

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.

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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

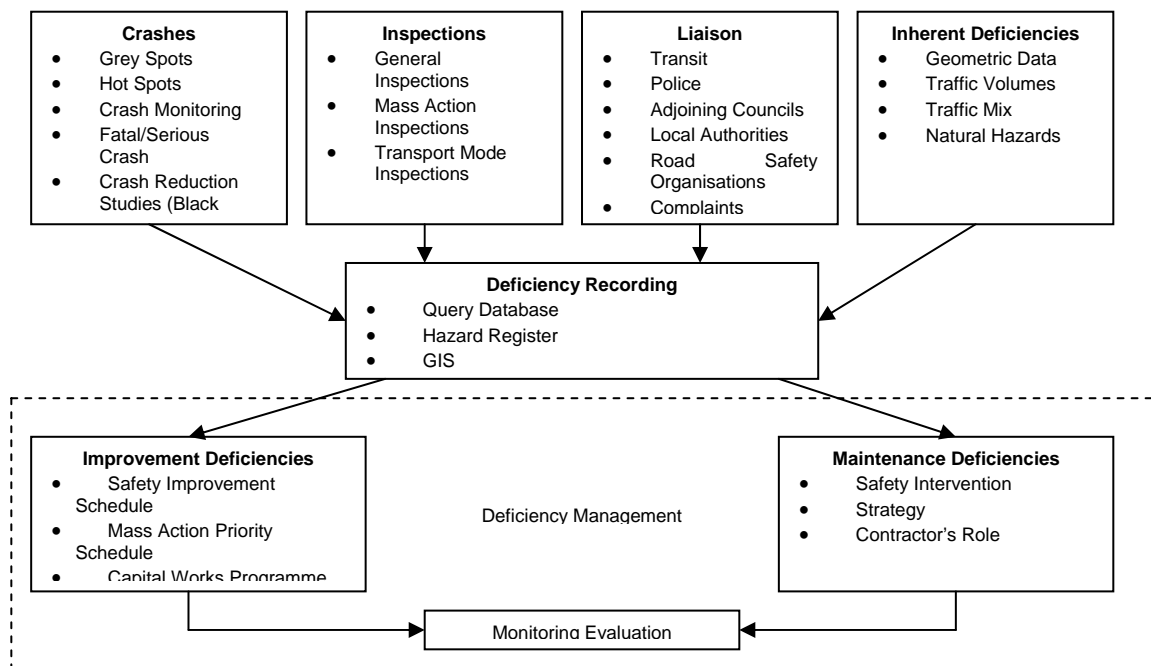
5.3 Safety Deficiency Database

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
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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]