

9. Traffic Hazard Management

9.1. Application and Purpose

This section deals with the development of methods to manage the risks related to the identified hazard of vehicle impact on Roadmarking workers and plant while applying or re-applying pavement markings on public roads, carparks or thoroughfares.

9.2. Scope

It is intended that this document be used in conjunction with accepted temporary traffic management codes such as the New Zealand Transport Agency Code of Practice for Temporary Traffic Management (NZTA CoPTTM) and the Road Controlling Authorities Forum Local Roads Supplement to NZTA CoPTTM.

9.3. Background – The Traffic Hazard

9.3.1. The Roadmarking Activity

The New Zealand Roadmarking Industry routinely applies and re-applies regulatory markings to approximately 100,000km of roads. The vast majority of this work is carried out while the motorist has use of the carriageway.

Protection of markings until set or dry is paramount. All of the currently used pavement marking materials require a period to dry or cure before being exposed to traffic. This period of time will vary significantly dependent on the materials being applied, application parameters and the ambient conditions. Marking life and performance is adversely affected by early trafficking. Newly installed markings are typically protected by the use of 450mm cones.

The placing of marking protection and temporary traffic control devices require the Roadmarker to be on foot or positioned on the rear of a slowly moving vehicle.

All activities related to installation of transverse markings require the Roadmarker to be on foot or seated on a small self-propelled vehicle.

9.3.2. The Motor Vehicle Impact Hazard

Above 50kph the crash fatality rates start climbing exponentially from 50% for cars. The rate is higher for SUV's and heavier vehicles.

Classic text indicates that for every fatality there are approximately 13 injuries requiring hospital treatment.

Revision No.: 006		Date Issued: June 2010
Procedure Edition No.: 001	Authorised by: NZ Roadmarkers Federation Inc.	QA. Reference: NZRF.COP.001

9.3.3. Accident Frequency

There were a total of 146 reported injury accidents at roadwork sites in 2007. Statistics relating directly to injuries/fatalities of roadworkers are unavailable at this time.

9.3.4. Summary of the Legislation

The primary legislation relating to hazards in the workplace is the Health and Safety in Employment Act 1992 and the Health and Safety in Employment Amendment Act 2002. The object of these Acts is to prevent harm to employees at work.

There is currently no DOL approved Code of Practice relating to temporary traffic management for roadmarking.

The current “body of knowledge” for temporary traffic management in New Zealand includes but is not limited to:

- NZTA Code of Practice for Temporary Traffic Management
- RCA Local Roads Supplement to NZTA CoPTTM
- Individual RCA Codes.

9.3.5. Duties and Responsibilities

There are a number of defined duties and responsibilities relating to the management of traffic hazards. The full definition of these responsibilities may be found in a number of documents including the HSE Acts and NZTA CoPTTM. Users need to familiarise themselves with the documents. Those roles involved and the relevant legislative reference are as follows:

Road Controlling Authority

HSE Act, as Principal – Clause 18, CoPTTM – Section 4.2.1, RCA Supplement – page 12

Contractor

HSE Act as Employer – Clause 6 General Duties, CoPTTM – Section 4.2.3

Engineer to Contract

NZS3910, as Agent of Principal - Clause 5.7.5, CoPTTM – Section 4.2.2

Site Supervisor / Leading Hand

HSE Act, as Person who controls place of work – Clause 16

STMS / TC

CoPTTM – Section 4.3

9.4. Hazard Management Approach

9.4.1. Traffic Hazard Factors

The traffic hazard during pavement marking is dependent on factors that include, but are not limited to:

1. The time taken to do the job
2. The complexity of the work involved
3. The traffic volumes and the percentage heavy / oversize vehicles

Revision No.: 006		Date Issued: June 2010
Procedure Edition No.: 001	Authorised by: NZ Roadmarkers Federation Inc.	QA. Reference: NZRF.COP.001

4. The competency of road-users
5. The road width and terrain, and
6. The number of times that a particular site is visited.

Some of the mitigating factors are:

1. There is a mandatory industry code of practice with associated training provided by NZTA
2. Pavement marking uses materials that are designed to dry or set in a relatively short time period
3. Marking can be done any time of day or night, but only in periods of fine weather
4. The pavement surface is not disturbed
5. Operation is not carried out on a fixed site over a long duration
6. The proportion of carriageway affected at any time can be limited, with the rest able to be used to facilitate even traffic flows
7. Long-life materials are available which can significantly reduce the number of maintenance visits required.

9.4.2. Hazard Minimisation

For roadmarking contractors, the only realistically practical method for the management of the traffic hazard under the requirements of the HSE Act is to identify and “minimise” its effects.

The primary methods of minimisation of the traffic hazard limiting the exposure to risk are:

1. Use of accepted temporary traffic management practices
2. Carrying out work at times of lowest traffic risk
3. Limiting time spent on the site
4. Minimising the frequency of maintenance visits.

9.5. Developing Temporary Traffic Management Plans

Traffic Management Plans (TMP's) are developed to clearly describe how the traffic hazard is managed on the work-site. The TMP details measures to ensure safety for all people and equipment involved in the activity

Generic Roadmarking Diagrams are provided on the NZTA website.

www.nzta.govt.nz/resources/code-temp-traffic-management/index.html

The process and mechanisms as described by CoPTTM are to be used to develop and to gain independent review / acceptance of the resultant TMP's.

9.5.1. Accidents and Near Miss Incidents

All accidents that harm or might have harmed contractors or others must be dealt with in accordance with Part IV of the HSE Act.

Note: As the amended Act requires the Principal to also maintain a register of accidents and serious harm, contractors need to ensure that a system of reporting accidents to the Principal is in place and effective.

Revision No.: 006		Date Issued: June 2010
Procedure Edition No.: 001	Authorised by: NZ Roadmarkers Federation Inc.	QA. Reference: NZRF.COP.001

Note: Standard report form is available on DOL OSH webpages – www.osh.govt.nz. This form is applicable for both Serious Harm and Minor Harm. Forms are also available for accident investigation.

The requirements of Section A4.2.3.2 of NZTA CoPTTM need to be considered in the preparation of the resultant report. A copy of the NZ Police Complaint Form is contained in Appendix D of the RCA Supplement to NZTA CoPTTM.

9.6. Carrying out work at times of lowest traffic flows / lowest traffic risk

While it may be logical to carry out pavement marking at times of lowest traffic flows, consideration needs to be given to who the road-users are at that time.

A significant proportion of accidents at roadworks sites are reported as being due to drink drivers and those under the influence of drugs. The proportion of heavy vehicles also commonly increases as the traffic flow decrease during the hours of darkness.

9.7. Limiting time spent on the site

The time a Roadmarker is exposed to the traffic hazard can be reduced significantly by:

1. Planning the work prior to departure to work-site
2. Setting plant and equipment off-site
3. Working at the fastest practical pace, considering factors such as safety and quality of work
4. Using naturally occurring breaks in traffic flows
5. Using lay-bys, etc to advantage.

9.8. Minimising the frequency of maintenance visits

Both Road Controlling Authorities and Contractors have a duty to choose pavement marking materials which provide effective delineation and limit the traffic risk to the Roadmarker responsible for installing / maintaining the markings.

There is a choice of at least two long-life product types in thermoplastic and cold-applied plastic.

The number of applicators in New Zealand has increased since 2003 from three to more than twelve. The NZTA T12 Long-life Applicator Register is available on the NZRF website <http://www.nzrf.co.nz/t12.php>

The choice of marking material has the single greatest impact on the traffic risk. A long-life product which lasts for three years is likely to only require a single site visit in three years where a low specification paint will require at least five site visits over the same period.

This is a five-fold reduction in the traffic hazard.

Revision No.: 006		Date Issued: June 2010
Procedure Edition No.: 001	Authorised by: NZ Roadmarkers Federation Inc.	QA. Reference: NZRF.COP.001