also propose some changes to the methodology. We now propose that the route will be inspected in one direction during the day and the reverse direction at night. Group 8 and 9 roads with no delineation will not be inspected at night. In the car there will be a “stranger” driver, an observer /

recorder and an observer / navigator / information provider plus one or two observers. It is our intention that the safety inspections will be undertaken outside daylight saving time with the day and night inspections separated by a week or two.

3.2 Reasons for Methodology

We have considered whether or not to reduce the number of observers in the car. We have decided not to make this recommendation because of safety issues, more eyes to observe deficiencies, a 50% less chance in missing something, and delivery of a better product.

We estimate that there is a 20% loss in the items identified when comparing one way travel day and night with travelling two directions day and night however the cost is almost halved if only one direction is traveled. There seemed to be little point in travelling on roads with no delineation at night: there was nothing to see. This was the method adopted in the initial safety inspections.

It is desirable that the safety inspections are undertaken outside daylight saving time because the long daylight hours during summer means that the hours available for night time inspections in summer is very limited. For safety reasons, the day and night inspections are separated by a week or two.

The focus of the inspections will be on one half of the district. While this will not cover all of the group 1 and 2 roads in each round of inspections as envisaged in the SMP, the group 1 and 2 roads extend to the 4 corners of the district. Inspections each round would require a lot more dead running with a consequential increase in the cost.

It is for the reasons of economy that we are making these recommended changes to the cycle and methodology. We do not consider that there will be a significant reduction in the potential safety improvements in the district

3.3 Route Planning

A common method for establishing the cycle is a map with one colour for the roads to be surveyed every safety inspection. The additional roads for the initial inspection and each subsequent inspection would be coloured in different colours. We will undertake 1100km of road inspections during the trials (1 way day and the reverse direction at night for each section of the road inspected, excluding undelineated group 8 and 9 roads at night).

3.4 Prompt Sheets

Prompt sheets will be used for each group in the network. These will be based on the SDC SMS List of Standards, Policies, Guidelines and species and will summarise the standards or policy levels for each group.

RAMM records will be extracted for each section of road to be inspected giving data such as the pavement width and whether the road is sealed or unsealed.

The 7 level priority system used in the initial inspections will be used for each type of deficiency.

3.5 Database Refinement

The database needs refinement for tasking of problems identified during the inspections to Contractors.

3.6 Safety Inspection

The team for the First Round of Safety Inspections is to be Denise Anderson, Mike Smith, and Irwin Harvey plus selected SDC staff members and maintenance, signs and pavement marking Contractors. The number of people that can fit in one vehicle limits the number of people present on the inspections.

SDC Personnel, Councillors, and Roding Managers may attend from time to time.

The Safety Inspections are recorded by dictaphone.

3.7 Data Entry

The data will be down loaded from the tape directly into the Safety Inspections database.

3.8 Reporting

- The report will be prepared in a similar format to the initial safety inspections report.
- The draft report will be peer reviewed prior to release to Client.

Appendix 5: Crash Recorder Network Methodology

Southland District Council

Network of Crash Reporters: Setup

Methodology – April 2003

1 Project Objective

The Network of Crash Reporters: Setup objective is to setup a network of crash reporters to optimise the available crash information.

By way of background, there may be sites where crashes are starting to occur on the road network that are not being included on the LTSA crash database. Identification of these sites can lead to early intervention and remedial action.

2 Project Team

2.1 Client Project Manager

- Ian Marshall

2.2 MW Team

- Denise Anderson (Project Manager)
- Irwin Harvey
- Ross McCammon
- John Laskewitz

3 Methodology

3.1 General

This is a three part methodology:

- Setup of Crash Reporter Network
- Update Crash Database
- Maintenance of Crash Reporter Network

3.2 Setup of Crash Reporter Network

The setup of the crash reporter network will occur progressively over time using methods such as:

- Item in Council newsletter publicising the development and adoption of the Safety Management Plan by Council, establishment of the crash reporter network and asking people to participate.
- Letter to Community Boards inviting them to become / suggest likely crash reporters (along with report on SMP).
- Letter to appropriate Stakeholder Groups advising them of the SMP and the Crash Reporter Network. Inviting people to send in crash reports. Supply crash report forms.

- Identification of any people that have reported crashes to Council in the past, sending out information about the SMP and inviting them to continue to send in crash information.(up to 150 letters)
- Identification of likely sources of crash information such as contractors, Police, ambulance crew, Fire Brigade, tow truck operators, and garage owners, trucking companies, etc. An initial call on them to try to get buy in as crash reporters.
- In all of the above, raise the profile of Irwin Harvey as the main public contact

Appendix 6: Crash Report Form

TRAFFIC CRASH NOTIFICATION

Southland District Council

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.

Date of Crash Time am / pm Name of Road

Place? At m / km N / S / E / W of side road / feature:

Was it? Bend / Intersection / Straight (circle one) Advisory Speed / NA Worst injuries? Serious / Minor / None / Unknown (circle one)

Parties Involved	Vehicle Type	Direction of travel	On which road
Party No. 1:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Party No. 2:	<input type="text"/>	<input type="text"/>	<input type="text"/>

What happened and possible causes:

Weather conditions: Fine / Mist / Light Rain / Heavy Rain / Snow / Frost / Strong Wind (circle one) Light? Bright Sun / Overcast / Twilight / Dark (circle one)

Description of property damage (e.g. fences, power poles):

Do you want us to send you more Traffic Crash Notification cards? Y / N (circle one)

Your name: (optional) Phone Number: (optional) Address: (optional)

SYNCRON 25913

Appendix 7: SDC Delineation Standards

Southland District Council Road Delineation Standards

Overview

Council require road delineation including pavement markings, edge marker posts and reflective raised pavement markers to be maintained at a level appropriate to the roads position within the Council's Road Group classification system.

This will provide road users with a reasonably safe, comfortable and consistent level of service on all district roads.

Purpose

This standard is to ensure that the road markings and delineation devices used on all district roads are the most appropriate for a safe and efficient road network.

The level of service provided is based on the roads position within the current road group classification system in conjunction with the existing average seal width on the road.

The pavement marking and road delineation is maintained at a sufficient standard to give road users a safe and consistent level of service year round.

Technical References

Manual of Traffic Signs and Markings (MOTSAM)

Road and Traffic Standards – RTS 5

Standards

The road delineation methods including centre lines, edge lines, no passing lines, edge marker posts and reflective raised pavement markers will be installed and maintained to the standard shown in MOTSAM, RTS-5 or as directed by the current pavement marking contract, based on the road grouping and seal width criteria listed below.

The road groups are based on the annual average daily traffic volumes (AADT) of each road adjusted for the type of traffic using the roads.

	Road Group	Modified AADT
Sealed Roads	1	800+
	2	400-799
	3	200-399
	4	50-199
	5	0-49
Unsealed Roads	7	80+
	8	20-79
	9	0-19

Centre Lines

Required full route, on all Group 1 to Group 5 roads, with a seal width greater than 5.0m. Isolated Centre lines shall be provided on any section of sealed road with a width of 5.0m or less which provides inadequate visibility of on coming traffic. Inadequate visibility shall be defined as visibility less than the safe passing sight distance for the speed limit of the road.

Edgelines on Straights

Required full route, on all Group 1 to Group 3 roads, with a seal width greater than or equal to 6.2m. Should one section of a road be narrower and thus not have an edgeline, motorists shall be warned of this by the use of road narrows signs.

Edgelines on Isolated Curves

Required on Group 1 to Group 5 roads, regardless of seal width, if;
They are needed to prevent road users cutting corners where a hazard exists within 3m of the seal edge
Needed to prevent migration of gravel and / or edgebreak.

No Overtaking Lines

Required on all Group 1 to Group 5 roads where;
Meets the requirements for no overtaking lanes as set out in MOTSAM
And has an existing centre line
And has a seal width greater than or equal to 5.5m.

Where this standard indicates that existing no overtaking lines do not comply, these will be reviewed on a case by case basis by the Southland District Council.

RRPM's

Required on all Group 1 roads with a seal width greater than or equal to 6.0m.

Required on all Group 2 roads, only when joined at both ends by Group 1 roads and / or State Highways, and with a width greater than or equal to 6.0m.

Roads which fall outside this criteria but would benefit greatly from RRPM's may be considered on a case by case basis.

E.M.P's on Straights

Required on all Group 1 to Group 3 roads. "A" spacing type.

E.M.P's on Curves

Required on all Group 1 roads, "B" spacing type.
Required on all Group 2 to Group 4 roads, "A" spacing type
Required on all Group 7 unsealed roads, "A" spacing type.