

## E SMS component workbook and checklist

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## E.1 Introduction

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This document proposes a set of checklists to assist road controlling authorities (RCA) to develop a comprehensive safety management system (SMS). The checklist is to encourage the RCA, when preparing the SMS, to consider all of the issues identified in a range of SMSs that have been produced to date, and include them if appropriate. Due to the diverse nature of each RCA, not all issues and items will be needed in all SMSs but some of the critical items will be common to all. Other issues may be included in the SMS that are unique to that RCA.

There is overlap with some issues being identified in a number of sections due to them being inter-related.

The checklist should be conducted through interviews with the critical staff involved in managing and implementing the SMS. Following the interviews, specific examples should be cited where possible to determine that the procedures are being followed as the managers understand. This should include viewing of records and contract documents.

When filling the gaps in an existing SMS the overriding question should be 'is the proposed solution appropriate to the RCA and likely to lead to improved road safety'.

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### Philosophy

The background philosophy of the SMS should be defined. The SMS can be a high-level document making reference to other documents, a stand-alone document or a combination of both. The intended audience and method of use of the SMS should be defined.

- Has the philosophy of the SMS been defined?
- Has the RCA defined who should use the document and how it should be used?
- Is the document able to be used by its intended readers as intended?
- Have the objectives of the SMS been defined?

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### Linkage to other documents

The SMS will reference and complement other planning and management documents of the RCA. Some documents will be based around the outputs of the SMS ie annual plan and asset management plan, others will use the SMS outputs to support regular reviews ie district plan. The way the SMS links to other documents should be defined.

Does the RCA identify how other documents inter-relate with the SMS?

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## E.2 Road safety strategy

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RCA's have many different formats for their road safety strategy (RSS) and road safety plans (RSP). The most appropriate format for use in SMS is to have a road safety plan that is a prescriptive document detailing specific programmes that can be referred to from the SMS if necessary. The RSS is a less detailed version of the RSP. The RSS is a policy document.

The RSS may or may not be a part of the SMS. It could be a separate document that the SMS refers to or it could be a section within the SMS.

The following items may or may not be listed in the SMS but they must be specified in the RSP and referred to from the RSS.

The first group of items listed are those that will define the objectives of the strategy.

### Vision

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The RCA should set a vision for road safety that it believes is realistic and can be achieved. For example, it is not realistic to expect no crashes on the roads when many of the crashes cannot be affected by the RCA.

- Does the RCA have an achievable vision for road safety?
- Is it compatible with the road safety goals set nationally by the government?
- Is the vision reviewed regularly to reflect progress in achieving the vision?

### Key stakeholders and partners in the community

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These are the groups/individuals that will contribute to and benefit from the success of the RSS. The RCA may typically create or join specific community groups to promote road safety. An example is the Road Safety Co-ordination Committees.

- Has the RCA specified the people and groups in the community that can assist in improving road safety?
  - Has the RCA specified how input from these external groups will be received and how the RCA will work with them?
  - Have the community groups bought in to the parts of the SMS that they can influence?
  - Are there specific actions proposed by the community groups that will affect road safety?
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## E.2 Road safety strategy, continued

### Problem analysis

The RSS should analyse the level of road safety currently experienced within the area identifying the costs to the local community of the road crashes. The analysis should be detailed enough to identify the target safety issues that the RCA considers it could make safety improvements in.

The RCA may also keep a database of crashes reported by the local community to compliment the Land Transport NZ crash database. This should not subvert or duplicate the Land Transport NZ database or the scale of the safety problem will be overstated.

- Has the RCA analysed the level of the safety problem within their area?
- Does the analysis compare the level of their problem to other similar RCAs in their peer group?
- Does the RCA maintain a local crash database to supplement the Land Transport NZ database?
- Is the local crash database maintained to ensure it does not duplicate the Land Transport NZ database?
- Are complaints and issues raised by members of the public included in this process?
- Have the main crash types and at risk road user groups been identified and grouped as key safety issues?
- Is the analysis updated regularly to ensure that progress towards the goals and vision is monitored?

### Local crash reporting database

Some RCAs have set up database for the public to report crashes that may not have been reported to the NZ Police/Land Transport NZ. This can result in a fuller picture of the crash patterns around the road network and can indicate where safety issues may need to be addressed that do not show up on the NZ Police/Land Transport NZ reported crash database (CAS).

If the RCA does operate a local crash database, they must take care to ensure that the crashes they list are not duplicates of the crashes listed in CAS. Sometimes, a number of reports are made by different members of the public relating to each crash and care must also be taken to ensure that duplicates of the same crash are not included in the local database. The local database should be regularly purged of duplicated crashes to prevent double counting.

- Does the RCA operate a local crash reporting database?
- If so, is the database regularly checked for duplicates both within the database itself and with the CAS database?

## E.2 Road safety strategy, continued

### Key safety issues

Based on the problem analysis, the RSS should identify key safety issues and targets that will influence and improve road safety. The targets should be achievable and realistic and specific to the target areas identified in the problem analysis. Other less well-defined areas such as community involvement should also be included as well as (ideally) education and enforcement issues.

- Do the key safety issues address the problems identified in the problem analysis section?

### Scope

It is essential that certain elements are included in the initial SMS. These are the items that the RCA can directly influence. While the community elements are also considered essential, it is acknowledged that they can be more difficult to produce because of the diverse nature of the groups involved and can be added later if necessary.

Has the RCA attended to the following?

- Physical activities on the road reserve.
- Design of improvements.
- Land use activities including land use planning.
- Regulatory controls.
- Enforcement.
- Road safety education and publicity.

### Community education initiatives

These initiatives will probably involve external organisations and the RCA's involvement with the initiative may be limited. Whether this will be fully included in the RSS or referred to as a separate document will be a matter for each RCA to resolve.

Education initiatives should aim to develop a safety culture within the RCA and the wider community at large.

- Does the RCA participate in education initiatives either on its own or in association with community groups?
- Are the improvements in road safety provided by these initiatives measured and reported regularly?

### Enforcement initiatives

The RCA should have a good working relationship with all their road safety partners. An important partner is the NZ Police. Sharing knowledge of the safety problems that each is aware of will improve the ability of both organisations to carry out their respective roles in improving road safety. An example is speed management and enforcement.

- Does the RCA have regular meetings with the police to discuss safety issues?
- Does the RCA make recommendations on the distribution of police hours applied to strategic outputs in the National Land Transport Programme (NLTP)?

### E.3 Delivery of the strategy

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These mechanisms should deliver improved safety with a focus on the key safety issues identified in the strategy above. The order of these items does not indicate their relative importance.

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#### **Crash reduction studies**

These are formal studies carried out to investigate the cause of groups of crashes at black spots based on the Land Transport NZ crash database and local information (if available). The studies generally produce engineering solutions to identified safety deficiencies at the site. They rely on past safety records to determine the problem.

Some RCAs are known to carry out grey spot studies where a regular analysis of crash data will identify sites that could become black spots. This is a more proactive approach that attempts to prevent sites becoming black spots.

- Does the RCA carry out formal crash reduction studies?
  - Does the RCA have an identified programme for crash reduction studies?
  - If not, does it identify and address specific safety concerns?
  - Is this appropriate to the level of the problem?
  - Does the RCA specify the level at which a site is considered a black spot that will cause its inclusion in a crash reduction study?
  - Does the RCA regularly interrogate the Land Transport NZ crash database to identify sites that are developing crash problems ie, grey spot analysis?
  - Has the RCA specified the type of person and level of independence that is required to undertake the crash reduction studies?
  - Are the goals of crash reduction studies specified?
  - Are the expected outcomes of the studies defined in a way that can be measured?
  - Does the RCA prepare a response to the recommendations of the studies?
  - Does the RCA provide details of works undertaken to the Land Transport NZ for monitoring?
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### E.3 Delivery of the strategy, continued

#### Technical auditing

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There are a number of different types of audits. These are necessary to ensure that work is appropriately and regularly checked. Some are project audits and some are systems audits. The system audit will be that carried out for the SMS regularly and are addressed separately in section E8.

A proportion of each may be able to be carried out in-house, but some must be carried out externally to ensure that in-house work and auditing is of a standard that is equal to the industry at large.

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#### Project safety audit

- Does the RCA have a policy for safety auditing maintenance and/or construction projects?
- Are any projects undertaken without audits?
- Is there evidence that the audits have been carried out?
- Does the policy specify who may undertake such safety audits?
- Does the policy specify the standards to be used for the audits?
- Does the RCA provide a response to recommendations made in the audit report?
- What actions does the RCA take in response to the audit recommendations?

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#### Existing road safety audits

- Does the RCA have a policy for safety auditing existing roads?
  - Are these audits programmed within the forward financial plans of the RCA?
  - Does the policy specify who may undertake such safety audits?
  - Does the policy specify the standards to be used for the audits?
  - Has the RCA made changes to policies and management systems as a result of these audits?
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### E.3 Delivery of the strategy, continued

#### Temporary traffic management

Temporary traffic management is becoming increasingly important as road networks are being developed and maintained with traffic growth requiring greater consideration of the needs of traffic to negotiate the works safely and efficiently. Standards for temporary traffic management have recently changed and the number of different standards consolidated into a single standard.

The *Land Transport Rule – setting of speed limits 2003* requires a temporary speed limit to be set by installing signs in accordance with a traffic management plan approved in writing by the RCA.

Temporary traffic management schemes should be approved by the RCA and audited on-site to ensure they are safe and comply with standards. If the scheme involves a temporary speed limit, it must be approved by the RCA.

- Does the RCA have a policy for specifying temporary traffic management standards?
- Does the RCA approve schemes prior to them being implemented?
- Is the standard for temporary traffic management and interpretations specified appropriate to the RCA?
- Does the policy specify auditing of the temporary traffic management on the road?
- Does the policy specify who may undertake such audits?
- Does the policy specify the standards to be used for the audits?
- What actions are taken by the RCA as a result of the audits?

#### Deficiency analysis and database

The RCA needs to be aware of the specific safety deficiencies within its road network so that improvements can be programmed. Deficiencies can be identified in a number of ways including formal safety inspections. The deficiencies identified should be entered into a database for recording purposes and future ranking. Some of the deficiencies may be used to develop the minor safety programme. Others may need to be programmed for major remedial action or entered onto a maintenance programme. A specific management plan may be needed for significant deficiencies in the interim period until major remedial action can be taken.

- Has the RCA carried out routine road safety inspections on the roads to identify specific safety deficiencies?
- Are deficiencies identified in other ways ie, public complaints?
- Are the identified deficiencies included in a database and programmes for future upgrading?
- Is the deficiency analysed before inclusion in the programme?
- If the deficiency is significant but cannot be remedied early, is there a maintenance management plan for the deficiency?
- Is the database used in developing the minor safety programme?
- Is the method of prioritising the deficiency appropriate?



### E.3 Delivery of the strategy, continued

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#### Hazard register

The RCA needs to be aware of any recurring intermittent safety issues that may not be able to be remedied permanently such as ice and flooding or growing vegetation that will limit visibility, or vegetation that may fall on the road after strong winds. Other hazards may be identified that are part of a future improvement programme and need to be managed and maintained in the meantime. This is not the same as the deficiency database.

This register also ensures that environmental problems are identified and can be considered in any project that affects the section.

- Is there a hazard register prepared by the RCA to record recurring safety issues?
- Does the RCA ensure that contractors are aware of and use the register?
- Is the hazard register updated as new hazards are identified?
- Does the hazard register affect land use planning?

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#### Road hierarchy

Roading hierarchies can be created for different purposes.

- Has the RCA created a roading hierarchy?
- Have the reasons for and philosophy of the hierarchy been defined?
- Is the roading hierarchy used to determine funding priorities?
- Is the roading hierarchy used to determine design standards?
- Is the roading hierarchy used to determine maintenance standards?

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#### Traffic counting

While not a specific safety issue, it is important for the RCA to understand traffic demands and patterns on its roads.

- Does the RCA have a traffic counting programme that provides adequate information of traffic demands on the network?
- Is this programme used to determine priorities?

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#### Speed management

Speed management should involve both enforcement and engineering to provide a consistent speed environment.

- Does the RCA specify its goals in managing speed?
  - Does the RCA regularly review speed limits to ensure appropriateness?
  - Has the RCA specified the actions and strategies it uses to manage speed?
  - Have appropriate outcomes and performance measures been stated to determine success in managing speed?
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### E.3 Delivery of the strategy, continued

#### Maintenance of traffic control devices

Traffic control devices require regular checks to ensure that they have not been vandalised, damaged accidentally or failed due to age. This includes:

- signs
  - delineation devices
  - road markings
  - traffic signals
  - any other the devices the RCA may use.
- Has the RCA specified a regular inspection regime to identify and replace damaged or deficient standards of traffic control devices for each type of device?
  - Are the inspection periods suitable?
  - Are the replacement or repair response times adequate?

#### Traffic management facilities

Many local authorities use some form of traffic management devices. These are usually in urban areas and include local area traffic management schemes and urban/rural speed thresholds. The design of these is non-standard and varies between RCAs.

- Does the RCA have policies and standards for the use and design of traffic management facilities?

#### Land use planning and regulatory controls

Adjacent land uses can affect road safety if they are not controlled to be sympathetic to the road network. This includes their access points, on-street manoeuvring and parking demand and any associated site specific signage. Advertising signs fall within this category. Excessive amounts of advertising can cause distraction and sign clutter detracting from important regulatory and warning signs. Other signs such as sandwich board signs on the footpath can create a hazard for pedestrians if they are not controlled properly. Typically, these issues are controlled through the district plan and/or bylaws.

- Does the district plan require safety issues to be considered when applying for resource consent or subdivision consent?
- Do the road safety staff have input into the resource consent process?
- Do the road safety staff have input into the district plan and bylaw review process?
- Are safety audits carried out on proposed and new subdivisions?
- Are safety audits carried out as part of the resource consent process and after approval?
- Does the RCA control and approve advertising signage?

### E.3 Delivery of the strategy, continued

#### Street lighting

Street lighting has many purposes including road safety. In urban areas, it can improve drivers' visibility of pedestrians, cycles and stationary vehicles. It also illuminates properties and can improve security. It can also cause a nuisance to some residents by shining into their rooms and preventing sleep, so some balance must be provided between conflicting demands.

In rural areas, street lighting can identify intersections of some importance for approaching drivers and can identify changes in road environment such as at passing lane diverges and merges.

- Does the RCA specify the AS/NZ standard for road lighting in contracts and maintenance?
- Do their policies specify the acceptable level of lighting for each road type and/or road?
- Does the RCA have a policy for flag lighting at rural intersections?

#### Landscaping and vegetation control

Experience has shown that many RCAs have difficulty managing design, installation and maintenance of landscaping in the road reserve.

- Does the RCA have specific requirements for landscaping and vegetation control within the road reserve?
- Is the responsibility for the landscaping within the department that acts as the RCA?
- If they are not within the RCA's department, does the RCA have effective control over their activities?

#### Overdimension and overweight routes

These are safety issues when trucks carrying overdimension or overweight loads use inappropriate roads damaging the road structure and/or street furniture, or may not be able to negotiate intersections such as roundabouts.

- Does the RCA have a series of overdimension and overweight routes specified for its network?
- Does the RCA have appropriate controls in place to enforce the use of these routes?

### E.3 Delivery of the strategy, continued

#### **Vulnerable road users**

Vulnerable road users include those with special needs that may not need to be catered for in all projects but their potential presence should be considered and evaluated in any project. These can include children, elderly, tourists, people with intellectual handicaps, sight impaired and specific facilities such as hospitals and schools where these people may congregate.

- Does the council carry out specific audits of the needs of vulnerable road users and the facilities and routes they most commonly use?
- Are objectives and goals specified for each type of vulnerable road user?
- Has the RCA created performance measures for each type of vulnerable road user?
- Does the RCA measure how well it has achieved its performance measures for each type of vulnerable road user?

#### **Cycle facilities**

Most regional transport strategies have a policy of encouraging modal switch from private passenger vehicles to public transport and cycles.

- Does the RCA have a policy on encouraging modal switch to cycling?
- Does the RCA provide alternative networks for cyclists in its system?
- Are cyclists considered at all stages of the road planning process?

#### **Pedestrian facilities**

Pedestrian facilities need to be well designed and used to ensure adequate safety for all road users. The location of the crossing is also important in that it must allow sufficient visibility for the driver to be aware of the facility's existence and intervisibility between the driver and the pedestrian. Where the facility is used at night, adequate lighting should be provided.

The surface where pedestrians cross the road should be of a different material from the footpath so that the pedestrians recognise that they are no longer on a protected footpath.

- Does the RCA use appropriate guidelines and warrants for establishing and maintaining pedestrian facilities?
- Does the RCA monitor use of the pedestrian facilities to ensure they continue to meet their warrant requirements?
- Are pedestrian facilities illuminated when they have significant night-time usage?

## E.3 Delivery of the strategy, continued

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### Footpaths

The standard of maintenance of footpaths is critical as they are used by people who may not be able to clear shallow obstructions and may drive mobility scooters. Mobility scooters are often unable to climb steep inclines from the footpath to the carriageway when crossing roads. Footpaths need to be kept clear of vegetation that could obstruct or injure pedestrians.

- Does the RCA regularly inspect footpaths for defects such as tree root damage?
- Does the RCA have a policy with regulatory backing to ensure footpaths are clear of vegetation?
- Does the RCA consider mobility scooters when providing footpath access to road crossings?

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### Drainage systems

There are a number of individual parts to any drainage system and each of these should be considered. Rural and urban drainage systems are typically quite different.

#### Bridges/culverts

Bridges and culverts require regular inspection to ensure that their structural integrity is intact. They also require regular maintenance to ensure that waterways and headwalls are clear and regular painting of steel surfaces is undertaken. The end treatments are also important to ensure that if a vehicle strays from the carriageway, it does not strike a non-frangible object such as a concrete headwall.

- Does the RCA have an inventory of all its bridges and culverts?
  - Does the RCA have a programme for investigating the structural integrity of the bridges and culverts including headwall protection using appropriately qualified personnel?
  - Does the RCA have a programme for inspecting and clearing the vegetation in the waterways that would impede flow in the channel?
  - Does the RCA have a programme for inspecting and repainting steel members on bridges?
  - Does the RCA have a policy for protecting bridges with safety barriers?
  - Does the RCA have a policy of replacing or widening underwidth bridges and culverts?
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### E.3 Delivery of the strategy, continued

#### Drainage systems, continued

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##### Catchpits/sumps

These range from soakholes in free draining soils to structural sumps in the carriageway. All are essential and must be maintained appropriately. If not, localised flooding can result causing damage to the roads and adjacent properties, and vehicles may lose control in flood waters. Sump gratings can cause problems for users such as cyclists whose wheels may get caught in the gratings.

- Does the RCA have a programme for regularly inspecting drainage structures to ensure they are not blocked or damaged?
- Does the RCA specify sump gratings that are perpendicular to and level with the travel path of cyclists?

##### Kerb and channel

Kerb and channel controls the flow of water and protects the edge of the road from damage. It also defines the trafficable portion of the carriageway and is often used in rural areas around intersections to control the path of traffic around the intersection. Over time, kerb and channel can become rough and damaged and hold water in puddles or allow it to infiltrate under the road.

- Does the RCA have a programme for inspecting and replacing kerb and channel as it is damaged?
- Does the RCA use kerb and channel in rural areas to define vehicle paths and protect road edges and embankments?

##### Deep drains and irrigation channels

Deep drains can be a hazard for pedestrians (particularly children) who may fall into them while they are in flood. They may also be close to the carriageway and often have vertical sides that will not allow a vehicle to recover if it is out of control. This is related to clear zone policy.

- Does the RCA have a policy or programme for piping urban drains to prevent access by pedestrians?
- Does the RCA protect traffic from deep drains and irrigation channels adjacent to the carriageway?

##### Swale drains

These are shallow drains in rural areas that allow overland flow of water from the carriageway to drainage structures. They are usually used in flatter terrain. Because of this, maintenance is important to prevent vegetation from slowing the flow of water and creating ponding.

- Does the RCA have a policy or programme to insure vehicle crossings do not create a hazard to vehicles leaving the road?
  - Does the RCA have a policy or programme to insure the swale slope and surface does not create a hazard to vehicles leaving the road?
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### E.3 Delivery of the strategy, continued

#### Vehicle crossings and accessways

All properties are required to have frontage to a road whether or not they use it for vehicle access. Informal vehicle crossings cause damage to footpaths and berms. The structure of footpaths is not usually strong enough to accept vehicles, and damage to footpaths may impact on utilities underneath. Informal vehicle crossings may not be located in the safest location with the best visibility.

- Does the RCA require all property owners to apply for formal vehicle access?
- Are construction standards specified as a part of the application process?
- Does the RCA take action against those that do not have an approved vehicle crossing?
- Does the RCA specify visibility requirements for vehicle crossings?

#### Stock control, crossings and underpasses

Many RCAs have areas where stock may have access to roads. This can be either for driving along the road or crossing the road to access land on the other side of the road. The occurrence of stock crossing has increased recently with the conversion to dairy farms. Control of stock movements is important to prevent uncontrolled interaction between the stock and other road users. Some RCAs have gone to the expense of subsidising stock underpasses where the movement of stock is frequent.

- Does the RCA have policies and bylaws controlling stock access to, and movement along the road?
- Does the RCA require farmers to comply with temporary traffic management practices while their stock are on the road?

#### Effluent disposal facilities

Effluent disposal facilities have become important since new regulations requiring stock trucks to have effluent holding tanks on their trucks have come into force. These rules were promulgated to prevent uncontrolled stock effluent being concentrated on the carriageway and splashed onto vehicles and windscreens. Stock effluent can also degrade the road surface. The effluent disposal sites are generally on high volume, high speed rural roads and may be near places where stock are held such as saleyards and freezing works.

- Does the RCA have a policy for controlling stock effluent on the roads?
- Does the RCA provide effluent disposal sites within their area?

#### Weighbridges

Weighbridges are provided on the road reserve for the use of the police. The RCA has a role in approving and usually siting the weighbridge in consultation with the police. Demand for the weighbridges tends to be on higher volume, high speed rural roads and their design is critical to ensure that they are safe.

- Does the RCA have a policy for siting and constructing weighbridges?
- What design criteria does the RCA have for the entry and exit access points?

### E.3 Delivery of the strategy, continued

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#### Rest areas

Rest areas are provided to allow drivers to stop and rest safely when fatigued. They are often located in places where people stop to view scenery or other places of interest without creating a traffic hazard. Often they are intended to cater for tourists and their design needs to allow for this.

- Does the RCA have a policy on the provision of rest areas within their area?
- What design criteria does the RCA have for the entry and exit access points?

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#### Safety barrier

A safety barrier has many new forms and can be applied in many situations that were previously uneconomic. However, some uses of a safety barrier can create a greater hazard than the hazard it is trying to protect. Examples are when a safety barrier is short or terminates on curves without adequate flaring.

- Does the RCA have a policy on the use of safety barriers?
- Are the appropriate standards applied to the design of safety barriers?
- Does the RCA regularly inspect safety barriers to ensure they retain their integrity?

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#### Retaining structures

Retaining structures are generally constructed around structures such as bridges or to prevent steep, unstable slopes from collapsing onto the carriageway. Particular maintenance requirements include draining the structure adequately to prevent pore pressure building up behind the structure and preventing scour and the loss of material from behind the structure.

- Does the RCA regularly inspect retaining structures to ensure their integrity?

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#### Parking

Parking can cause safety problems, particularly on arterial and other major roads. Cyclists can be impacted by parked vehicles, both angle parked and parallel parked. If insufficient width is provided for cyclists adjacent to parallel parked vehicles, drivers may open car doors in front of the cyclist. Angle parking reduces the driver's view to the approaching cyclist that will be close to other parked vehicles. This can be controlled to some extent through appropriate land-use planning and application of bylaws.

- Does the RCA control the amount of on-street parking demand by requiring developments to accommodate their parking demand on-site?
- Does the RCA allow angle parking on streets or main roads?

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#### Emergency response

By their nature, emergencies are unforeseen events. These can vary from vehicle crashes to land slides and water pipe explosions. The RCA must have a flexible plan that allows for an appropriate response to any problem.

- Does the RCA have a flexible emergency response plan?
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### E.3 Delivery of the strategy, continued

#### Road closures

Road closures must be approved and advertised prior to the closure. Closures are required for road works or events such as parades.

- Does the RCA have formal procedures for road closures that comply with the legislative requirements?

#### Pavement maintenance

##### Scrim analysis

This is a system of testing the skid resistance of the pavement surface.

- Does the RCA carry out regular testing of its sealed roads for skid resistance?
- Does the RCA specify minimum standards of skid resistance for the sealed roads under its control?
- Does the RCA have a policy for treating sections of roads that have deficient skid resistance?

##### Potholes

While potholes may have been shown to be no more than a minor contributor to crashes, if not treated properly they can cause problems of widespread structural failure due to water ingress. They can also cause serious safety problems to cyclists and pedestrians.

- Does the RCA carry out regular inspections of the surface for potholes?
- Are response times specified for the repair of potholes?
- Are standards for the repair of potholes specified?

##### Physical defects

Long term deterioration will be picked up by regular RAMM rating surveys. Such items as road roughness will be identified during these surveys. Systematic inspections to identify the maintenance issues should be carried out between surveys to identify visual failures such as rutting and loose material on the carriageway.

In between surveys, there may be sudden failure of the road due to unforeseen circumstances.

- Does the RCA carry out regular RAMM rating surveys?
- Does the RCA specify systematic visual inspections of the road to identify structural road failures or distress?

### E.3 Delivery of the strategy, continued

#### **Pavement maintenance, continued**

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##### **RAMM data and analysis**

An up-to-date inventory system such as RAMM can contribute to road safety. It can indicate where sections of road fail to meet set standards for roads of that type as well as supplying an inventory of road furniture for future maintenance reference. The standards are set to achieve a consistent road environment.

- Does the RCA have a programme for gathering RAMM data that provides information on network deficiencies?
- Is this information used to determine priorities?

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##### **Grading unsealed roads**

The regular grading of unsealed roads is important to prevent minor problems escalating into larger problems that require reconstruction work.

- Does the RCA actively monitor the condition of unsealed roads prior to grading?

#### **Clear zones**

Clear zones attempt to keep the road shoulders clear of obstructions so that an out of control vehicle has some chance of recovery or stopping without striking a solid obstruction. This includes the gradient of shoulders. Only frangible objects should be placed in the clear zone and even then with caution. Where clear zones cannot be provided, protection of the hazard is the alternative.

- Does the RCA have a policy on providing clear zones?

#### **Railway crossings**

Railway crossings have been the site of many serious crashes over the years. Although the crossings are under the jurisdiction of the rail operator, the RCA has an important advocacy role to ensure that the rail operator maintains and upgrades rail crossings to an acceptable standard for road users. The RCA also provides the advanced signage.

- Does the RCA have a policy for railway crossings?
  - Does the RCA have regular contact with the rail operator to discuss concerns about rail crossings?
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### E.3 Delivery of the strategy, continued

#### Road openings by utility and other external service authorities

The RCA is responsible for the road network and must exhibit some control over those that work on it. They can only do this effectively when they know who is working on the road and where when they are working on the road.

- Does the RCA maintain a street openings register to be aware of where and when contractors will be working on the road so they and their work can be inspected/audited?
- Does the RCA specify the temporary traffic management requirements for external service authorities and their contractors to work on the road?
- Are these requirements similar to those that the RCA imposes on its own internal contractors?

#### Road openings by other departments within the RCA's organisation

Experience has shown that the department nominated as being the RCA often has difficulty in getting the cooperation of other departments within the organisation to comply with the traffic management requirements of road openings. These include departments with assets under the road such as sewer and water pipes and those that maintain landscaping on the road reserve.

- Does the RCA have service agreements with other internal departments that control their and their contractor's activities in the road reserve?

#### Roads under the control of other RCA's

A number of other authorities can have public roads within the RCA area but not under the control of the RCA. These include:

- ports
- airports
- Department of Conservation.

It is important that the RCA has a good working relationship with any organisation that has control of roads that will eventually affect the RCA.

Other RCAs have common boundaries. It is important that all of the RCAs regularly discuss and agree issues that affect them, particularly at the boundaries.

- Does the RCA have a policy and protocols in place to deal effectively with each RCA within its boundaries?
- Does the RCA have a policy and effective cooperation to deal with other RCAs that have common boundaries with them?

## E.4 Standards, guidelines and policies

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An easily audited way of presenting these is to use a table stating each type of asset or work for which standards and guidelines are to be used. See part 3–H for a current list of standards and guidelines. This section, in particular, will need to be updated regularly as the RCA changes or introduces new policies, as new standards are adopted and promulgated by the Standards and Guidelines Steering Group, and others are superseded.

Examples of how these can be applied are shown in both of the example SMSs in part 4–C and 4–D.

The table should include all known aspects of:

- design
- construction
- maintenance of all roading assets and road reserves.

Some important elements that should be specified are the road design elements including:

- horizontal alignment
- vertical alignment
- carriageway width
- intersection layout
- solid and flush medians.

It is essential that these are communicated easily and accurately to ensure consistency in the road network of the RCA.

Any deliberate departures from the standards, guidelines and policies should be acknowledged on each occasion and recorded for auditing purposes.

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### Standards

These are the national (Land Transport NZ requirements) and legal standards (government rules and regulations) that must be complied with. They are not allowed to be varied by local decisions unless prior approval is given.

- Are the standards to be used listed in the SMS?
  - Are the appropriate standards listed for each asset and/or activity?
  - Is it easy for users to follow which standards should be applied to each asset and/or activity?
  - Is there evidence that the list is updated regularly?
  - Does the RCA have interpretations of the standards that may vary from the accepted norm?
-

## E.4 Standards, guidelines and policies, continued

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### Guidelines

These are the national guidelines that may be complied with. There is no legal requirement to work to these guidelines but they are considered to provide appropriate solutions to some safety problems. The RCA may vary the guidelines to suit local conditions, but any local variations or interpretations should be documented to ensure that they are communicated clearly to anyone working on the road network.

- Are the guidelines to be used listed or included in the SMS?
- Have the guidelines used been formally adopted by the RCA?
- Are the appropriate guidelines listed for each asset and/or activity?
- Is it easy for users to follow which guidelines should be applied to each asset and/or activity?
- Is there evidence that the list is updated regularly?
- Does the RCA have local variations and interpretations of the guidelines?
- Are the local variations and interpretations recorded and communicated properly to those who work on the roads?

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### Policies

These are the policies adopted by the RCA to address issues specific to that RCA that may not fall within a national standard or guideline.

- Are the policies to be used listed or included in the SMS?
- Have the policies used been formally adopted by the RCA?
- Are the appropriate policies listed for each asset and/or activity?
- Is there evidence that the list is updated regularly?

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### Compliance with standards, guidelines and policies

It is acknowledged that there will be occasions when standards, guidelines and policies for general use may not be able to be applied. On these occasions, the departure from recognised standards should be documented with the reasons why the recognised standards could not be applied.

- Does the RCA record departures from recognised standards, guidelines and policies?
  - Are there checks within each project (apart from the safety audits) to ensure that the appropriate standards, guidelines and policies have been complied with?
-

## E.5 Expertise, qualifications and roles

### Staff training and competence

The RCA is responsible for ensuring that staff who are responsible for road safety activities are competent for the task. They must be provided with sufficient resources and authority to complete the tasks successfully.

- Is the amount of delegation from the SMS manager to staff clearly communicated in written records?
- For RCA staff, is compliance with the SMS written into employment contracts as a condition of employment?
- For external consultants and contractors employed by the RCA, is compliance with the SMS written into the conditions of contract?
- Do staff attend seminars and training sessions to ensure that they are appropriately trained and with sufficient knowledge of state of the art techniques?
- Does the RCA have a formal policy on staff development?
- Do staff meet the minimum requirements for fulfilling the position as described in the job description or are they being encouraged to achieve those requirements?
- Where no RCA staff are sufficiently skilled to meet the requirements for an aspect of the SMS, does the RCA employ a consultant/contractor with an appropriate level of skills?
- Are the skill levels required appropriately described and specified in the SMS?

### External service authorities and other commercial road occupiers

It is important that external authorities are required to buy into and accept the requirements of the SMS as a part of their authority to occupy and/or work on the road. This is an area where the RCA will need to delegate some responsibility to the external authority but must still ensure compliance with the SMS. Standards must be imposed to prevent the recent examples of a rotten wooden power pole falling on a vehicle, catastrophic blowouts of gas and water mains and other problems such as leaking pipes beneath the road causing the road structural failure. Standards of maintenance and acceptable risk need to be defined as well as levels of traffic control while working on the road.

Another significant group is (for example) farmers who may use roads for crossing or driving stock, install irrigation pipes under the roads from time to time without being aware of requirements, shelter belt trimming and tree felling.

- Does the RCA have an agreement with external service authorities about the construction and maintenance standards of their assets that are allowed to occupy the road reserve?
- Does the RCA have effective control over irregular and informal occupiers of the road by others such as farmers?
- Does the RCA have requirements specified for scheduled event management?

## E.5 Expertise, qualifications and roles, continued

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### **Appointment of consultants and contractors**

Appointing consultants and contractors requires a standardised set of procedures. These procedures must comply with legislation and be transparent to avoid any question of inappropriate behaviour in appointments. Not all contracts will require an open tender process but all must have some form of evaluation and paper trail to ensure that the appointee has the credentials and ability to perform to the standard specified by the SMS.

- Does the RCA have formal procedures for the appointment of consultants and contractors that considers the skills and expertise that is required for the task?
-

## E.6 Management of the SMS

### Management/ ownership of road safety

The organisation must specify who is accountable for the safety of work and ensure that the SMS is complied with. The person who is accountable for the SMS will continue to be accountable even if they have passed on responsibility for managing and operating the system to others. While it may be possible for a person outside the RCA to perform the duties, it is essential that ownership of the SMS resides within the RCA. Smaller RCAs will need to pay particular attention to this person where their duties may overlap with the management and service delivery functions.

- Is someone within the RCA specified as responsible for championing the SMS?
- Is it in their job description that they must ensure compliance with the SMS?
- Does this person have sufficient seniority within the RCA to ensure that staff will comply with the SMS?
- Are mechanisms used to ensure that the person responsible will continue to champion the SMS?
- Is there a clear separation of responsibilities between management of the SMS and service delivery?

### Monitoring of staff compliance with the SMS

The RCA will need to monitor that staff are complying with the requirements of the SMS. This can only be done with an adequate paper trail to show how the staff have complied. Staff must be able to demonstrate that in carrying out their duties, they have complied with the SMS requirements for that specific duty.

- Are projects and staff performance reviewed regularly in-house to ensure compliance with the SMS has been achieved?

### Ongoing system development

Since this is a living document, it is important that deficiencies in the system be identified and rectified as soon as practical. All staff should be encouraged to participate in the ongoing development of the system. This is important to encourage ownership of the system amongst lower level staff.

- Are staff and external agencies provided the opportunity and encouraged to identify improvements to the SMS?
- Is there a system in place to capture the opportunities for improvement so that they can be actioned or considered in the next review of the document and its systems/processes?

### Operational/ management structure

It is important that the roles of all of those involved with implementing and maintaining the SMS should be aware of the operational and management structure within the RCA. This can be most effectively communicated by use of a flow chart to show responsibilities in each area.

- Does the RCA provide a flow chart of the organisational structure as it relates to road safety – noting that planning and parks and reserves operations also have a key role to play in road safety?



## E.7 Auditing

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The system must be regularly internally and externally audited to ensure that it is successful, appropriate, meets the needs of the RCA and complies with national standards.

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### **Review, monitoring and evaluation of road safety strategy**

The RSS should be reviewed, monitored and evaluated regularly to assess progress towards the goals. A minor audit could be held annually with a major review periodically (perhaps every three to five years) to redefine the vision and goals. As well as these formal audits, it should be updated as and when new information becomes available that may affect the RSS.

- Does the RCA have a policy of maintaining and upgrading the RSS?
  - Is there documented evidence of the RSS being maintained?
  - Is progress towards achieving the vision and goals being recorded and reported by the RCA?
  - Has the RCA recorded and reported progress towards achieving the vision and goals
  - Does the RCA monitor/evaluate their staff's progress towards upgrading their knowledge and qualifications?
-

## E.7 Auditing, continued

### SMS audit

An SMS audit consists of a document review, process monitoring and outcome evaluation.

This is a circular process with the recommendations of previous audits being included to improve the SMS. The document review ensures that the SMS contains current best practice and guidelines and all issues having an affect where safety risk is more than medium. The system monitoring is to ensure compliance with the processes of the SMS. The assumption is made that by carrying out work in accordance with the SMS, safety will be improved. This is evaluated by ensuring that safety outcomes are delivered on the road for road users. If safety is not improved but the processes are being followed, it will be necessary to review the SMS to identify specific failings.

The SMS should be updated on an as-needs basis when new standards, policies procedures etc become available.

- Has the RCA formed a policy on the auditing of the SMS?
- Has the RCA specified external and/or internal audits?
- Does the RCA carry out monitoring/evaluation of their performance in achieving the vision and goals?
- Is there a frequency of auditing specified for both internal and external audits?
- Are the auditors and their level of expertise/experience specified?
- Does the audit consider whether the goals are being met as well as the systems complied with?
- Does the RCA use the report from previous audits to make improvements to the SMS?
- If there are issues raised in the audit that indicate non-compliance with the SMS or that goals are not being achieved, are identifiable actions taken?
- Does the audit review the policies, procedures, standards and guidelines for consistency, currency and relevance?
- Does the RCA control the number of copies of the SMS to ensure that all copies are current with all amendments included?
- Is there a SMS document control system in place to manage and record changes?
- Is there a safety team established to manage the system and document changes?

## E.8 Endorsement of the SMS

### **Appropriate endorsement**

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Once the SMS has been written it will require endorsement by the Land Transport NZ. This will be given following a successful review of the document to certify that it complies with the guidelines for developing a safety management system.

A form will be signed by both the RCA and the Land Transport NZ. It is envisaged that the RCA will be represented by the mayor and/or the chief executive and Land Transport NZ will be represented by the appropriate partnership manager. Signing of the form will indicate endorsement of the document by the Land Transport NZ and will bring into force the Memorandum of Understanding that provides both responsibilities and privileges to both parties.

Appropriate forms are shown in the Rangitikei, Ruapehu and Wanganui SMS, part 4–C of this document but this can be altered to suit.

- Has the SMS been suitably endorsed?
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## E.9 Checklist

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This checklist is designed for simplicity. It is intended that it should be completed by the RCA to ensure that they have considered the issues and items to be included in the SMS. This checklist can be used to identify gaps in the RCAs' current practices that could be filled during the process of developing the SMS.

This checklist includes the following:

- Land Transport NZ ranking. The Land Transport NZ has identified items to be included in a SMS for it to address a normally expected level of risk. The ranking is as follows:
  - \*\*item expected to be included in the SMS. This normally involves a risk greater than medium.
  - \*item could be included if it has a safety risk greater than medium.
- The RCA is encouraged to evaluate each item and issue listed. They can be identified as:
  - item is included in the SMS
  - item has not been included in the SMS but needs to be
  - item has not been included in the SMS but further consideration will be given to including it
  - item does not apply to this RCA or is considered a minor or insignificant safety issue.

An example could be traffic signal issues in a largely rural authority.

Additional items not in the list should be included by the RCA if they consider them to be a medium or greater safety issue.

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## E.9 Checklist, continued

Land Transport NZ ranking	Item	Included in SMS	Not included in SMS but should be	Not included in SMS but may be	Not applicable in this SMS
Endorsement of the SMS					
**	RCA				
**	Land Transport NZ				
Introduction/summary/philosophy					
	Introduction/glossary of terms and abbreviations				
	Cover and document structure				
	Philosophy				
	Linkage to other documents				
	Memorandum of Understanding				
Road safety strategy (RSS)					
**	Vision				
*	Key stakeholders and partners in the community and linkages				
**	Identify problems/issues for the road safety strategy to address				
**	Goals				
**	Targets				
**	Interventions <ul style="list-style-type: none"> <li>• Engineering initiatives</li> <li>• Community education initiatives</li> <li>• Enforcement initiatives</li> </ul>				
**	Monitoring and measuring of performance				
**	Review date				

## E.9 Checklist, continued

Land Transport NZ ranking	Item	Included in SMS	Not included in SMS but should be	Not included in SMS but may be	Not applicable in this SMS
<b>Expertise, qualifications and roles</b>					
*	Staff training and competence				
**	External service authorities and other commercial road occupiers				
**	Appointment of consultants and contractors				
*	Staff training and competence				
<b>Management of safety management systems</b>					
**	Management/ownership of road safety				
**	Monitoring of staff compliance with SMS				
**	Ongoing system development				
	Operational management structure				
<b>Audit</b>					
**	SMS internal audit				
**	SMS external audit				
	RSS review and monitoring (see RSS section)				
<b>Delivery of the strategy</b>					
**	Crash reduction studies				
**	Deficiency analysis and database				
**	Road safety hazard register of environmental items				
**	Road hierarchy				
**	Traffic counting				
**	Speed management				
*	Street lighting				
**	Landscaping and vegetation control				
*	Clear and safety zones				

## E.9 Checklist, continued

Land Transport NZ ranking	Item	Included in SMS	Not included in SMS but should be	Not included in SMS but may be	Not applicable in this SMS
- Technical auditing including					
**	Project safety audit				
**	Existing road safety audit				
- Maintenance of traffic control devices including					
**	Signs				
**	Delineation, (ie, EMP, RRPM, bridge end markers, hazard markers)				
**	Road marking				
	Traffic signals				
	Any other devices				
- Traffic management					
	Local area traffic management (LATM)				
	Land use planning controls including: <ul style="list-style-type: none"> <li>• District plan</li> <li>• By-laws</li> </ul>				
	Overdimension and overweight routes				
	Emergency response				
	Road closures				
**	Temporary traffic management including approval and auditing				
- Vulnerable road users					
*	Cycle facilities				
*	Pedestrian facilities				
*	Footpaths				

## E.9 Checklist, continued

Land Transport NZ ranking	Item	Included in SMS	Not included in SMS but should be	Not included in SMS but may be	Not applicable in this SMS
- Drainage systems					
*	Bridges and culverts				
*	Catch pits and sumps				
*	Kerb and channel				
*	Deep drains and irrigation channels				
*	Swale drains				
- Crossings					
*	Vehicle crossings and accessways				
	Stock control, crossings and underpasses				
	Rail crossings				
- Pavement maintenance					
*	Scrim analysis				
	Potholes				
*	Physical defects				
	RAMM data and analysis				
*	Grading unsealed roads				
- Road openings					
	Under control of RCA's roading department				
	Under control of other departments				
	By utility and external service authorities				



## E.9 Checklist, continued

Land Transport NZ ranking	Item	Included in SMS	Not included in SMS but should be	Not included in SMS but may be	Not applicable in this SMS
- Roads under the control of other RCAs including					
	Boundary issues with neighbouring RCAs				
	Ports				
	Airports				
	Department of Conservation				
	Power/hydro authorities				
Standards and guidelines					
**	Standards				
**	Guidelines				
**	Policies - national				
**	Policies - local				
**	Compliance with standards, guidelines and policies				
General notes					