



Guidelines for training

TRAFFIC CONTROL PERSONS

To: PERSONNEL TRAINING TRAFFIC CONTROL PERSONS

The Construction Regulation (O. Reg. 213/91) under the *Occupational Health and Safety Act* specifies that a worker required to direct traffic “shall be given adequate written and oral instructions, in a language that he or she understands, with respect to directing vehicle traffic, and those instructions shall include a description of the signals that are to be used” (Section 69 (4) (d)).

This manual and the *Handbook for Construction Traffic Control Persons* (B016) are designed to help you meet this legal requirement. In training the traffic control person you should follow the instructions and basic information provided here. On completion of training you should ask the traffic control person to answer the questionnaire on page 9. Once the questions have been answered to your satisfaction you should complete the Record of Training form on page 11. You should then complete, sign, and issue a training card. Ministry of Labour inspectors may ask to see the Record of Training to ensure that requirements under Section 69 of the Regulation have been met.

Developed by an industry task force and endorsed by the Provincial Labour-Management Health and Safety Committee, this manual is fully a document of accord between labour and management authorities.

The contents contained in this publication are for general information only. This publication should not be regarded or relied upon as a definitive guide to government regulations or to safety practices and procedures. The contents of this publication were, to the best of our knowledge, current at the time of printing. However, no representations of any kind are made with regard to the accuracy, completeness, or sufficiency of the contents. The appropriate regulations and statutes should be consulted. Readers should not act on the information contained herein without seeking specific independent legal advice on their specific circumstance. The Infrastructure Health & Safety Association is pleased to answer individual requests for counselling and advice.

© Infrastructure Health & Safety Association, 1988
ISBN-13: 978-0-919465-34-3

All rights reserved. This publication may not be reproduced, in whole or in part, or stored in any material form, without the express written permission of the copyright owner.

Revised, June 1991
Revised, July 2002
Revised, July 2009
Revised, July 2011

Guidelines for Training Traffic Control Persons

CONTENTS

INTRODUCTION	2
OBJECTIVES	2
TRAINING	2
QUALIFICATIONS	2
STANDARDS AND REGULATIONS	2
EQUIPMENT	3
PREPARATION	4
DOING THE JOB	4
SUMMARY	8

APPENDIX

<i>Sections 67 – 69 and 104 – 106 of the Construction Regulation (O. Reg. 213/91)</i>	13
---	-----------

Site-specific training

This manual is a valuable resource for training traffic control persons, but it does not cover everything. In addition to the information outlined in this manual, the employer must provide site-specific training to workers. The employer must ensure that workers are aware of the specific hazards they will encounter on the jobsite and how to control them.

Written policy

By law, every employer must develop and implement a written traffic protection plan if any of the employer's workers on a project are exposed to hazards from vehicular traffic. The plan must specify the hazards and the protective measures to be followed. The plan must be kept at the project and be made available to an inspector or worker on request. For this and other traffic control requirements, see sections 67–69 and 104–106 of the construction regulation (O. Reg. 213/91). These sections are reprinted in the appendix to this manual.

INTRODUCTION

This manual is intended to assist personnel who train workers to act as traffic control persons (TCPs). A trainer must explain all the points covered in this manual to workers before they perform traffic control duties.

The information in this manual should be considered generic – it contains the minimum elements required for training a TCP. Trainers must expand on this information to include any relevant company policies and procedures. If possible, trainers must add site-specific information or any other information that will improve the health and safety of the worker while he or she performs traffic control duties.

OBJECTIVES

Traffic control is intended

- 1) to protect construction crews and the motoring public by regulating traffic flow
- 2) to stop traffic whenever required by the progress of work — otherwise to keep traffic moving at reduced speeds to avoid tie-ups and delays
- 3) to allow construction to proceed safely and efficiently
- 4) to ensure that public traffic has priority over construction equipment.

TRAINING

Regulations require that TCPs be given written and verbal instructions. This manual is meant to help you meet that requirement. The Infrastructure Health & Safety Association (IHSA) recommends two other resources:

- the *Handbook for Construction Traffic Control Persons* (B016). The handbook should be given to and kept by each person receiving training. Refer to it throughout training to familiarize the worker with the information it contains.
- the training video *Traffic Protection* (FV047), developed by the Municipal Health and Safety Association.

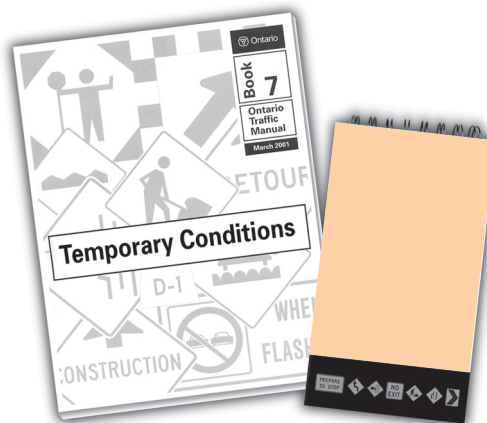
QUALIFICATIONS

Traffic control persons are more frequently in contact with the public than other construction workers. In addition to training, they should have

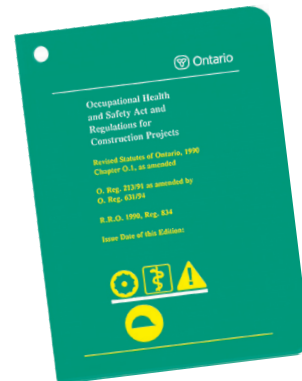
- sound health, good vision and hearing, mental and physical alertness
- mature judgment and a pleasant manner
- a good eye for speed and distance to gauge oncoming traffic
- preferably a driver's licence
- the ability to give motorists simple directions, explain hazards, and answer questions
- liking, understanding, and respect for the responsibilities of the job.

STANDARDS AND REGULATIONS

Requirements for traffic control, including an in-depth description of the requirements, procedures, and duties of



a traffic control person, are spelled out in the *Ontario Traffic Manual, Book 7: Temporary Conditions*. The information applies to traffic control by any persons or agencies performing construction, maintenance or utility work on roadways in Ontario.



The construction regulation (O. Reg. 213/91) under the *Occupational Health and Safety Act* makes it mandatory that traffic control persons be protected from hazards.

The regulation, under the sections pertaining to traffic control, contains

- the requirement that the employer write and implement a traffic protection plan for workers on a project if any of them may face hazards from vehicular traffic
- the specifications for the STOP / SLOW sign that must be used by any worker performing the duties of a traffic control person
- the specific road and traffic configurations which make it safe to use a traffic control person
- the requirement that a worker must not direct vehicular traffic for more than one lane in the same direction
- the requirement that the employer ensure that only a competent worker performs the duties of a traffic control person. A competent worker is someone who is qualified to perform the work because of knowledge, training, and experience; is familiar with the *Occupational Health and Safety Act* and with the regulations that apply to the work; and has knowledge of all potential or actual danger to health or safety in the work.
- the requirement that the traffic control person is in no way distracted or otherwise impeded from performing duties in a safe manner
- the requirement that each traffic control person receive adequate oral and written instruction from the employer in a language that the worker understands prior to the worker performing the duties of a traffic control person
- the specifications for the protective clothing all workers must wear while performing the duties of a traffic control person.

These requirements are spelled out in the Appendix to this manual.

The *Highway Traffic Act and Regulations* specify the maximum rate of speed in construction zones.

EQUIPMENT

It is the supervisor's responsibility to ensure that traffic control persons wear proper protective equipment at all times and use the traffic control devices required by law.

It is the worker's responsibility to wear properly – at all times – all personal protective equipment which the supervisor instructs him or her to wear. The worker is responsible for maintaining the equipment in good condition.

Personal Protective Equipment (PPE)

Ensure that traffic control persons clearly understand the requirements regarding the PPE they must wear, including the following:

- Hard hat meeting the new Canadian Standards Association (CSA) standard Z94.1 Class E Type I or II
- Safety boots, CSA certified, Grade 1 (green triangular CSA patch outside, green rectangular label inside)
- Garment, usually a vest, covering the upper body and having a tag saying that the garment complies with the requirements of CSA standard Z96 *High-Visibility Safety Apparel* for a Class 2 garment having level 1, 2, or FR retroreflective tape.

Remind traffic control persons that they should dress right for the job:

- hot days – hard hat, safety boots, shirt, and full-length pants are recommended; sunscreen should be worn and insect repellent may also be required in some locations
- cold days – warm layered clothing, especially gloves, boots, and hard hats with winter liners
- wet days – highly visible rainwear.

Performing duties after dark

When the job requires TCPs to direct traffic after dark, Section 69.1(4) of the construction regulation requires that they wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes with a minimum area of 50 cm² per side.

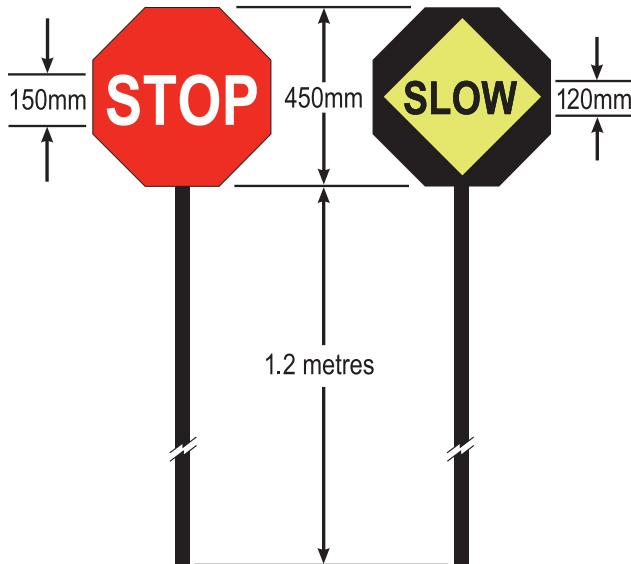
In addition, it is recommended that the TCP

- wear a hard hat with reflective tape
- use a flashlight with a red cone attachment
- place flashing amber lights ahead of his or her post
- stand in a lighted area – under temporary or street lighting, or illuminated by light from a parked vehicle (stand fully in the light without creating a silhouette).

STOP/SLOW sign (hand-held)

A sign used to direct traffic must be

- octagonal in shape, 450 mm wide, and mounted on a pole 1.2 m long
- made of material with at least the rigidity of plywood 6 mm thick
- high-intensity retro-reflective red on one side, with STOP printed in high-intensity retro-reflective white 150 mm high
- on the other side, high-intensity retro-reflective micro-prismatic fluorescent chartreuse, with a black diamond-



shaped border at least 317 mm x 317 mm, with SLOW printed in black 120 mm high.

PREPARATION

Before they start work, ensure that each TCP can demonstrate understanding of

- 1) the type of construction they will be involved with – paving, installing pipe, grading, cut and fill, etc.
- 2) the type of equipment to be used – scrapers, trucks, compactors, graders, etc.
- 3) how the equipment will be operating – crossing road, along the shoulder, in culverts, backing up, etc.
- 4) how to direct construction and public traffic (emphasize that public traffic has priority over construction equipment)
- 5) the requirement that they protect workers setting up components of the traffic control system such as signs, delineators, cones and barriers
- 6) any special conditions of the contract governing road use (many contracts forbid work during urban rush hours)
- 7) how public traffic will flow – for example, along a two-lane highway, around curves or hills, by detour or on a road narrowed to a single lane (this last is a very common situation and requires two traffic control persons to ensure that vehicles do not move in opposing directions at the same time; in some cases, where the two cannot see one another, a third is necessary to keep both in view and relay instructions).

DOING THE JOB

General

Clearly explain to each TCP what they should check each day:

- that the STOP/SLOW sign is clean, undamaged, and meets height and size requirements
- that the TRAFFIC CONTROL PERSON AHEAD sign has been set up properly at an appropriate distance in accordance with the *Ontario Traffic Manual, Book 7: Temporary Conditions*, to afford motorists adequate warning
- that when performing traffic control duties on a mobile operation, the TRAFFIC CONTROL PERSON AHEAD sign is kept the proper distance from the traffic control person and not left behind as the operation moves
- that meal, coffee, and toilet breaks are arranged with the supervisor.



TCP Ahead Sign

Instruct the traffic control person about the following:

- where to stand
- location or position
- how to signal
- communications
- problems.

Where to stand

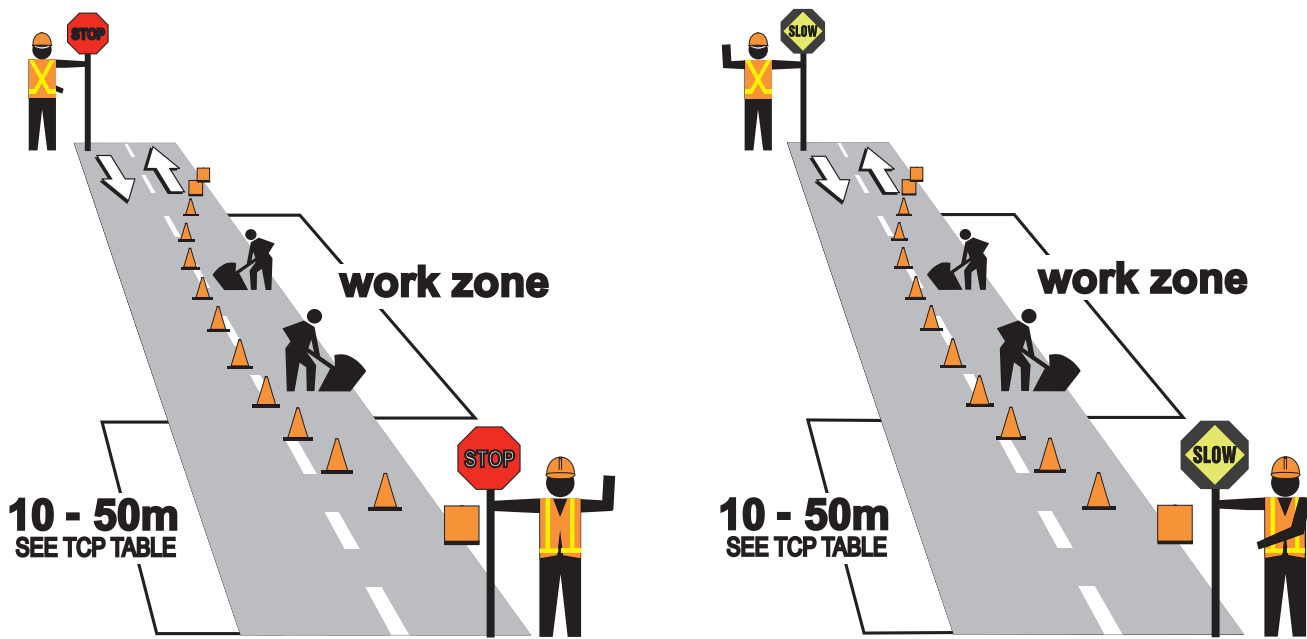
Ensure that each TCP understands the following points.

- 1) Stand the correct distance from the work area. Refer to TCP Table on page 5.
- 2) Adjust distances to suit road, weather, and speed conditions. Remember these points:

TCP TABLE

POSTED SPEED	60 km/h OR LESS, ONE LANE OR REDUCED TO ONE LANE		70 km/h TO 90 km/h, ONE LANE OR REDUCED TO ONE LANE	
TRAFFIC VOLUME	LOW	HIGH	LOW	HIGH
DISTANCE OF TCP FROM WORK ZONE	10 – 15 m	20 – 30 m	30 – 40 m	40 – 50 m

Table taken from Ontario Traffic Manual, Book 7: Temporary Conditions.



Typical Arrangement on a Two-Lane Roadway

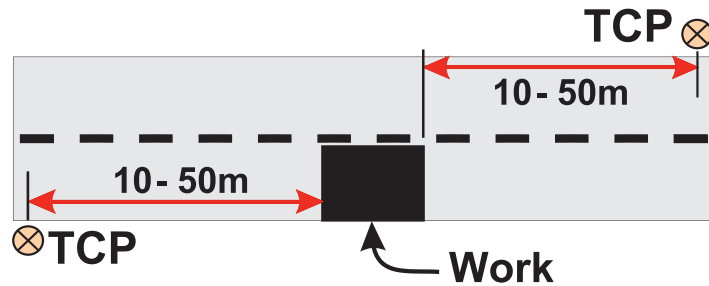
- Traffic must have room to react to your directions to stop (a vehicle can take at least twice the stopping distance on wet or icy roads).
 - Stand where you can see and be seen by approaching traffic for at least 150 metres (500 feet).
 - Avoid the danger of being backed over or hit by construction equipment being used on site.
- 3) Stand outside the travelled portion of the roadway and always face oncoming traffic.
 - 4) Once you've stopped the first vehicle, you need to change position. See point 5 in "How to signal," page 7.
 - 5) Be alert at all times. Be aware of construction traffic around you and especially oncoming traffic on the roadway.
 - 6) Stand alone. Don't allow a group to gather around you.
 - 7) Stand at your post. Sitting is hazardous because your ability to see is reduced and the ability of a motorist to see you is reduced.
 - 8) Once you have been assigned a position by your supervisor, look over the area for methods of escape – a place to get to in order to avoid being injured by a vehicle heading your way, if for some reason the driver has disregarded your signals. If this should happen, protect yourself by moving out of the path of the vehicle and then warn the crew.

Location and position

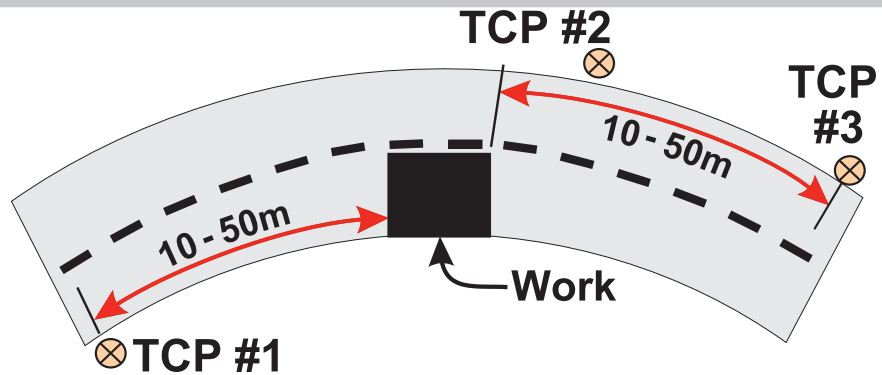
One consideration in selecting the position of the TCP is to maintain colour contrast between the TCP and background. TCPs must be clearly visible to the approaching motorist at all times.

Positioning of TCPs

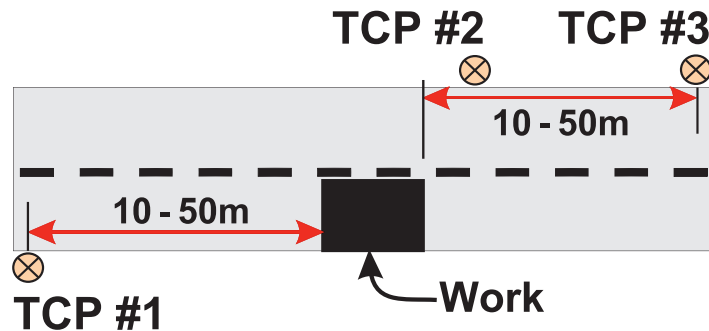
Straight Road



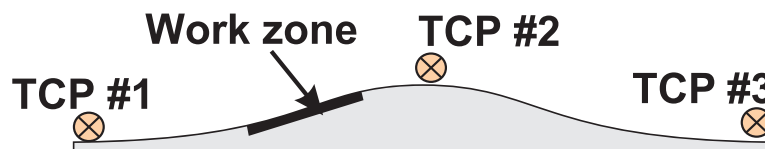
Curve



Hill



Hill (cross-section)



Note: On curves and hills, three TCPs or some other means of communication are required. The duty of TCP #2 is to relay signals between TCP #1 and TCP #3.

How to signal

Give a brief demonstration and emphasize the following points.

- 1) Use the STOP/SLOW sign and your arms as shown in the illustrations below.
- 2) Hold your sign firmly in full view of oncoming traffic.



but make sure you stay in the lane of the roadway in which you are controlling traffic

- stay a safe distance away from the dividing line between your lane and the adjacent lane (never encroach on the adjacent lane – traffic is coming from the opposite direction, you can't see it coming, and you may not be able to hear it either).

- 3) Give the motorist plenty of warning. Don't show the STOP sign when the motorist is too close. The average stopping distance for a vehicle travelling at 50 kilometres per hour (30 miles per hour) is 45 metres (150 feet). Higher speeds require more stopping distance.
- 4) When showing the SLOW sign, avoid bringing traffic to a complete halt. When motorists have slowed down, signal them to keep moving slowly.
- 5) When showing the STOP sign, use firm hand signals and indicate where you want traffic to stop. When the first vehicle has come to a complete stop
 - move to a position just beyond the driver's side of the vehicle while staying a safe distance (2-3 metres) ahead of it
 - position yourself so that you are clearly visible to all other vehicles approaching behind the first one,

- 6) Before moving traffic from a stopped position, make sure the opposing traffic has stopped and that the last opposing vehicle has passed your post. Then turn your sign and step back on the shoulder of the road.
- 7) Stay alert, keep your eyes on approaching traffic, make your hand signals crisp and positive.
- 8) Coordinate your effort with nearby traffic signals to avoid unnecessary delays, tie-ups, and confusion.
- 9) Do not use red flags to control traffic.
- 10) In some situations, two-way traffic may be allowed through the work zone at reduced speed, with a TCP assigned to each direction. Since motorists can be confused or misled by seeing the STOP side of the sign used in the opposite lane, the signs must be modified. The STOP side must be covered to conceal its command. This should prevent drivers from stopping unexpectedly.

Communication

Review the following pointers with the TCP.

- 1) Don't be distracted by talking to fellow workers or passing pedestrians. If you must talk to motorists, stay at your post and keep the conversation brief.
- 2) When using two-way radios to communicate with another TCP, take the following precautions:
 - Establish clear voice signals for each situation and stick to them.
 - Be crisp and positive in your speech. If you do not understand the message, have it repeated.
 - Test the units before starting your shift and carry spare batteries.
 - Avoid unnecessary chit-chat.
 - Don't use two-way radios in blasting zones.
- 3) When two TCPs are working together they should always be able to see each other in order to coordinate the STOP/SLOW sign. Signals between two TCPs should be understood, i.e., if a TCP changes the sign from STOP to SLOW or vice versa he/she must inform the other TCP by signalling with the sign in an up and down or sideways motion. This will ensure that TCPs coordinate their activities accordingly. Two-way radios are the best method for proper communication.
- 4) When two TCPs are not in sight of each other, station a third who can keep both in view. (See the illustrations titled "Curve" and "Hill" on page 6.)

Problems

TCPs have an important job to do on construction projects. However, they are not law enforcement officers. If problems arise, tell them to follow these steps:

- 1) Report motorists who are endangering the safety of the public or construction workers to the supervisor.
- 2) Keep a pad and pencil to jot down violators' licence numbers.
- 3) Ask the supervisor for assistance from police in difficult or unusual traffic situations.
- 4) Never restrain a motorist forcibly or take out anger on any vehicle.
- 5) Always be alert to the needs of emergency vehicles. Ambulances, police, and fire vehicles have priority over other traffic.

SUMMARY

Remind the TCP of the following points.

- ☐ Always face traffic.
- ☐ Plan an escape route.
- ☐ Wear personal protective clothing.
- ☐ Maintain proper communication with other TCPs.
- ☐ Stay alert at all times.
- ☐ Be courteous.

The *Occupational Health and Safety Act and Regulations for Construction Projects* makes it mandatory that traffic control persons be protected from hazards. This includes not only personal protective clothing and equipment but also measures and devices to guard against the dangers of vehicular traffic. Safety should receive prime consideration in planning for traffic control. The Ministry of Labour enforces regulations under the *Occupational Health and Safety Act*.

Traffic control is a demanding job, often a thankless job, but always an important job. How well TCPs succeed will depend largely on their attitude.

Site-specific training

This manual is a valuable resource for training traffic control persons, but it does not cover everything. In addition to the information outlined in this manual, the employer must provide site-specific training to workers. The employer must ensure that workers are aware of the specific hazards they will encounter on the jobsite and how to control them.

Written policy

By law, every employer must develop and implement a written traffic protection plan if any of the employer's workers on a project are exposed to hazards from vehicular traffic. The plan must specify the hazards and the protective measures to be followed. The plan must be kept at the project and be made available to an inspector or worker on request. For this and other traffic control requirements, see sections 67–69 and 104–106 of the construction regulation (O. Reg. 213/91). These sections are reprinted in the appendix to this manual.

APPENDIX

Sections 67 – 69 and 104 – 106 of the Construction Regulation (O. Reg. 213/91)

Sections 67–69

67. (1) In this section,

"barricade" means a device that provides a visual indicator of the path a motorist is supposed to take;

"barrier" means a device that provides a physical limitation through which a vehicle would not normally pass, and includes a concrete barrier;

"mobile operation" means work, including a paving operation, that is done on a highway or the shoulder of a highway and moves along at speeds of less than 30 kilometres per hour. O. Reg. 145/00, s. 21.

(2) If a worker at a project on a highway may be endangered by vehicular traffic unrelated to the project, the project shall make use of as many of the following measures as is necessary to adequately protect the worker:

1. Barriers.
2. Barricades.
3. Delineators.
4. Lane control devices.
5. Warning signs.
6. Flashing lights.
7. Flares.
8. Traffic control devices.
9. Blocker trucks.
10. Crash trucks.
11. Sign trucks.
12. Speed control devices.
13. Longitudinal buffer areas. O. Reg. 145/00, s. 21.

(3) In addition to the measures listed in subsection (2) but subject to section 68, a worker may be used to direct traffic. O. Reg. 145/00, s. 21.

(4) Every employer shall develop in writing and implement a traffic protection plan for the employers' workers at a project if any of them may be exposed to a hazard from vehicular traffic. O. Reg. 145/00, s. 21.

(5) The traffic protection plan,

(a) shall specify the vehicular traffic hazards and the measures described in subsection (2) to be used to protect workers; and

(b) shall be kept at the project and made available to an inspector or a worker on request. O. Reg. 145/00, s. 21.

(6) A worker who is required to set up or remove measures described in subsection (2) on a roadway or a shoulder of a roadway,

(a) shall be a competent worker;

(b) shall not perform any other work while setting up or removing the measures; and

(c) shall be given adequate written and oral instructions, in a language that he or she understands, with respect to setting up or removing the measures. O. Reg. 145/00, s. 21.

(7) Subject to subsection (8), adequate barriers shall be installed to protect workers at a project from vehicular traffic if the project,

(a) is on a freeway;

(b) is not a mobile operation; and

(c) is expected to require more than five days to complete. O. Reg. 145/00, s. 21.

(8) Until January 1, 2003, if a project to which subsection (7) would otherwise apply is expected to require five days or less to complete, or if it is not practical to install barriers as that subsection requires, the following measures shall be taken to protect workers at the project:

1. An adequate longitudinal buffer area shall be provided if physically possible.

2. If information about the annual average daily travel rate of vehicular traffic on the freeway is available and the rate is less than 25,000, blocker trucks shall be adequately positioned between vehicular traffic and workers.

3. If the annual average daily travel rate of vehicular traffic on the freeway is 25,000 or more or if information about the rate is unavailable, crash trucks shall be adequately positioned between vehicular traffic and workers. O. Reg. 145/00, s. 21.

(9) If subsection (8) applies and information about the annual average daily travel rate of vehicular traffic on the freeway is available, a record of the rate shall be maintained at the project and be made available to an inspector upon request. O. Reg. 145/00, s. 21.

(10) On and after January 1, 2003, if it is not practical to install barriers as subsection (7) requires, or if the project is expected to require five days or less to

complete, crash trucks shall be adequately positioned to protect workers. O. Reg. 145/00, s. 21.

(11) If work on a shoulder of a freeway is expected to take less than 30 minutes to complete, a vehicle with four-way flashers and a 360-degree beacon light shall be provided. O. Reg. 145/00, s. 21.

(12) The following measures shall be taken to protect a worker at a project if the project is on a freeway and involves a mobile operation:

1. Until January 1, 2003, an adequate number of blocker trucks shall be adequately positioned between vehicular traffic and the worker.

2. On and after January 1, 2003, an adequate number of crash trucks shall be adequately positioned between vehicular traffic and the worker.

3. If the operation involves intermittent stops averaging 30 minutes or less, an adequate number of barricades or delineators shall be adequately positioned between vehicular traffic and the worker.

4. If the operation involves intermittent stops averaging more than 30 minutes,

i. an adequate longitudinal buffer area shall be provided if physically possible,

ii. the lane on which work is being done shall be adequately identified with lane closure signs and a lane closure taper, and

iii. an adequate number of barricades or delineators shall be adequately positioned between vehicular traffic and the work area. O. Reg. 145/00, s. 21.

68. The following requirements apply with respect to a sign used by a worker to direct vehicular traffic:

1. It shall be octagonal in shape, measure 450 millimetres between opposite sides, and be mounted on a pole that is 1.2 metres long.

2. It shall be made of material with at least the rigidity of plywood that is six millimetres thick.

3. On one side it shall be high-intensity retro-reflective grade red in colour, with the word "STOP" written in legible high-intensity retro-reflective grade white letters 150 millimetres high in a central position on the sign.

4. On the other side it shall be high retro-reflective micro-prismatic fluorescent chartreuse in colour, with a black diamond-shaped border that is at least 317 millimetres by 317 millimetres, and with the word "SLOW" written in legible black letters 120 millimetres high in a central position on the sign.

5. It shall be maintained in a clean and legible condition. O. Reg. 145/00, s. 22.

69. (1) This section applies with respect to directing vehicular traffic that may be a hazard to workers on a public way. O. Reg. 145/00, s. 23.

(2) A worker shall not direct vehicular traffic for more than one lane in the same direction. O. Reg. 145/00, s. 23.

(3) A worker shall not direct vehicular traffic if the normal posted speed limit of the public way is more than 90 kilometres per hour. O. Reg. 145/00, s. 23.

(4) A worker who is required to direct vehicular traffic,

(a) shall be a competent worker;

(b) shall not perform any other work while directing vehicular traffic;

(c) shall be positioned in such a way that he or she is endangered as little as possible by vehicular traffic; and

(d) shall be given adequate written and oral instructions, in a language that he or she understands, with respect to directing vehicular traffic, and those instructions shall include a description of the signals that are to be used. O. Reg. 145/00, s. 23.

(5) The written instructions referred to in clause (4)(d) shall be kept at the project. O. Reg. 145/00, s. 23.

69.1 (1) A worker who may be endangered by vehicular traffic shall wear a garment that covers at least his or her upper body and has the following features:

1. The garment shall be fluorescent blaze or international orange in colour.

2. On the front and the back, there shall be two yellow stripes that are 5 centimetres wide. The yellow area shall total at least 500 square centimetres on the front and at least 570 square centimetres on the back.

3. On the front, the stripes shall be arranged vertically and centred and shall be approximately 225 millimetres apart, measured from the centre of each stripe. On the back, they shall be arranged in a diagonal "X" pattern.

4. The stripes shall be retro-reflective and fluorescent. O. Reg. 145/00, s. 23.

(2) If the garment is a vest, it shall have adjustable fit. O. Reg. 145/00, s. 23.

(3) On and after January 1, 2001, a nylon vest to which this section applies shall also have a side and front tear-away feature. O. Reg. 145/00, s. 23.

(4) In addition, a worker who may be endangered by vehicular traffic during night-time hours shall wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes with a minimum area of 50 square centimetres per side. O. Reg. 145/00, s. 23.

Sections 104-106

104. (1) Every project shall be planned and organized so that vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible. O. Reg. 145/00, s. 27.

(2) Vehicles, machines and equipment at a project shall not be operated in reverse unless there is no practical alternative to doing so. O. Reg. 145/00, s. 27.

(3) Operators of vehicles, machines and equipment shall be assisted by signallers if either of the following applies:

1. The operator's view of the intended path of travel is obstructed.
2. A person could be endangered by the vehicle, machine or equipment or by its load. O. Reg. 145/00, s. 27.

(4) Subsection (3) also applies to shovels, backhoes and similar excavating machines and to cranes and similar hoisting devices. O. Reg. 145/00, s. 27.

(5) The operator and the signaller shall,

- (a) jointly establish the procedures by which the signaller assists the operator; and
- (b) follow those procedures. O. Reg. 145/00, s. 27.

(6) If subsection (3) applies to the project and it is not possible to carry out the project without some operation of vehicles and equipment in reverse, signs shall be posted at the project in conspicuous places warning workers of the danger. O. Reg. 145/00, s. 27.

105. A dump truck shall be equipped with an automatic audible alarm that signals when the truck is being operated in reverse. O. Reg. 145/00, s. 27.

106. (1) A signaller shall be a competent worker and shall not perform other work while acting as a signaller. O. Reg. 213/91, s. 106 (1).

(1.1) The signaller shall wear a garment that covers at least his or her upper body and has the following features:

1. The garment shall be fluorescent blaze or international orange in colour.
2. On the front and the back, there shall be two yellow stripes that are 5 centimetres wide. The yellow area shall total at least 500 square centimetres on the front and at least 570 square centimetres on the back.
3. On the front, the stripes shall be arranged vertically and centred and shall be approximately 225 millimetres apart, measured from the centre of each stripe. On the back, they shall be arranged in a diagonal "X" pattern.
4. The stripes shall be retro-reflective and fluorescent. O. Reg. 145/00, s. 28.

(1.2) If the garment is a vest, it shall have adjustable fit. O. Reg. 145/00, s. 28.

(1.3) On and after January 1, 2001, a nylon vest to which this section applies shall also have a side and front tear-away feature. O. Reg. 145/00, s. 28.

(1.4) In addition, a signaller who may be endangered during night-time hours shall wear retro-reflective silver stripes encircling each arm and leg, or equivalent side visibility-enhancing stripes with a minimum area of 50 square centimetres per side. O. Reg. 145/00, s. 28.

(1.5) The employer shall,

- (a) ensure that the signaller has received adequate oral training in his or her duties and has received adequate oral and written instructions in a language that he or she understands; and
- (b) keep the written instructions at the project. O. Reg. 145/00, s. 28.

(2) A signaller,

- (a) shall be clear of the intended path of travel of the vehicle, machine or equipment, crane or similar hoisting device, shovel, backhoe or similar excavating machine or its load;
- (b) shall be in full view of the operator of the vehicle, machine or equipment, crane or similar hoisting device, shovel, backhoe or similar excavating machine;
- (c) shall have a clear view of the intended path of travel of the vehicle, machine or equipment, crane

or similar hoisting device, shovel, backhoe or similar excavating machine or its load; and

(d) shall watch the part of the vehicle, machine or equipment or crane or similar hoisting device, shovel, backhoe or similar excavating machine or its load whose path of travel the operator cannot see. O. Reg. 213/91, s. 106 (2).

(3) The signaller shall communicate with the operator by means of a telecommunication system or, where visual signals are clearly visible to the operator, by means of prearranged visual signals. O. Reg. 213/91, s. 106 (3).