Agenda – Executive Policy Committee – February 16, 2011

Moved by Councillor

That Rule 10(3) of The Procedure By-law No. 50/2007 be suspended in order that the following item, which was received less than 96 hours preceding the committee meeting, be considered by Committee.

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – February 14, 2011

Item No. 1 Manual of Temporary Traffic Control in Work Areas on City Streets, 2011 Edition

STANDING COMMITTEE RECOMMENDATION:

On February 14, 2011, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submits the following to Council:

1. That the "Manual of Temporary Traffic Control in Work Areas on City Streets, 2008 Edition" and the revisions thereto be rescinded, and that the "Manual of Temporary Traffic Control in Work Areas on City Streets, 2011 Edition", listed as Appendix A to the report of the Winnipeg Public Service dated January 7, 2011, be adopted;

2. That the City of Winnipeg Traffic By-law No. 1573/77 be amended, as per the draft amending by-law as shown on Appendix B to the report of the Winnipeg Public Service dated January 7, 2011.

3. The Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

Agenda – Executive Policy Committee – February 16, 2011

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – February 14, 2011

DECISION MAKING HISTORY:

STANDING COMMITTEE RECOMMENDATION:

On February 14, 2011, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

ADMINISTRATIVE REPORT

Issue: **Approval of the 2011 Edition of the Manual of Temporary Traffic Control in Work Areas on City Streets**

Critical Path: **Standing Policy Committee on Infrastructure Renewal and Public Works – Executive Policy Committee – Council**

AUTHORIZATION

Author	Department Head	CFO	CAO
Luis Escobar, P.Eng., P.T.O.E., Manager of Transportation	B.W. Sacher, P. Eng. Director of Public Works	M Geer Acting CFO	A Robinson Deputy CAO

RECOMMENDATIONS

That:

1. The "Manual of Temporary Traffic Control in Work Areas on City Streets, 2008 Edition" and the revisions thereto be rescinded, and that the attached "Manual of Temporary Traffic Control in Work Areas on City Streets, 2011 Edition" (Appendix A) be adopted;
2. The Traffic By-law No. 1573/77 be amended (draft amending By-law attached as Appendix B); and,
3. The proper officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

REASON FOR THE REPORT

A new Manual of Temporary Traffic Control and amendments to The City of Winnipeg Traffic By-law No. 1573/77 require approval by the Standing Policy Committee on Infrastructure Renewal and Public Works prior to adoption by Council.

IMPLICATIONS OF THE RECOMMENDATIONS

Temporary traffic control signs and devices on Winnipeg streets are regulated by provisions contained in "The Manual of Temporary Traffic Control in Work Areas on City Streets". All contractors, utilities and City departments are obliged to follow the provisions in this Manual to maintain the safety of their workers and the public that uses these streets. Periodically, this Manual is revised in response to changing circumstances, new technologies, product enhancement, improvements in device arrangement, and up-dated Canadian standards.

It is proposed that the existing "The Manual of Temporary Traffic Control in Work Areas on City Streets, 2008 Edition" be replaced with a 2011 edition which includes revisions that are considered to be superior for safe and efficient temporary traffic control in urban areas. The 2011 edition contains the following substantial changes as compared to the 2008 edition:

1. Responsibilities of the Public Works Department Traffic Management Branch have been updated. (Section 2.02)
2. The role of the Traffic Management Branch and Traffic Services Branch with respect to full time reduced speed limits in construction zones has been defined. (Section 2.02 and 2.03)
3. The Construction Agency's requirement to contact the Regional Street Lane Closure line at 986-5640 to request approval to restrict traffic on a lane or lanes on a Regional Street during a weekday peak period (07:00-09:00 and 15:30-17:30, Monday to Friday), or to fully close to traffic one or both directions of travel on a Regional Street at any time is outlined. (Section 2.04B)
4. Requirements for Short Term worksites (lane closures for 30 minutes to two hours) have been completely revised. (Section 3.01B and Figures 19 to 25)
5. Requirements for Mobile and Very Short Duration worksites (worksites that move continuously or intermittently stopping at a fixed location for up to 30 minutes) have been completely revised. (Section 3.01C and Figure 26)
6. The Temporary Speed Control section has been completely revised.(Section 3.02B)
7. Requirements regarding the use of Flashing or Sequential Arrow Traffic Control Devices (Arrow Boards) has been updated and expanded. (Section 3.03D)

Once the 2011 Edition of the Manual has been approved, a letter advising of the new edition and indicating how a 2011 Manual can be obtained will be emailed to sign manufacturers, licensed contractors, BIZ groups, project managers, crane operators, developers, consultants, utilities and internal City staff.

The By-law changes being proposed (see Appendix B) are intended to replace references to each edition of the Manual with a generic reference to the latest edition of the Manual that has been approved by Council. This will minimize the need to obtain by-law amendments whenever a new Manual is introduced and approved by Council.

HISTORY

"The Manual of Temporary Traffic Control in Work Areas on City Streets, 2008 Edition" was approved by Council on March 19, 2008.

FINANCIAL IMPACT

Financial Impact Statement **Date:** January 4, 2011

Project Name: **First Year of Program** **2011**

Approval of the 2011 Edition of the Manual of Temporary Traffic Control in Work Areas on City Streets

	2011	2012	2013	2014	2015
Capital					
Capital Expenditures Required	$ -	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	-	-	-	-	-
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ 5,300	$ 1,350	$ 1,350	$ -	$ -
Less: Incremental Revenue/Recovery	5,300	1,350	1,350	-	-
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts	-	-	-	-	-
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: The cost to print manuals will be offset by a price per manual charged to the purchaser. It is expected the 2011 manual will be current for three years and the majority of purchases will occur in the first year.

Original signed by D. Stewart, CA
Manager of Finance & Administration

CONSULTATION

In preparing this report there was consultation with:
Legal Services Department
Manitoba Hydro
MTS

SUBMITTED BY

Department:	Public Works	
Division:	Transportation	
Prepared by:	Stephen Chapman, P. Eng., Traffic Management Engineer	986-5028
Date:	January 7, 2011	
File No.	OR-03	

Attachments:

Appendix A - 2011 Manual of Temporary Traffic Control in Work Areas on City Streets
Appendix B - Draft By-law Amendments



Appendix A - 2011
Manual of Temporary



Winnipeg

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PUBLIC WORKS DEPARTMENT
2011

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FOREWORD

The Manual of Temporary Traffic Control in Work Areas on City Streets must be complied with, as mandated when work takes place on City streets by both The City of Winnipeg Streets By-Law 1481/77 and The City of Winnipeg Traffic By-Law 1573/77. The 2011 edition contains the following substantial changes as compared to the 2008 edition:

1. Responsibilities of the Public Works Department Traffic Management Branch have been updated. (Section 2.02)

2. The role of the Traffic Management Branch and Traffic Services Branch with respect to full time reduced speed limits in construction zones has been defined. (Section 2.02 and 2.03)

3. The Construction Agency's requirement to contact the Regional Street Lane Closure line at 986-5640 to request approval to close a lane or lanes on a Regional Street during a weekday peak period(07:00-09:00 and 15:30-17:30, Monday to Friday) or to fully close one or both directions of travel on a Regional Street at any time is outlined. (Section 2.04B)

4. Requirements for Short Term worksites (lane closures for 30 minutes to two hours) have been completely revised. (Section 3.01B and Figures 19 to 25)

5. Requirements for Mobile and Very Short Duration worksites (worksites that move continuously or intermittently stopping at a fixed location for up to 30 minutes) have been completely revised. (Section 3.01C and Figure 26)

6. The Temporary Speed Control section has been completely revised. (Section 3.02B)

7. Requirements regarding the use of Flashing or Sequential Arrow Traffic Control Devices (Arrow Boards) has been updated and expanded. (Section 3.03D)

CITY OF WINNIPEG
MANUAL OF TEMPORARY TRAFFIC CONTROL
IN WORK AREAS ON CITY STREETS

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MANUAL OF TEMPORARY TRAFFIC CONTROL IN WORK AREAS ON CITY STREETS

1.00 INTRODUCTION

1.01 Purpose of Manual

This Manual is intended to provide guidelines to maintain safe conditions for motorists, cyclists, pedestrians and workers where unusual and temporary conditions exist when work is being undertaken within a public right-of-way in The City of Winnipeg. This can best be achieved by way of effective traffic control and the application of the guidelines for worksite enclosures provided herein.

1.02 Scope

This Manual contains general principles and detailed temporary traffic control methods for many typical circumstances. The responsibilities of any City Department, utility company or private contractor undertaking work within a public right-of-way in The City of Winnipeg are also defined herein.

1.03 Interpretations

For purposes of this Manual, the following words and expressions shall have the meaning indicated below.

(1) "**Construction Agency**" shall mean any City Department, utility company or private contractor, or any other persons responsible for the undertaking of work on any section of a public right-of-way in The City of Winnipeg.

(2) "**Information and Warning Signs**" shall mean all signs or devices that convey warning or essential information to the right-of-way user as specified in this Manual and shall include such devices as signs, barricades, traffic cones, and any other device of a similar nature that is specified and approved herein for use within a public right-of-way in The City of Winnipeg for this purpose.

(3) "**Manual**" shall mean the Manual of Temporary Traffic Control in Work Areas on City Streets

(4) **"Regional Street"** shall mean those streets listed in Schedule E of the most recent City of Winnipeg Streets By-law No. 1481/77. Note that a list of the Regional Streets is included in the Appendix to this Manual.

(5) "**Regulatory Signs**" shall mean those signs that require motorists to take certain action, and, which are enforceable.

(6) **"Weekday Peak Periods"** shall mean between the hours of 07:00 to 09:00 and 15:30 to 17:30, Monday to Friday.

1.04 Revisions

This Manual will be revised from time to time as the need arises. Any suggestions for revision or improvement should be forwarded to the Traffic Studies Engineer, Traffic Management Branch of The City of Winnipeg at 101-1155 Pacific Avenue, R3E 3P1.

1.05 Specifications for Traffic Control Devices

Many of the signs and standard practices of signing that apply to construction and maintenance activities are to be found in the *Manual of Uniform Traffic Control Devices for Canada (M.U.T.C.D.C.)*, Fourth Edition published by the Transportation Association of Canada, 2323 St. Laurent Boulevard, Ottawa, Ontario, K1G 4J8. The Highway Traffic Board of Manitoba has approved all traffic control devices, and signs contained in the Fourth Edition of the M.U.T.C.D.C. (with the exception of the devices set out in section D2.4.1, D2.5.2, D2.5.3 and D2.10.4), for use on streets in the City of Winnipeg (Manitoba Regulation 300/89 & 149/2007). Additionally, there are other signs not contained in the M.U.T.C.D.C. that have been approved by The Highway Traffic Board for use in Manitoba under the Traffic Control Devices Order, Manitoba Regulation 264/88.

It is illegal to use signs within the City's public right-of-ways that are not approved by The Highway Traffic Board.

Full-scale drawings of all traffic signs described in this Manual are available from The City of Winnipeg Public Works Department, Engineering Division, at 1155 Pacific Avenue.

The design, including colour and dimensions, of all traffic control signs and other devices utilized must conform to the specifications set out in Sections 5.02, 5.03 and 5.04. It should be noted that these dimensions are minimum and in some cases larger signs may be required. All signs shall be fully reflectorized in order to show the same colour and shape by night as by day.

All temporary traffic signs, traffic barricades and other temporary traffic control devices must have a minimum Type III (High Intensity) retroreflective sheeting (ASTM D4956). Under no circumstances will hand painted lettering, diagrams, or symbols be permitted. As of January 1, 2012 all retroreflective sheeting on temporary traffic signs, barricades and devices must be a minimum Type VIII retroreflective sheeting (ASTM D4956). Futhermore, as of January 1, 2012 all orange retroreflective sheeting on temporary traffic signs, barricades and devices must be fluorescent orange retroreflective sheeting.

The Highway Traffic Act of the Province of Manitoba assigns to The City of Winnipeg the authority to regulate traffic movement on public streets under its jurisdiction. In turn, The City of Winnipeg's Traffic By-law No. 1573/77 and Streets By-law No. 1481/77 mandates the use of this *Manual of Temporary Traffic Control In Work Areas on City Streets* (Manual) and the devices contained herein for use in work areas on City streets. Consequently, all temporary traffic control and worksite enclosures must be undertaken in conformance with this Manual.

1.06 Information Seminars

The Public Works Department conducts information seminars annually in the spring (or by request) to review the requirements outlined in this Manual. For more information call the Traffic Services Branch at 986-5178.

1.07 Enforcement

Requirements identified in this Manual are subject to enforcement by City of Winnipeg Streets Constables.

2.00 GENERAL RESPONSIBILITY

2.01 Responsibilities of all City Departments, Consultants and Utility Companies

Despite the responsibility of a Construction Agency imposed under Section 2.04, a City Department, consultant, utility company or other body acting in a supervisory role for works undertaken on a City Street, has a duty to ensure that the provisions prescribed by this Manual are being followed by the Construction Agency.

2.02 ***Responsibilities of the Public Works Department, Traffic Management Branch***

The Public Works Department, Traffic Management Branch will:

(1) Review, approve and identify traffic management requirements for requests submitted through the Regional Street Lane Closure line (ph. 986-5640) for:

- Lane closures on Regional Streets during weekday peak periods; and,
- Full closure of one or both directions of travel on a Regional Street at any time.

The Traffic Management Branch will post approved requests on the City's Lane Closure website.

(2) Review all submitted plans for construction work on Regional Streets prior to the commencement of the work and identify traffic management requirements for the proposed work.

(3) Review Use of Street permit requests for Regional Streets. Use of Street Permits are issued for use of any portion of the street right-of-way for purposes other than street work. Examples include road closures for special events or lane closures to permit a crane to hoist equipment onto a building.

(4) Determine whether a full time reduced speed limit is warranted for a construction zone and issue a work order to authorize a reduced speed limit as per the March 19, 2008 Council approval delegating authority to set speed limits in construction zones to the Director of Public Works.

2.03 ***Responsibilities of the Public Works Department, Traffic Services Branch***

The Public Works Department, Traffic Services Branch will:

(1) Provide assistance in selecting the appropriate traffic control and worksite enclosure schemes;

(2) Be responsible for placing and maintaining all regulatory signs and traffic control devices, except the "KEEP RIGHT/KEEP LEFT" and the "MAXIMUM 60km/h WHEN PASSING WORKERS" signs.

(3) Be responsible for the placement, maintenance and removal of warning, guidance and information signs for traffic control purposes in the following situations:

(a) Full closure of one or both directions of travel on a Regional Street.

(b) Traffic routed across a median on a divided street.

(c) Full closure of a non-regional street where the requirements for regulatory signs (turn restrictions, bus stop relocations) to implement the closure is significant.

In the above situations, the need for Traffic Services Branch involvement will be at the discretion of the Traffic Services Branch or Traffic Management Branch.

(4) Be responsible for the placement of the Roadwork (TC-2), Maximum Speed Ahead (RB-5), Lane Closed Ahead (TC-5) or Double Arrow (WD-A17), Maximum Speed (RB-1) and Construction Ends (TC-4) signs in construction zones with full time reduced speed limits and other construction zones as determined by the Traffic Mangement Branch.

(5) Attend a preconstruction meeting for City of Winnipeg Capital Projects to advise as to traffic control requirements and provide input during construction as required.

2.04 Construction Agency Responsibilities

Excepting items (2), (3) and (4) noted in section 2.03, the Construction Agency will be responsible for the placement, maintenance and removal of warning, guidance and information signing for traffic control purposes, and for the placement of devices to ensure worksite enclosure, in conformance with the provisions of this Manual. These responsibilities shall include but may not be limited to the following:

2.04.A Work on All Streets

(i) Secure the necessary Street Cut (ph. 986-3184) and/or Use of Street Permit (ph. 986-6006).

(ii) Place, maintain and remove the appropriate temporary traffic control devices as specified in this Manual and/or in the Permit issued by the City.

(iii) Provide for the safety and convenience of motorists, cyclists and pedestrians.

(iv) Provide for the safety of the worker.

(v) Ensure that all temporary traffic control devices are removed from the street, or otherwise hidden from view whenever they are no longer appropriate.

(vi) Reimburse the City for all costs incurred arising from placement of traffic control devices by The City of Winnipeg in connection with works undertaken by the Construction Agency.

2.04.B Work on *Regional Streets*

Note: A list of Regional Streets is appended to the end of this Manual. For the most current list of Regional Streets, please refer to Schedule E of The City of Winnipeg Streets By-law No. 1481/77.

In addition to the requirements listed in Section 2.04.A, when working on Regional Streets during weekday peak periods, Construction Agencies shall:

(i) At the earliest opportunity prior to the commencement of work, contact the Regional Street Lane Closure line at 986-5640 to request approval to close a lane or lanes on a Regional Street during a weekday peak period or to fully close one or both directions of travel on a Regional Street at any time. The request should identify the limits, duration and reason for the lane closure(s).

(ii) Where deemed feasible by the Construction Agency, use steel plates to cover excavations and reopen closed lanes during peak periods.

(iii) Contact the Regional Street Lane Closure line (ph. 986-5640) to report any changes to the location, limits or duration of any lane closures approved under (i).

2.05 *Emergency Work*

In emergency situations that threaten public safety or are a public hazard, the Construction Agency responsible for the repair function has the authorization to enter upon the site immediately and commence elimination of the public hazard. However, the following authorities must be notified immediately:

Police Service Dispatch - 986-6222
Fire Paramedic Service Dispatch - 986-6366
Emergency Services - 986-2626

During normal working hours (08:30 to 16:30, Monday to Friday), the Regional Street Lane Closure Line (986-5640) must also be notified if the work is taking place on a Regional Street during weekday peak periods, or if one or both directions of travel on a Regional Street is closed, and Winnipeg Transit (986-5745) must be notified if the work affects a transit route. It will be sufficient to contact the Transit Department's Communications Centre at 986-5787 outside normal working hours. In all other respects, the intent and requirements of the Manual shall apply.

2.06 Work Undertaken at Night, on Sundays, or on Public Holidays

Under certain circumstances, it may be necessary to undertake non-emergency work during night hours, on Sunday, or on a public holiday. Such a requirement would normally occur only where the work would cause extreme disruption to vehicular or pedestrian traffic during normal working hours as identified by the Traffic Management Branch.

2.07 Work Restrictions During Weekday Peak Periods (07:00-09:00 and 15:30-17:30 Monday through Friday)

Many Regional Streets operate at or above capacity at least in one direction during either or both of the weekday peak periods, 07:00 to 09:00 and 15:30 to 17:30. Any lane blockages during these periods in the direction(s) of peak travel would significantly increase congestion and delay, negatively impacting the public. Congestion and delay on Regional Streets is of particular concern in the vicinity of river crossings and on streets with limited access where alternative routes are not readily available.

As a consequence of the foregoing, excepting emergencies, traffic lanes on Regional Streets may only be closed during peak periods when approved by the Traffic Management Branch. Construction Agencies must contact the Regional Street Lane Closure line at 986-5640 to request approval from the Traffic Management Branch to close a lane or lanes on a Regional Street during a weekday peak period. The same requirements apply to full closure of one or both directions of travel on a Regional Street at any time.

2.08 ***Bilingual Signing Area***

All traffic control signs in the portion of St. Boniface defined below must be in both official languages, English and French. The majority of signs presently used are symbolic. However, some signs have a written message. It is those signs that must be in both languages. This includes all temporary construction signs. Those construction signs that have a written message have been added to this Manual along with the map below outlining the boundaries.


MISSION ST.
ARCHIBALD
RED RIVER
LAGIMODIERE
LAGIMODIERE
LAGIMODIERE

3.00 APPLICATION

3.01 *General*

Everyone who undertakes work within a street is responsible for the safety of the public and the workers involved. This Manual contains guidelines that will assist in achieving this objective. Once in place, temporary traffic control devices must be regularly inspected to ensure that they are fully visible to the motorist at all times. Signs with conflicting messages must be removed from view. Obstructions such as shrubbery, construction materials or parked vehicles, must not obscure the visibilty of temporary traffic control devices. Nighttime inspections are also required to ensure that signs and barricades are clean, properly oriented and adequately reflective to be visible to approaching motorists. It is essential that all the devices be either removed or otherwise hidden from the motorist's view when not required.

To facilitate a lane change by motorists, chevrons or traffic cones may need to be supplemented with barrels or delineators. The Traffic Services Branch will identify the need for such additional devices. To be effective, these devices must be installed in a manner that will achieve a smooth transition from one offset to another to avoid an abrupt change in traffic lane alignment. Guidance in such a matter will minimize the potential for road users to otherwise be misguided by other features such as construction joints, changes in colour or texture of the roadway surface, varying roadway widths, etc.

Under unusual circumstances, the Traffic Services Branch may specify a variety of traffic control devices to enhance the standard temporary traffic control strategy, some of which may include the following:

a) Oversized signs;
b) Flashers on barricades;
c) High level red or orange warning flags;
d) Flashing or sequential arrow traffic control devices;
e) Illumination of work area;
f) Reflectorized road marking tape or 450 mm traffic cones;
g) Reflectorized Impact Recovery System devices;
h) Orange plastic snow fencing;
i) Yellow caution tape; and
j) Variable message signs

In general, to provide motorists, cyclists and pedestrians with sufficient information to safely and effectively pass through a work zone, the following provisions are required:

a) Advance warning that work is being undertaken on the street ahead;
b) Advance warning of the specific hazard;
c) Information respecting the path to follow;
d) Confirmation that the motorist is following the desired path; and
e) Any other information required by the Traffic Services Branch to safely guide motorists, cyclists and pedestrians through or around the worksite;

The name and emergency telephone number of the Construction Agency undertaking the work shall be prominently placed by the Construction Agency at the worksite.

Figures 1 through 32 in Section 5.05 show illustrations of traffic control details for typical situations. A distance table is provided for each figure that contains the dimensions that are to be used in the placement of signs and barricades for each typical situation.

3.01.A Long Term Sign Setups (Lane closure for more than two hours)

Use of long term signs as shown in Figures 1 through 18 in Section 5.05 is required if the lane(s) is(are) closed for more than two hours.

Channelization Barrels or Tall Cones shown in Section 5.03 may be used to replace chevrons and construction markers in long term sign setups. Use of these types of devices is illustrated in Section 5.05 Figure 1b. Note that Traffic Cones are not permitted in long term sign setups.

3.01.B Short Term Sign Setups (Lane closure for 30 minutes to two hours)

Lane closures that are in place for a period longer than 30 minutes but less than two hours may be closed using a modified signing approach, as shown in Section 5.05 Figures 19 to 25, if the closure meets the following guidelines:

- The blockage shall not exceed two hours duration.
- No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
- Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5 (Lane Closed Ahead) or WD-17 (Double Arrow) when used on streets with 70, 80 or 90 km/h posted speed limits. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed limit streets.
- Where visibility of the worksite is limited by a horizontal curve, the blockage must be set up 100 m in advance of the horizontal curve and a line of cones shall be extended around the horizontal curve to the worksite.
- Where visibility of the worksite is limited by a vertical curve, the beginning of the short term sign setup must occur on the level section of highway prior to the start of the vertical curve and be carried through to the worksite.
- May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is required for work at night.

Closures that do not meet the above noted guidelines must be signed using long term setups.

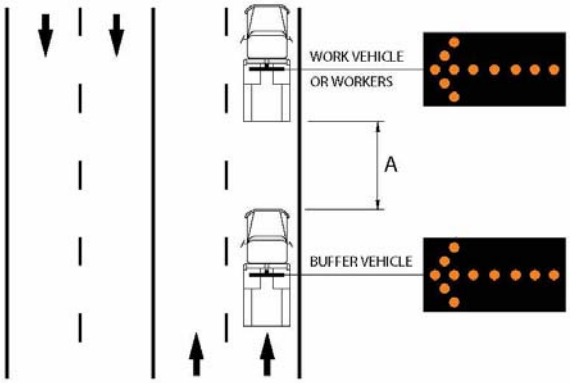
3.01C Mobile and Very Short Duration Worksites (Worksites that move continuously or intermittently, stopping at a fixed location for up to 30 minutes)

For mobile and very short duration worksites, the time required to setup and remove short term or long term sign setups can exceed the time required to perform the work. Therefore, flashing beacons, arrow boards, variable message signs, and buffer vehicles are to be used for mobile and very short duration worksites to provide adequate traffic control, minimize exposure of workers to traffic and ensure that work is completed in a timely manner. Setups described in Section 5.05 Figure 26, can be used for mobile and very short duration worksites if the worksite meets the following guidelines:

- The blockage shall not exceed 30 minutes duration.
- Only one lane is closed at any one time and there must be at least one other lane available for that direction of travel.
- A buffer vehicle equipped with a flashing or sequential arrow traffic control device must

be used where visibility of the worksite is limited by horizontal or vertical curves (example: bridges, overpasses or underpasses). The buffer vehicle should be located at the most visible location available. The table and figure below provide guidance as to appropriate separation distances between the buffer vehicle and the worksite.

Speed Limit	50 km/h	60 km/h	70 km/h	80 km/h	90 km/h
Buffer Vehicle to Worksite Separation Distance ('A')	35 m	45 m	50 m	55 m	65 m



- On streets with a posted speed limit of 70, 80 or 90 km/h, a flashing or sequential arrow traffic control device is required; and
- A flashing or sequential arrow traffic control device is required at night.

Closures that do not meet the above noted guidelines must be signed using short term or long term setups. Truck or trailer mounted impact attenuators (also known as crash cushions) are recommended for the first vehicle or trailer in a mobile or very short duration setup on a roadway with a posted speed limit of 70 km/h or higher.

3.02 Streets with Speed Limits of 70 km/h of Higher

3.02.A General

Streets with speed limits of 70, 80 or 90 km/h or more require additional advanced warning of construction sites than those streets with lower speed limits. Signs which are larger than the minimum sizes specified in Section 5.02 and 5.03 may be desirable to increase conspicuity of the work area and enhance safety of workers.

3.02.B *Temporary Speed Control*

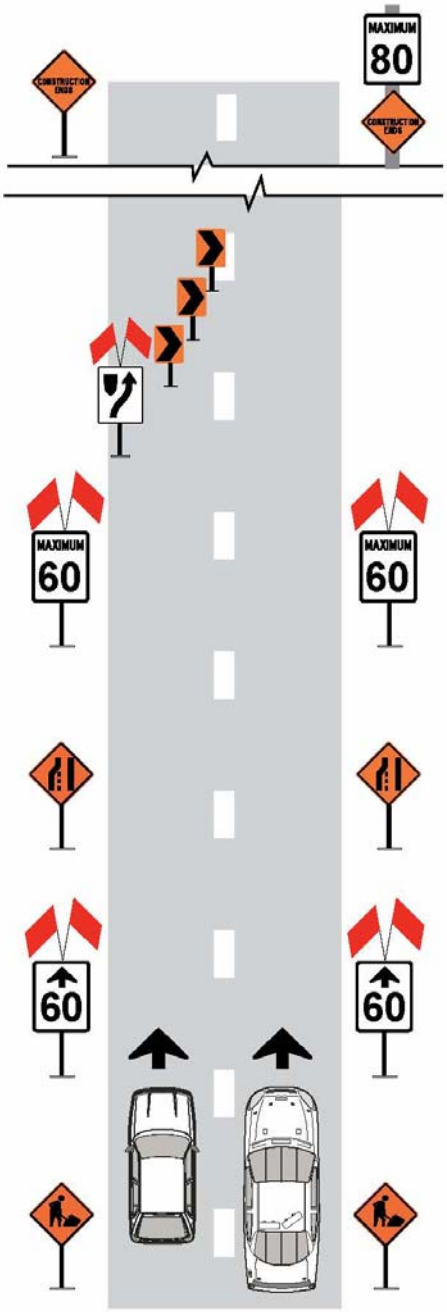
Available options for temporary speed control in work areas are outlined below.

3.02.B1 *Full Time Reduced Speed Limit*

In specific circumstances, the Traffic Management Branch will review and approve, and the Traffic Services Branch will install, a full time reduced speed limit for a construction zone. Use of full time reduced speed limits is generally limited to large construction projects with full time lane closures lasting more than two weeks on streets with speed limits of 70, 80 or 90 km/h. Factors considered in determining if a full time reduced speed limit is warranted include:

- Restrictive road geometry resulting from detours, diversions, crossovers or narrow lanes;
- Proximity of workers to open traffic lanes;
- Proximity of hazards such as pavement edge drop-offs to open traffic lanes;
- Length of construction zone.

If approved, the Traffic Management Branch will issue a work order to authorize a full time reduced speed limit as per the March 19, 2008 Council approval delegating authority to the Director of Public Works to set speed limits in construction zones. The figure to the right shows the sign requirements for a full time reduced speed limit.

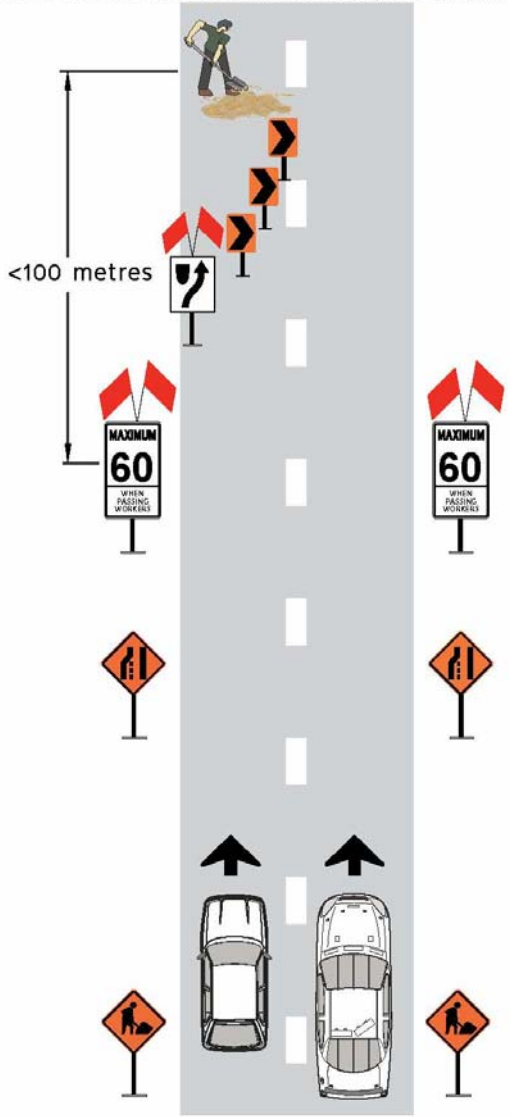


3.02.B2 *"MAXIMUM 60 km/h WHEN PASSING WORKERS"*

In circumstances where a full time reduced speed limit is not warranted on a street with a 70, 80 or 90 km/h speed limit and workers are in close proximity to traffic, "MAXIMUM 60 km/h WHEN PASSING WORKERS" (MR-96) signs may be used by the Construction Agency, subject to the following conditions:

- Never use a "MAXIMUM 60 km/h WHEN PASSING WORKERS" in a 50 km/h or 60 km/h zone.
- NOT TO BE IN VIEW WHEN WORKERS ARE NOT PRESENT. Even though the message is conditional, its effect will be diminished when displayed if workers are not present.
- Be kept in close proximity to the workers to achieve maximum effect (preferably 100m in advance of where workers are present).
- Any conflicting speed limit signs in the area designated as "MAXIMUM 60 km/h WHEN PASSING WORKERS" must be covered while the reduced speed limit is in effect.
- Never to be the first sign encountered by a motorist in a signing sequence. In general, construction signs are arranged in the following sequence with the "MAXIMUM 60 km/h WHEN PASSING WORKERS" sign inserted in the group of signs that requires action on the part of a motorist (see figure to the right):

1. General warning (ROADWORK)
2. Specific hazards (LANE CLOSED AHEAD)
3. Motorist action (MAXIMUM 60 km/h WHEN PASSING WORKERS followed by KEEP RIGHT/LEFT or DOUBLE ARROW)



On streets with medians, a MAXIMUM 60 km/h WHEN PASSING WORKERS sign must be placed on the median and the boulevard.

3.02.B3 Flagpersons Equipped with "SLOW" Paddles

In circumstances where a full time reduced speed limit is not warranted, and there is a desire to control speed through the construction zone, the Construction Agency can employ flagpersons equipped with "SLOW" paddles on the approaches to the construction zone. Information regarding flagpersons and practices is provided in Section 3.12.

3.03 Worksite Illumination/Definition

3.03.A Delineation

Where diversions or detours are undertaken on streets where artificial street lighting is not available or with low levels of street lighting, delineators must be used. This device delineates the edges of the usable roadway for motorists. Their use is illustrated in Section 5.03.

3.03.B Illumination

Illumination must be installed in the work area for safety reasons if there is no street lighting or if the level of street lighting is low, or when large objects or items of equipment are left on the street during hours of darkness. In such cases, the Construction Agency shall adequately illuminate the object or equipment and the immediate surrounding area. The light sources shall be suitably shielded to overcome glare so that vision for the approaching motorists is not impaired.

3.03.C Reflectorization

To be effective at night, all signs, barricades, delineators, cones and other similar devices must be reflective. To optimize this reflectivity, these devices must be regularly cleaned and well maintained. All signs, barricades, delineators, and other similar devices shall have minimum Type III (High Intensity) retroreflective sheeting (ASTM D4956) and all barricade panels shall be vertically striped in accordance with with provisions contained in the M.U.T.C.D.C. As of January 1, 2012 all retroreflective sheeting on temporary traffic signs, barricades and devices must be a minimum Type VIII retroreflective sheeting (ASTM D4956). Futhermore, as of January 1, 2012 all orange retroreflective sheeting on temporary traffic signs, barricades and devices must be fluorescent orange retroreflective sheeting.

3.03.D Flashing or Sequential Arrow Traffic Control Devices (Arrow Boards)

Construction agencies are encouraged to use arrow boards to increase the visibility of a work zone. Arrow boards are specifically required for short term work at night and for mobile and very short duration worksites at night and on streets with a speed limit of 70, 80 or 90 km/h. However, arrow boards are also recommended for short term work on streets with a speed limit of 70, 80 or 90 km/h and as a supplement in any circumstance that requires higher than normal visibility (nighttime, high speed, high traffic volumes). Arrow boards should be less bright for nighttime applications as compared to daytime applications so as not to impair the vision of approaching motorists. Specifications for arrow boards are included in Section 5.03. Figure 5b and figures in the short term and mobile and very short duration worksites sections illustrate the use of an arrowboard.

3.04 Barricades

The placement of barricades shall generally be in the manner indicated in the "Illustrations of Typical Situations" in Section 5.05, and the barricades must conform to the specifications set out in Section 5.03.

The enclosure of the worksite using barricades must ensure that motorists, cyclists and pedestrians are adequately advised of the boundaries of the worksite. When barricades are removed to allow access/egress from the worksite for vehicles or equipment, the barricades shall be replaced immediately after such access/egress has occurred.

3.05 Construction Equipment

The location of equipment, material, construction vehicles, and personnel shelters within the worksite must not interfere with the ability of motorists, cyclists and pedestrians to see workers or traffic control devices. Similarly, the parking of employee vehicles must not interfere with pedestrian activity and motorists' visibility of workers or traffic control devices.

The movement of vehicles and equipment into and out of the worksite shall be undertaken with the least possible interference to traffic movements on the street. In many instances, a flagperson will be required for this purpose.

3.06 Regulatory Prohibitions

When prohibitions on streets are required (parking, stopping, turn control, regulatory signs), the Traffic Services Branch must be notified. The exceptions to this requirement are the "KEEP RIGHT/LEFT" signs and "MAXIMUM 60km/h WHEN PASSING WORKERS" signs, which may be installed by the Construction Agency. The Traffic Services Branch will install the necessary regulatory signs and restore normal operations when notified by the Construction Agency upon completion of the work. When parking meters or paystations are affected, the Winnipeg Parking Authority must be notified (ph. 986-3390). The Winnipeg Parking Authority will install necessary hooding and restore normal operations when notified. No other Department or Construction Agency is authorized to install or remove regulatory traffic control devices, except "KEEP RIGHT/LEFT" sign and "MAXIMUM 60km/h WHEN PASSING WORKERS" signs.

3.07 Removal of Traffic Control Devices

Under Section 77(9) of The Highway Traffic Act, traffic control devices at a construction site must be removed when it is no longer necessary for the devices to remain in place. In some cases, a detour or street closure will be in effect only during certain hours of the day, in which case the affected section of street should be restored to normal use at other times. It is essential that all the devices which are not applicable when the street is restored to normal use be either removed or otherwise hidden from the motorists' view.

3.08 Traffic Lane Clearances

A traffic lane on a major thoroughfare is normally 3.6 m wide and in no case less than 3.0 m. When traffic lanes are open, these lane widths should remain clear of traffic control devices, construction materials and equipment. Placement of large objects close to the edge of a traffic lane effectively reduces the lane width. Therefore, the placement of material and equipment close to either side of a traffic lane on a major thoroughfare should be avoided wherever possible particularly on high speed (70, 80 or 90 km/h) routes.

3.09 Lateral and Vertical Position of Traffic Control Devices

Traffic control devices must be well within the normal field of vision of the motorist to be fully effective. This is particularly necessary at night when motorists are not able to see the whole roadway environment and must depend upon the reflected light from traffic signs and other devices to provide the necessary information. Appropriate lateral and vertical placement of temporary signs helps to ensure that the necessary information is available.

In general, motorists in urban areas travel with their headlights on low beam. Signs and other devices that are placed too low or high or too far left or right are not fully reflected. As a consequence, these types of traffic control devices should be no further than 4.0 m from the edge of the travel lane. Similarly, the bottom of the device should be no less than 1.0 m above the roadway. This positioning relative to the roadway may require more frequent cleaning of traffic control devices in some circumstances. The vertical positioning is particularly important for those devices which are used to close a roadway (barricades and chevrons).

3.10 Traffic Channelization

In the "typical situations" illustrated in Section 5.05, a line of traffic control devices is placed to channelize and guide motorists past all roadway obstructions. This line will be tapered over the appropriate distance shown in the associated distance table. This distance must be sufficient to allow a motorist to move laterally to make a lane change or pass the obstruction safely and conveniently. The taper length shall be selected from the distance table for the speed limit under normal conditions.

This Manual also contains, four figures (1c, 2b, 6, 7) that show an alternative traffic control strategy that ensures that the remaining traffic lanes are able to carry the maximum volume of vehicular traffic. These alternative arrangements involve the realignment of two adjoining traffic lanes simultaneously. This special arrangement is an alternative that may be required by the Traffic Services Branch and/or Traffic Management Branch.

3.11 Warning Flags

As illustrated in Section 5.05, warning flags shall be installed on the first warning or regulatory sign in a taper within a long term sign setup and on any portable sign used in a short term sign setup. Use of warning flags increases the visibility of the temporary traffic control devices that demarcate obstructions on the roadway, thereby assisting motorists in selecting the proper traffic lane in which to bypass the obstruction. Flags shall be either red or orange in colour and shall be no less than 0.16 square metres and shall be placed so that the top of the flag is a minimum of 0.5 m above the top of the sign plate.

If deemed necessary by the Traffic Services Branch and/or Traffic Management Branch, high level warning flags may be utilized in place of the standard warning flags described above. The term 'high level' denotes the requirement that the top of the flag be a minimum of 1.0 m above the top of the sign plate.

3.12 Flagpersons & Practices

Flagpersons shall be used when it is necessary to stop and give a verbal message to approaching motorists or to stop them momentarily. Flagpersons can also be used to signal motorists to reduce speed through a work area. In all circumstances, the flagperson must be able to communicate effectively. To be effective, the flagperson must be kept aware of the changing conditions in the work area so that he/she is able to communicate with the motorist respecting:

a) The road conditions ahead;
b) The path to follow;
c) When the potential for interaction between workers and traffic exists; and
d) When the approach sight distance to the work area is limited.

"FLAGPERSON AHEAD" signs shall be placed between 90 m and 120 m in advance of the flagperson. In the majority of work areas, the flagperson shall be stationed 60 m in advance of the work area. Flagpersons must always be visible to the motorists for a distance of at least 150 m.

Flagpersons shall follow these procedures:

(i) The flagperson must face approaching traffic when signaling motorists to stop or proceed. While doing so, a flagperson must stand either on the edge of the shoulder or in the closed traffic lane.

Under no circumstances shall the flagperson stand in the traffic lane that is being controlled or on the centre line of a two-lane roadway.

(ii) To slow or stop traffic, the flagperson shall stand in a stationary position and extend the paddle or flag horizontally across the traffic lane. The paddle shall be held still so the message may be read and understood from a safe distance. For greater emphasis, the flagperson's free arm shall be raised with the palm towards approaching traffic to stop traffic and the free arm shall be raised and lowered with palm down to slow traffic.

(iii) When it is safe for traffic to proceed, the flagperson shall stand parallel to the traffic movement and, with paddle or flag lowered from the view of the driver, motion traffic ahead with his/her free arm. The paddle or flag is never to be used or waved to signal traffic to proceed.

Under The Highway Traffic Act of Manitoba, a flagperson is given the authority to control traffic. To be recognized by the motorist as having that authority, the flagperson must wear a C.S.A. approved reflectorized vest and safety helmet (where appropriate) while using a paddle, flag or red flashlight (at night). All flagpersons must be trained. Training material, including the Flagperson Training Workbook, is available from Manitoba Infrastructure and Transportation.

3.13 Worksite Enclosure

Worksite enclosure devices are utilized to indicate the location and extent of a worksite to motorists, cyclists and pedestrians to prohibit their entry into the worksite that is generally unsuitable or unsafe for their passage, and to protect workers within the worksite from the

unanticipated and possible dangerous entry of vehicles. These devices include reflectorized barricades and portable construction markers. Other devices, such as traffic cones, high level flags, and portable signs are used to assist in guiding and informing motorists when approaching and bypassing a work area. Under certain circumstances, plastic orange snow fencing may be specified by Traffic Services to enclose a work area.

4.00 MAINTENANCE OF TRAFFIC CONTROL DEVICES

4.01 General

It is the responsibility of the Construction Agency to inspect and undertake the necessary maintenance or replacement of all warning and information signs as well as all other devices, and to ensure that they are legible and in their proper place at all times, particularly at night. All signs and devices must be regularly reviewed to ensure that legibility and colour (day time or night time) is approximately that of equivalent new devices. For this purpose reflectorized signs or devices will be deemed to be acceptable if they are clearly visible and legible when illuminated with normal vehicle lights on low beam from a distance of 100 metres. Additionally, their general daytime condition should be such that they command respect. Damaged, defaced or dirty signs lose their authority as traffic control devices and are a discredit to the Construction Agency responsible for them.

5.00 ILLUSTRATIONS

5.01 General

Figures 1 through 32 in section 5.05 show typical traffic control details for many circumstances. Adjustments to traffic control may be required to suit site specific conditions.

5.02 Warning, Regulatory and Information Signs



TC-2
ROADWORK



TC-3
SURVEY CREW



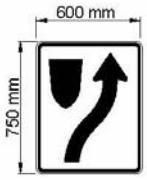
TC-21
TRAFFIC CONTROL PERSON AHEAD



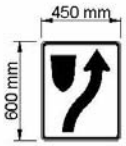
TC-5R
TEMPORARY LANE CLOSED AHEAD
(RIGHT VERSION)



TC-5R
ROAD DIVERSION
(RIGHT VERSION)



RB-25
KEEP RIGHT



RB-25
KEEP RIGHT
REDUCED SIZE



TC-15R
ROAD REALIGNMENT
(RIGHT VERSION)



TC-16R
LANE REALIGNMENT
(RIGHT VERSION)



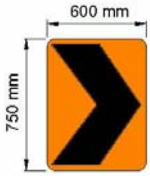
WD-A17
DOUBLE ARROW



WD-A17
DOUBLE ARROW
REDUCED WIDTH



WD-A17R
DOUBLE ARROW
WITH RIGHT TURN LANE

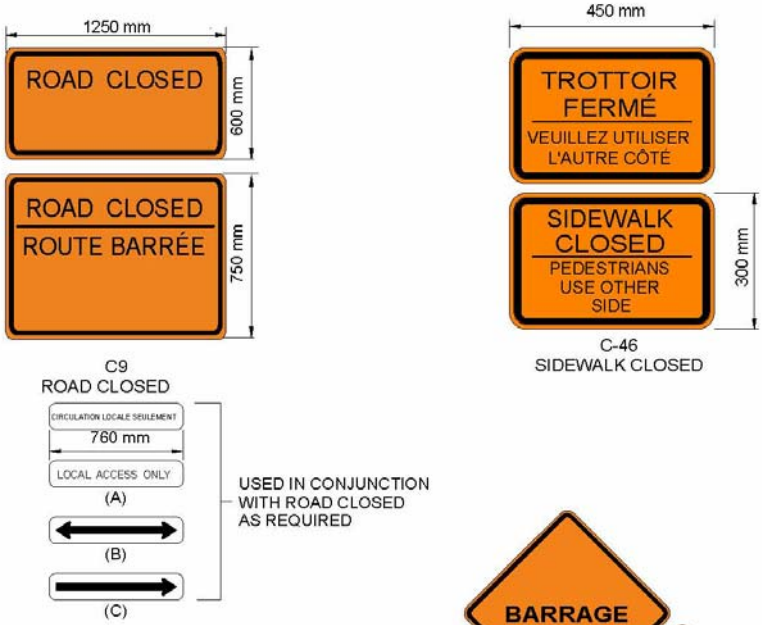


TC-31
CHEVRON



TC-62
CONSTRUCTION MARKER

NOTE:
Diamond shaped warning signs shall be 750mm x 750mm reflectorized orange. Tabs shall be 300mm x 600mm reflectorized orange. Reduced size signs are only permitted when the sign is placed on a lane line marking and traffic is allowed to operate on the adjoining traffic lanes.





TC-49
PAVEMENT DROP-OFF

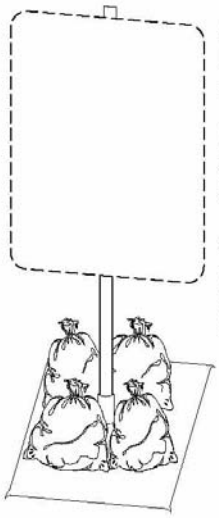
TC-51
BUMP

WD-A65
FRESH OIL

WD-A69
LOOSE GRAVEL

5.03 *Work Area Enclosures and other Devices*

PORTABLE SIGN SUPPORT

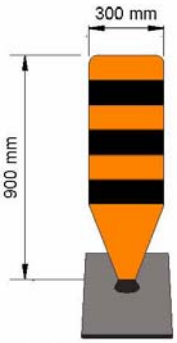


A) Bottom edge of sign shall be not less than 1.0 m and not more than 1.5 m above the roadway.

B) Portable signs shall be adequately stabilized with sandbags or other suitable counterweight.

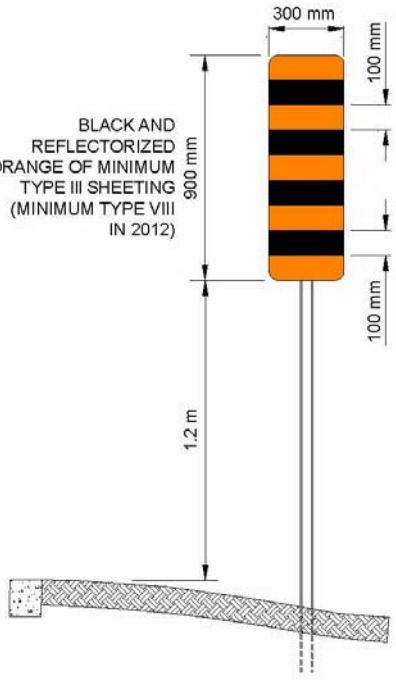
C) All Portable sign bases must be rectangular. Portables signs with round bases (i.e. tire rims) are not permitted for use on City streets.

CONSTRUCTION PANEL

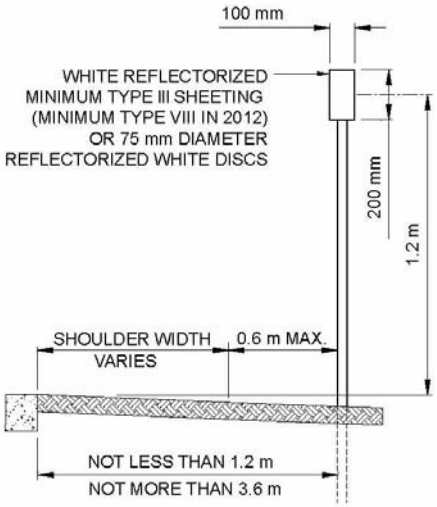


BLACK AND
REFLECTORIZED ORANGE
OF MINIMUM TYPE III SHEETING
(MINIMUM TYPE VIII IN 2012)

CONSTRUCTION MARKER
TC-62

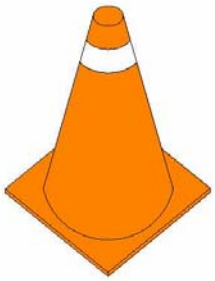


ROAD EDGE DELINEATOR



TRAFFIC CONES

TC-61

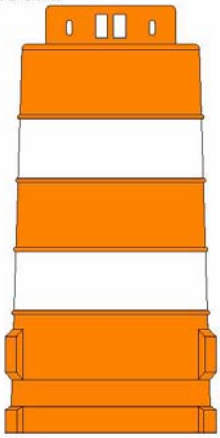


Traffic cones shall be fluorescent orange plastic or rubber with a 100 mm white minimum Type III (High Intensity) retroreflective stripe (minimum Type VIII in 2012) 80 to 100 mm from top of cone. Cones shall be not less than 600 mm in height.

CHANNELIZATION BARREL

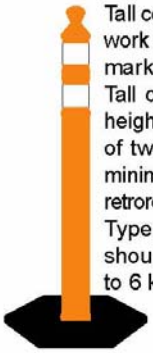
TC-63

Barrels may be used in tapers and along worksites in place of construction markers and chevrons.



The barrel shall have a minimum of two 150 mm white stripes of minimum Type III (High Intensity) retroreflective sheeting (minimum Type VIII in 2012) and shall be not less than 900 mm in height and not less than 300 mm in width.

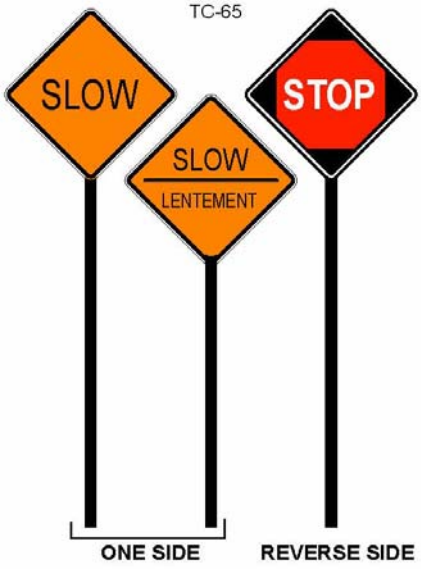
TALL CONE

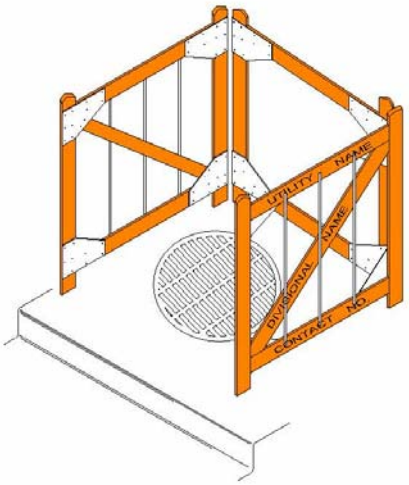


Tall cones may be used along the work site in place of construction markers and traffic cones only. Tall cones are at least 1.0 m in height and shall have a minimum of two 150 mm white stripes of minimum Type III (High Intensity) retroreflective sheeting (minimum Type VIII in 2012). The base should weigh a minimum of 5 to 6 kgs.

FLAGPERSON'S PADDLE

TC-65





SIDEWALK BARRICADE

(used around manholes only)

A) The overall height of the barricade shall be approximately 900 mm.

B) The overall width of the set up barricade shall be 900 mm.

C) Open side of the barricade shall face the roadway.

D) Barricade shall be of a wood material including cross braces, orange in colour.

E) Vertical bars shall be of a metal tubing material to transmit sound to the visually impaired using a white cane. The vertical bars shall be flattened at both ends.

REFLECTORIZED BARRICADE

TC-64A

A) The overall length of "L" shall be approximately 2.5 m.

B) The overall height of "T" shall be approximately 1.0 m.

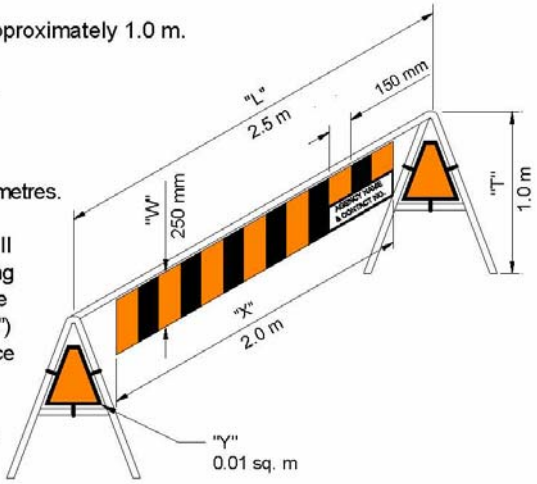
C) "W" shall not be less than 250 mm.

D) "X" shall not be less than 2.0 m.

E) "Y" shall not be less than 0.01 square metres.

F) All sides must have minimum Type III (High Intensity) retroreflective sheeting (minimum Type VIII in 2012) and the barricade panel identified with ("W" x "X") shall be vertically striped in accordance with the M.U.T.C.D.C.

G) The Agency's name and telephone number shall be shown on the barricade in the location shown. (Maximum size 450 mm wide x 120 mm high).



REQUIREMENTS OF FLASHING OR SEQUENTIAL ARROW TRAFFIC CONTROL DEVICES (ARROW BOARDS)

Use of arrow boards is described in Section 3.03D. Requirements for the arrow board devices is as follows.

1. Arrow boards shall be mounted on the rear of the vehicle or on a trailer and the bottom edge of the device shall be a minimum of 1.5 metres from ground level.

2. The arrow board message should be distinguishable by an approaching motorist at a distance of at least 500 metres on a sunny day.

3. The visibility of the arrow board to approaching motorists must not be obscured by any other devices or objects on the vehicle upon which the arrow board is mounted.

4. Arrow boards should be less bright for nighttime applications compared to day time applications so as not to impair the vision of approaching motorists.

5. The device may operate in one of the following modes: i) Left Arrow, ii) Right Arrow, iii) Both Arrows Heads (no shaft), or iv) Horizontal Warning Bar. The on/off is the preferred mode of operation; however, sequential arrow (Bar/Arrow head and Bar/Off) is also acceptable. The standard warning mode is for all lights on the bar (or shaft) to flash on and off.



Horizontal Arrow Board
With Straight Arrow

Horizontal Arrow Board
With Chevron Style Arrow

Dual Vertical Arrow Boards
With "Devils Fork" Arrows

Note: Keep-Left arrow lit
(● - lamp lit)

5.04 ILLUSTRATION SYMBOLS


WARNING SIGN


CONSTRUCTION VEHICLE


TRAFFIC CONE SPACED AT 4.0 m INTERVALS.


CONSTRUCTION MARKER

DELINEATOR


DIRECTIONAL REGULATORY SIGN


BI- DIRECTIONAL REGULATORY SIGN


REFLECTORIZED BARRICADE


CHEVRON


CHANNELIZATION BARREL


FLAGPERSON


TALL CONE


DIRECTION OF TRAVEL (PLAN VIEW)


WARNING FLAGS


ARROW BOARD

5.05 ILLUSTRATIONS OF TYPICAL SITUATIONS

LONG TERM BLOCKAGE OF EITHER ONE OR BOTH RIGHT HAND LANES OF A MULTI-LANE HIGHWAY

(Figure 1a)

Figure 1a depicts the typical situation where the right hand lanes (outside lanes of the highway) of a multi-lane highway are blocked due to construction or repair. The Construction Agency shall place and maintain, on a 24 hour per day basis, the devices as indicated in Figure 1a. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 1a shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

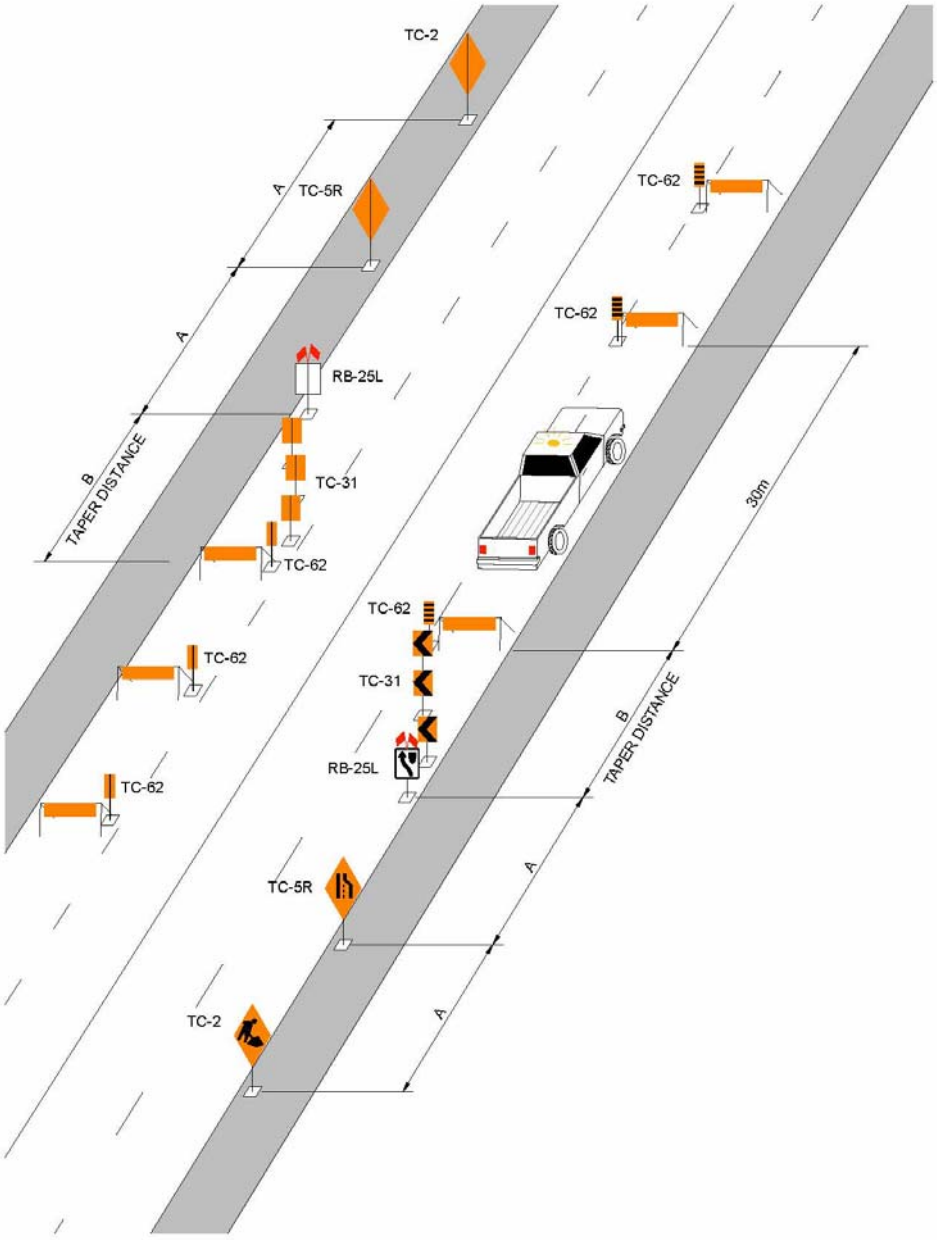
"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

BLOCKAGE OF EITHER ONE OR BOTH RIGHT HAND LANES OF A

FIGURE 1a

LONG TERM BLOCKAGE OF EITHER ONE OR BOTH RIGHT HAND LANES OF A MULTI-LANE HIGHWAY



LONG TERM BLOCKAGE OF EITHER ONE OR BOTH RIGHT HAND LANES OF A MULTI-LANE HIGHWAY
(using barrels and tall cones)

(Figure 1b)

Figure 1b depicts the typical situation where the right hand lanes (outside lanes of the highway) of a multi-lane highway, are blocked due to construction or repair. In this option, traffic control barrels may replace chevron markers and tall cones may replace construction markers. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 1b. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 1b shall be selected from the table below for the permanent posted speed limit on the highway at that point.

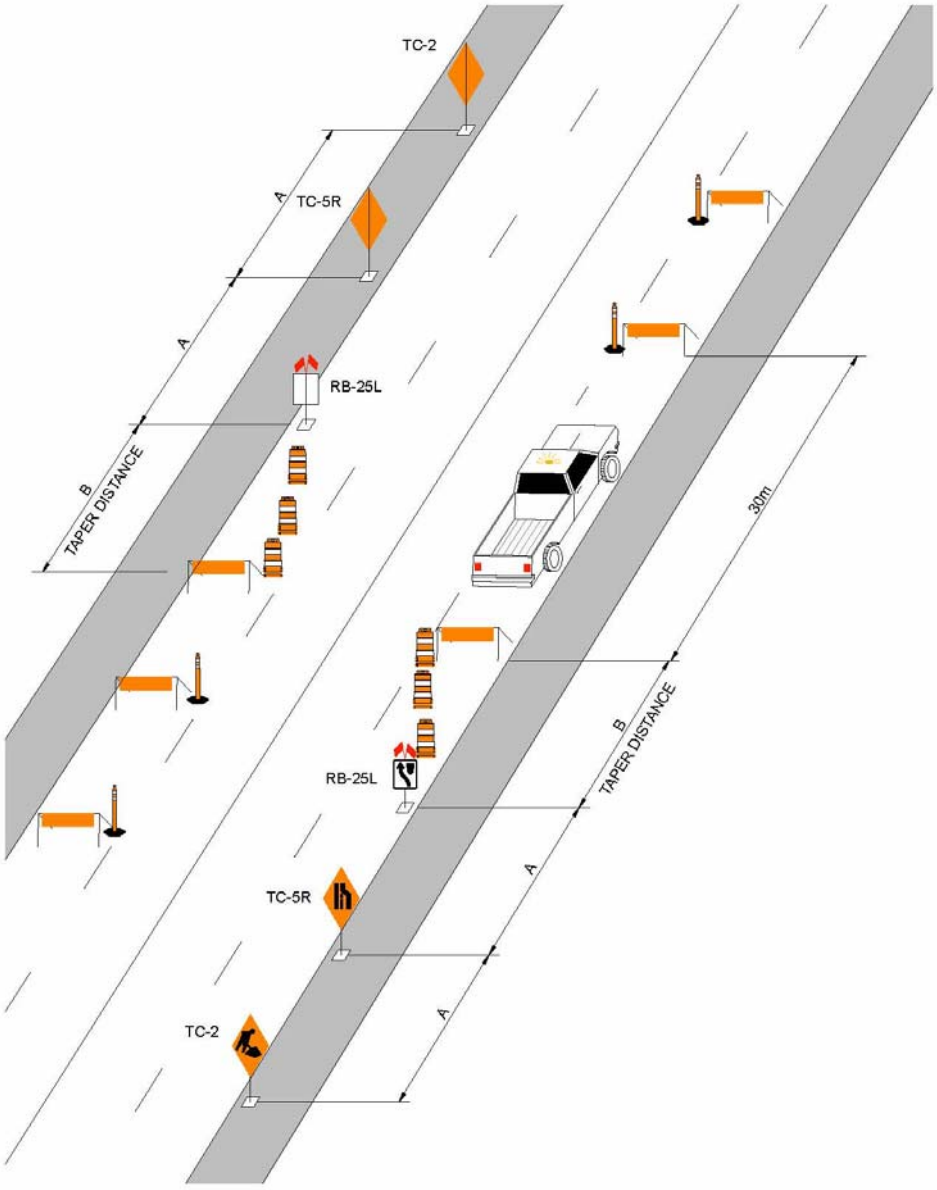
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 1b

LONG TERM BLOCKAGE OF EITHER ONE OR BOTH RIGHT HAND LANES OF A MULTI-LANE HIGHWAY

(using barrels and tall cones)



LONG TERM BLOCKAGE OF RIGHT HAND LANE OF A FOUR LANE UNDIVIDED HIGHWAY (TWO LANE REALIGNMENT ALTERNATIVE)

(Figure 1c)

Figure 1c depicts an alternative arrangement where the right hand lane of a four lane undivided highway, is blocked due to construction or repair. This alternative may be requested by the Traffic Management Branch or Traffic Services Branch to maximize the vehicular capacity on a route. The Construction Agency shall place and maintain, on a 24 hour per day basis, the devices as indicated in Figures 1c. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

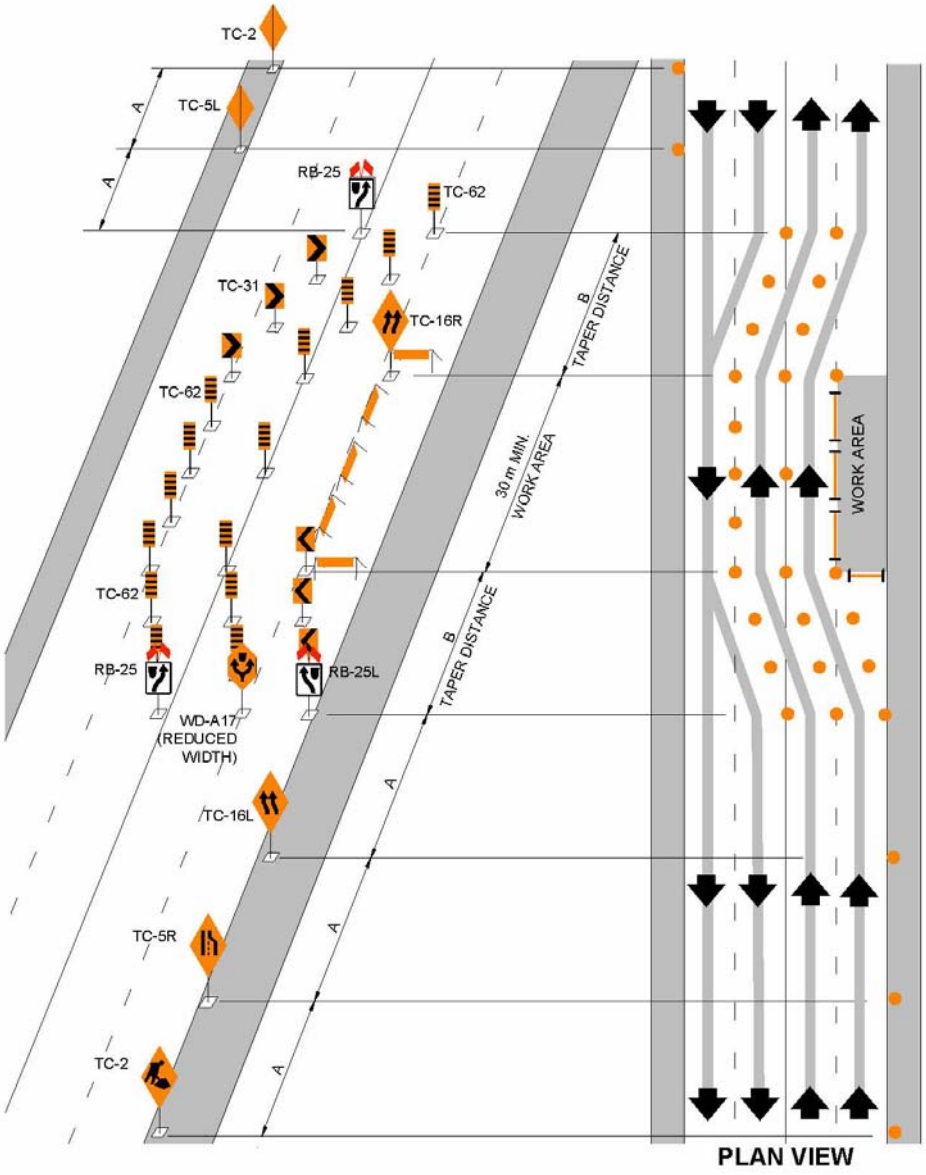
Distances A and B represented in Figure 1c shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 1c

LONG TERM BLOCKAGE OF RIGHT HAND LANE OF A FOUR LANE UNDIVIDED HIGHWAY (TWO LANE REALIGNMENT ALTERNATIVE)



PLAN VIEW

LONG TERM BLOCKAGE OF LEFT HAND LANE OF A DIVIDED HIGHWAY

(Figure 2a)

Figure 2a depicts the typical situation where one or both left hand lanes on a divided highway are blocked due to construction or repair. This setup is also applicable to a multi-lane one way highway. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 2a. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 2a shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

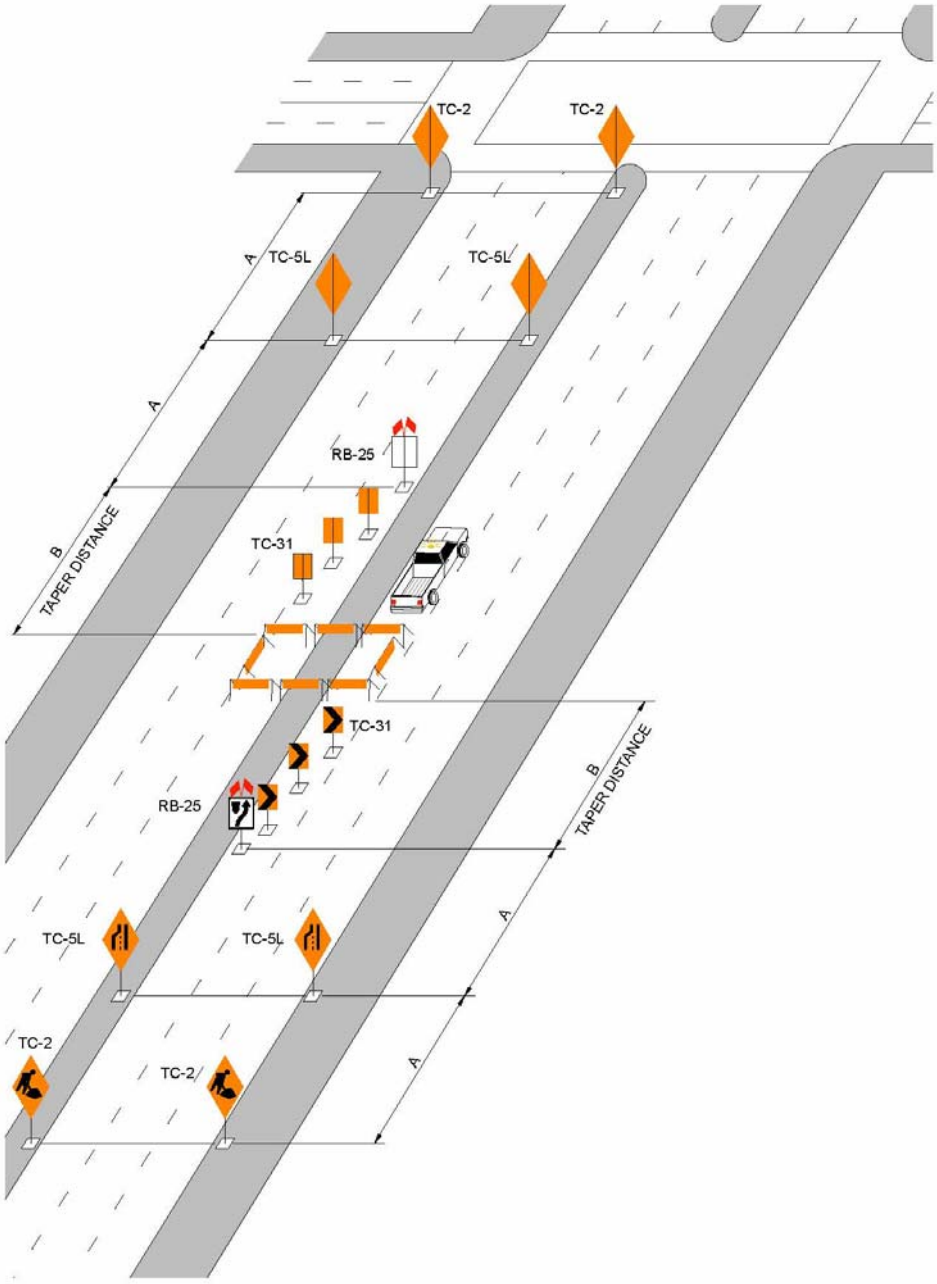
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 2a

LONG TERM BLOCKAGE OF LEFT HAND LANE OF A DIVIDED HIGHWAY



LONG TERM BLOCKAGE OF LEFT HAND LANE OF A DIVIDED HIGHWAY
(TWO LANE REALIGNMENT ALTERNATIVE)
(Figure 2b)

Figure 2b depicts an alternative arrangement where the left hand lane of an six lane divided highway or a three lane one-way roadway is blocked due to construction or repair. This setup may be requested by the Traffic Management Branch or Traffic Services Branch to maximize the vehicular capacity on a route.The Construction Agency shall place and maintain on a 24 hour per day basis the devices as indicated in Figure 2b. The devices shall conform to the requirements of section 5.00 and shall be kept clean and in proper working order.

Distances A and B represented in Figure 2b shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

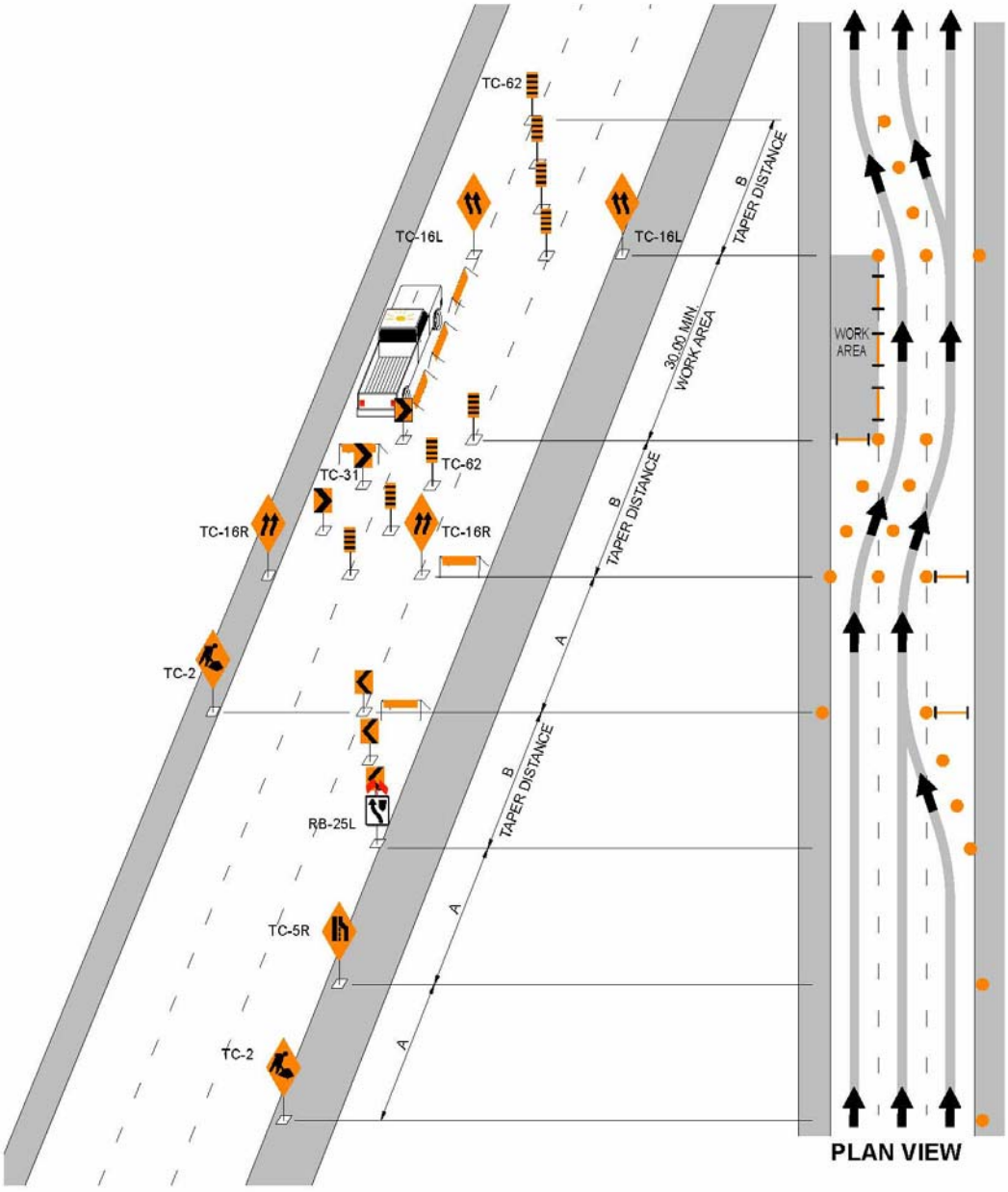
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 2b

LONG TERM BLOCKAGE OF LEFT HAND LANE OF A DIVIDED HIGHWAY

(TWO LANE REALIGNMENT ALTERNATIVE)



LONG TERM BLOCKAGE OF NON-ADJACENT LANES ON A ROADWAY
(Figure 3)

Figure 3 depicts the typical situation where a number of non-adjacent lanes on a roadway are blocked due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 3. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

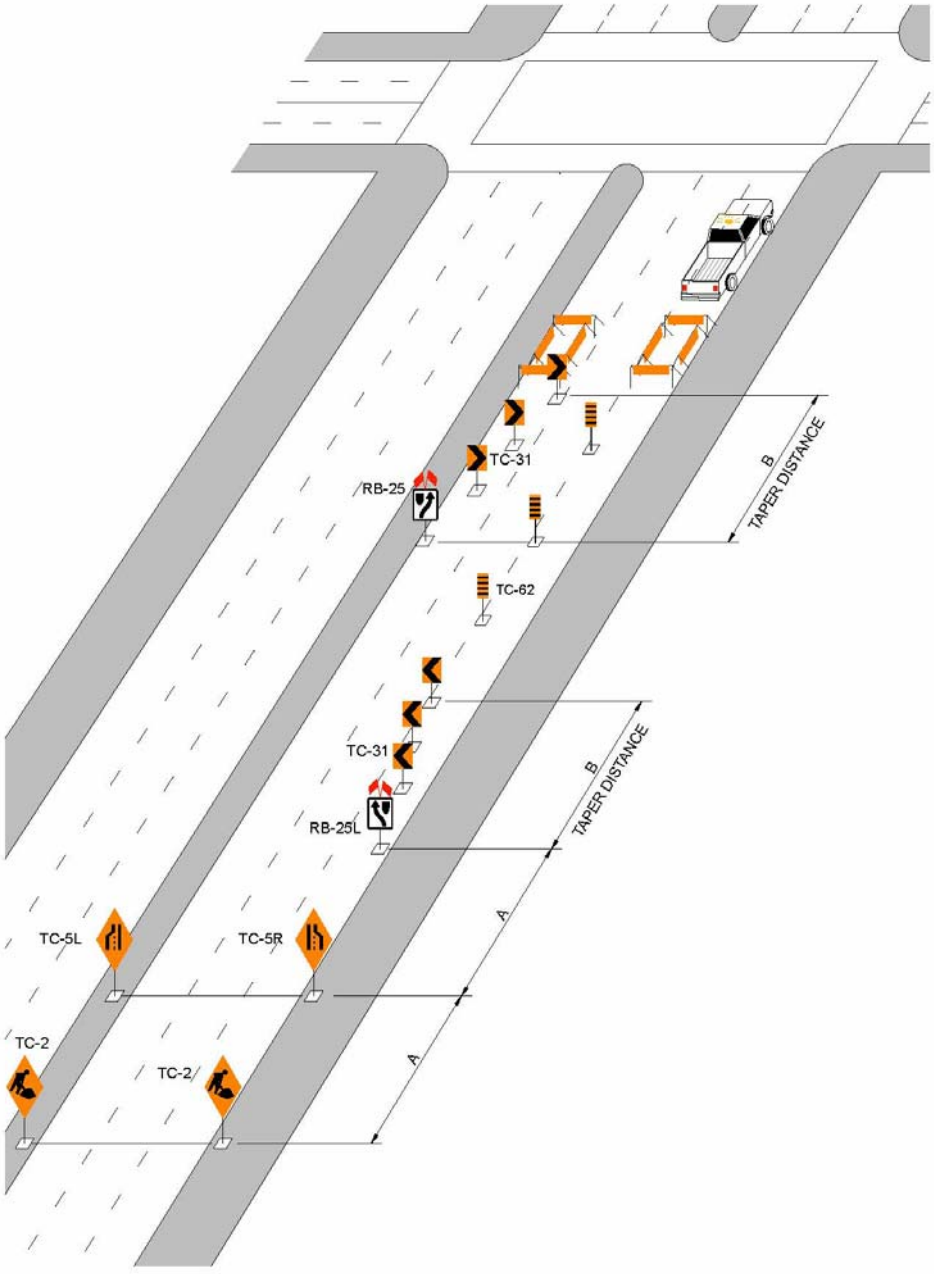
Distances A and B represented in Figure 3 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 3

LONG TERM BLOCKAGE OF NON-ADJACENT LANES ON A ROADWAY



LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY

(Figure 4a)

Figure 4a depicts the typical situation where the centre lane, or lanes, of a divided highway are blocked due to construction or repair. This setup is also applicable to a one way highway with three or more lanes. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 4a. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 4a shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

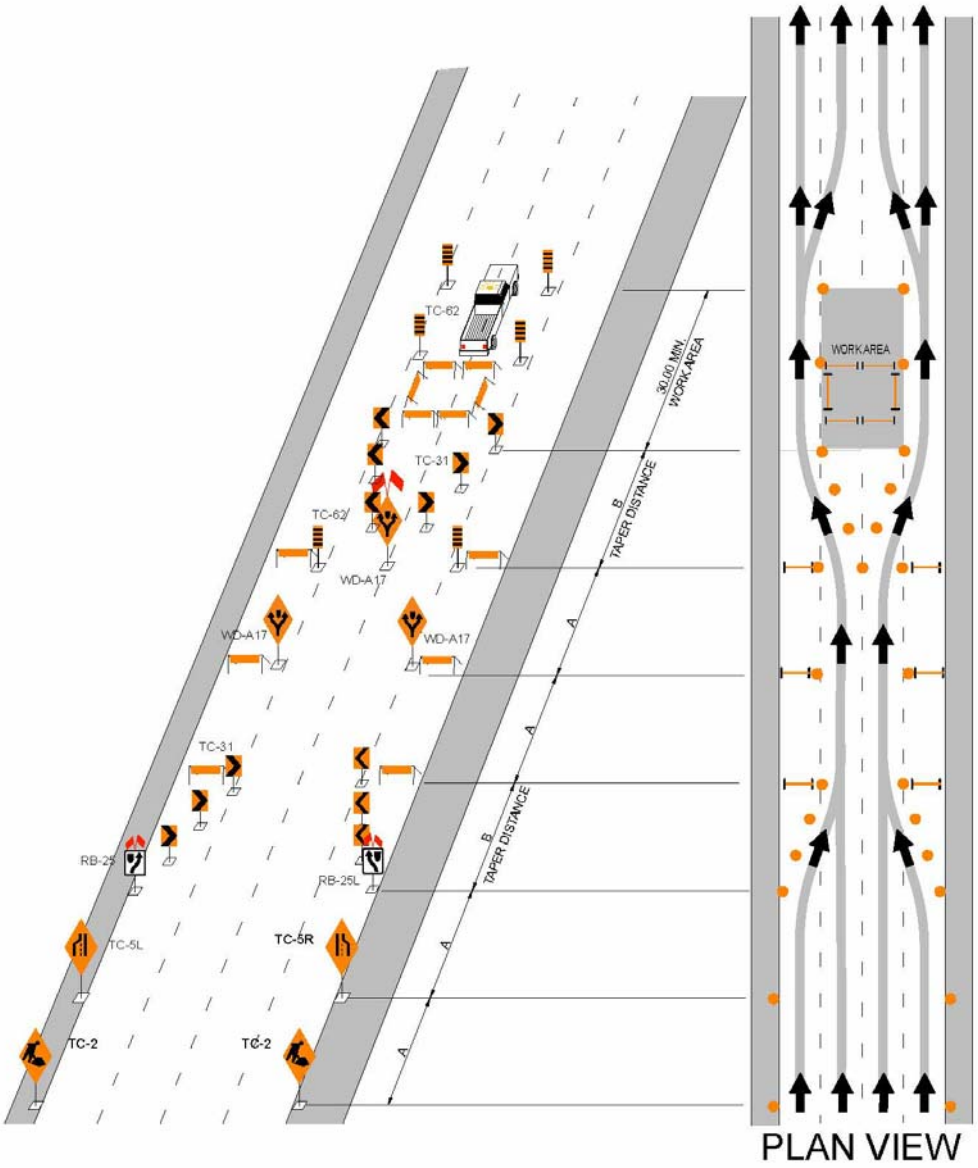
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 4a

LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY



LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY (LEFT TURN LANE ALTERNATIVE)

(Figure 4b)

Figure 4b depicts an alternative arrangement where the centre lane of a divided highway is blocked due to construction or repair and traffic passing to the left of the obstruction is required to make a left turn at the downstream intersection. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 4b. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 4b shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

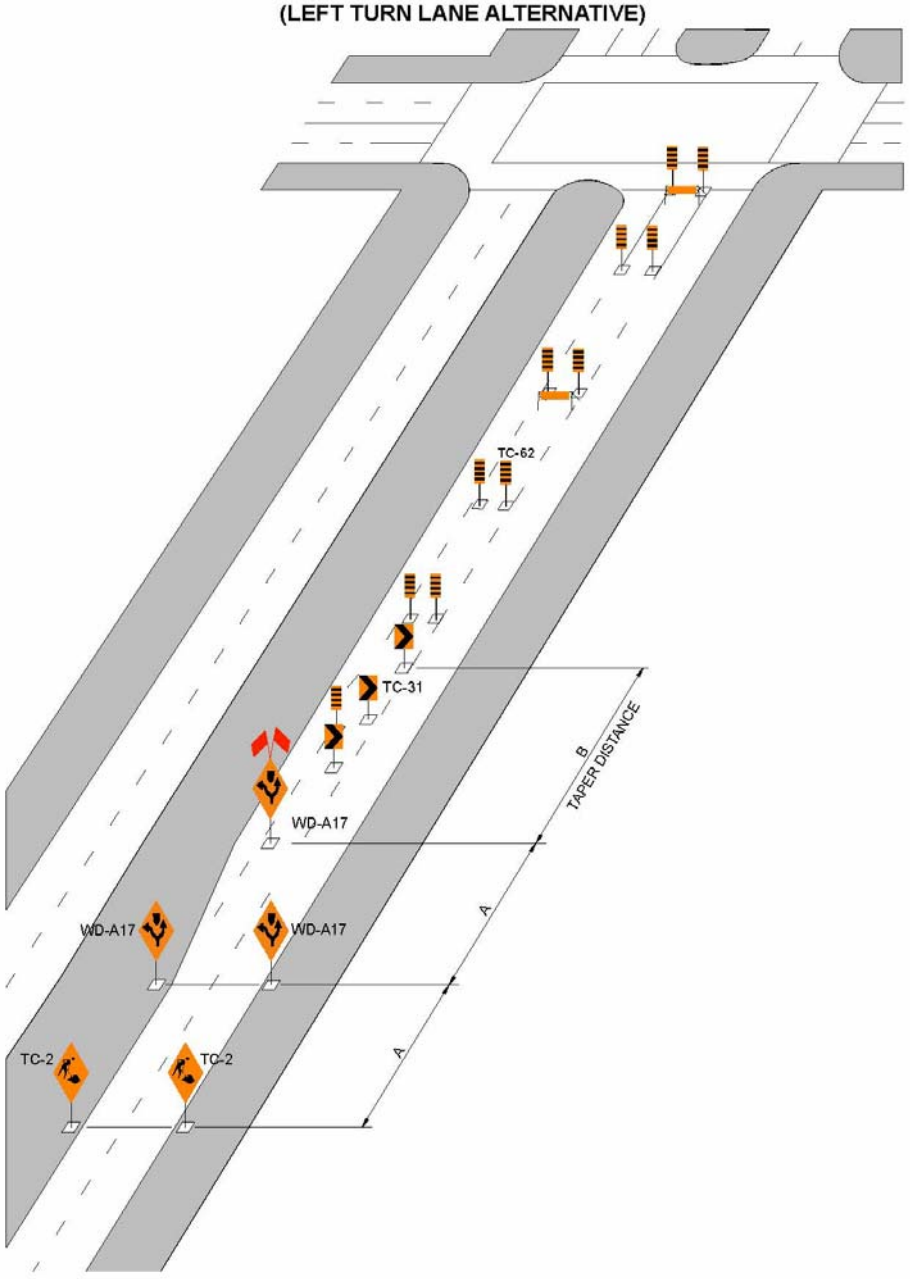
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 4b

LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY
(LEFT TURN LANE ALTERNATIVE)



LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY (RIGHT TURN LANE ALTERNATIVE)

(Figure 4c)

Figure 4c depicts an alternative arrangement where the centre lane of a divided highway is blocked due to construction or repair and traffic passing to the right of the obstruction is required to make a right turn at the downstream intersection. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 4c. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 4c shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

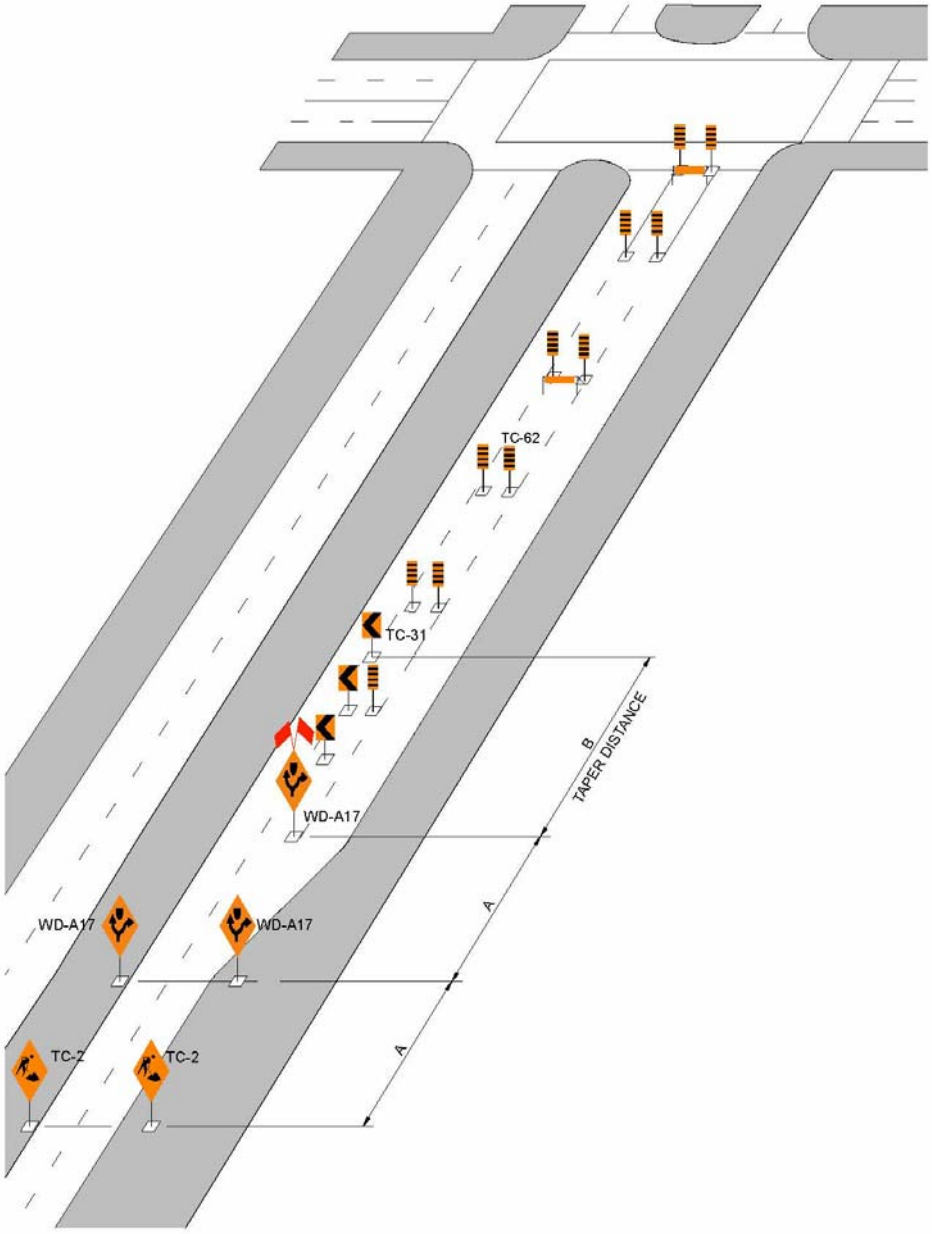
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 4c

LONG TERM BLOCKAGE OF CENTRE LANE OR LANES OF A DIVIDED HIGHWAY
(RIGHT TURN LANE ALTERNATIVE)



LONG TERM BLOCKAGE OF TWO RIGHT HAND LANES OR TWO LEFT HAND LANES OF A DIVIDED HIGHWAY

(Figure 5a)

Figure 5a depicts the typical situation where two right hand lanes or two left hand lanes of a divided highway are blocked due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 5a. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and C represented in Figure 5a shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

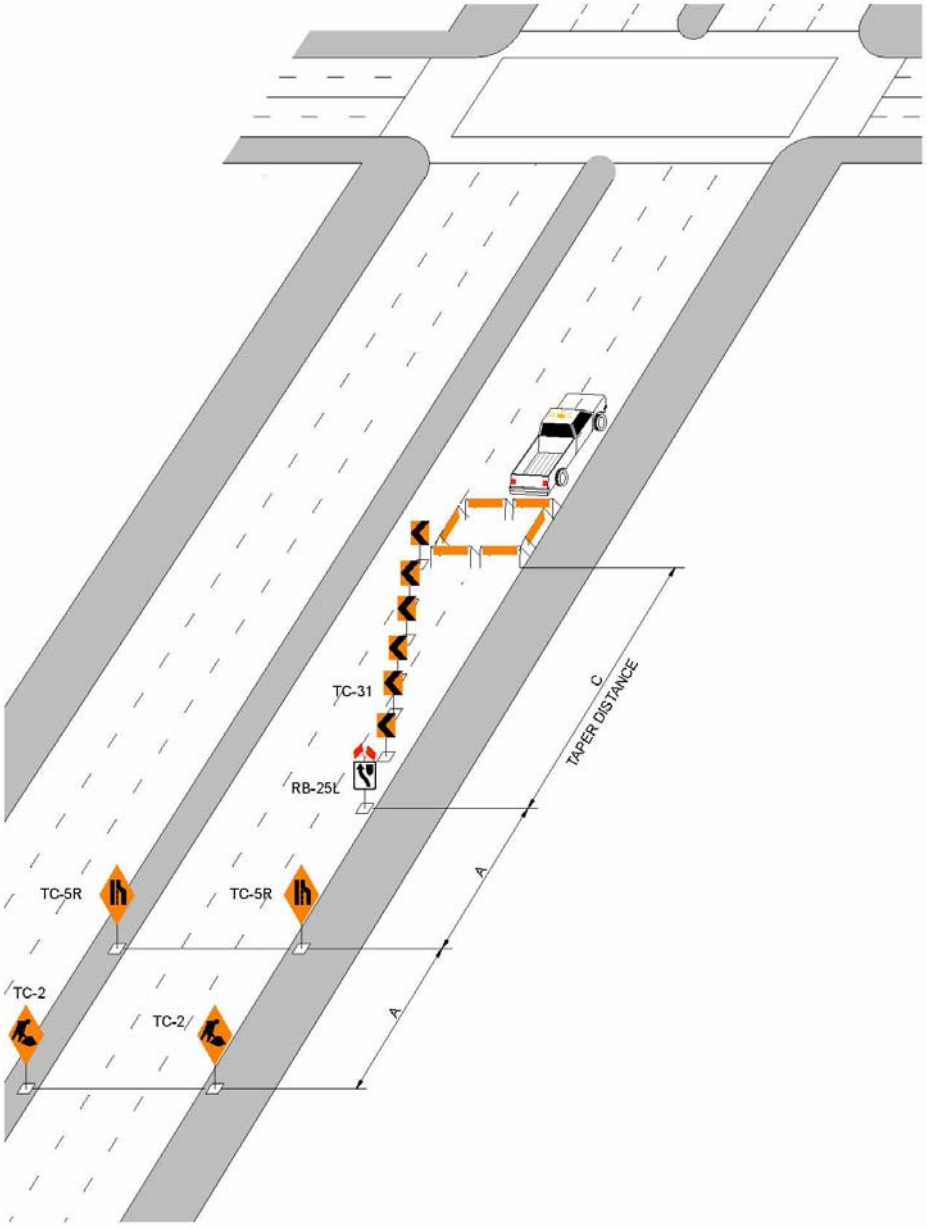
SPEED LIMIT (km/h)	"A" (m)	"C" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	100	15
60	60	120	15
70+	100	200	30

"A" Distance between temporary traffic control devices approaching the taper.

"C" Two lane taper distance

FIGURE 5a

LONG TERM BLOCKAGE OF TWO RIGHT HAND LANES OR
TWO LEFT HAND LANES OF A DIVIDED HIGHWAY



LONG TERM BLOCKAGE OF RIGHT HAND LANE OR LANES OF A DIVIDED HIGHWAY (WITH SUPPLEMENTARY FLASHING OR SEQUENTIAL ARROW TRAFFIC CONTROL DEVICE)

(Figure 5b)

Figure 5b depicts the typical situation where the right hand lanes of a divided highway is blocked due to construction or repair and a supplementary flashing or sequential arrow traffic control device is incorporated into the setup. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 5b. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and C represented in Figure 5b shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

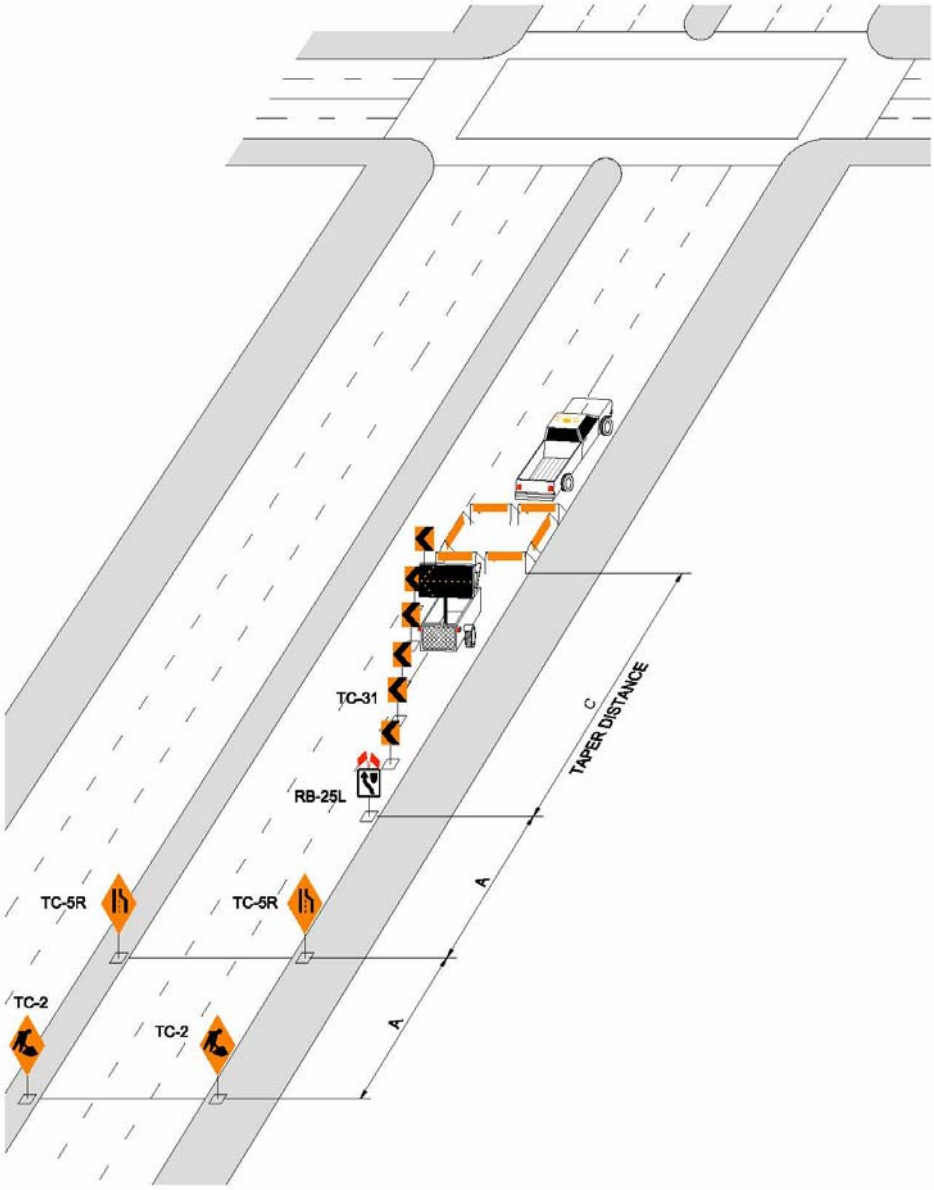
SPEED LIMIT (km/h)	"A" (m)	"C" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	100	15
60	60	120	15
70+	100	200	30

"A" Distance between temporary traffic control devices approaching the taper.

"C" Two lane taper distance

FIGURE 5b

LONG TERM BLOCKAGE OF RIGHT HAND LANE OR LANES OF A DIVIDED HIGHWAY (WITH SUPPLEMENTARY FLASHING OR SEQUENTIAL ARROW TRAFFIC CONTROL DEVICE)



LONG TERM BLOCKAGE OF TWO LEFT HAND LANES ON MULTILANE ROADWAY (TWO LANE REALIGNMENT ALTERNATIVE)

(Figure 6)

Figure 6 depicts an alternative arrangement where the two left hand lanes of an eight lane divided highway or a four lane one-way roadway are blocked due to construction or repair. This alternative may be requested by Traffic Management or Traffic Services to maximize the vehicular capacity on a route. The Construction Agency shall place and maintain on a 24 hour per day basis the devices as indicated in Figure 6. The devices shall conform to the requirements of section 5.00 and shall be kept clean and in proper working order.

Distances A and B represented in Figure 6 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

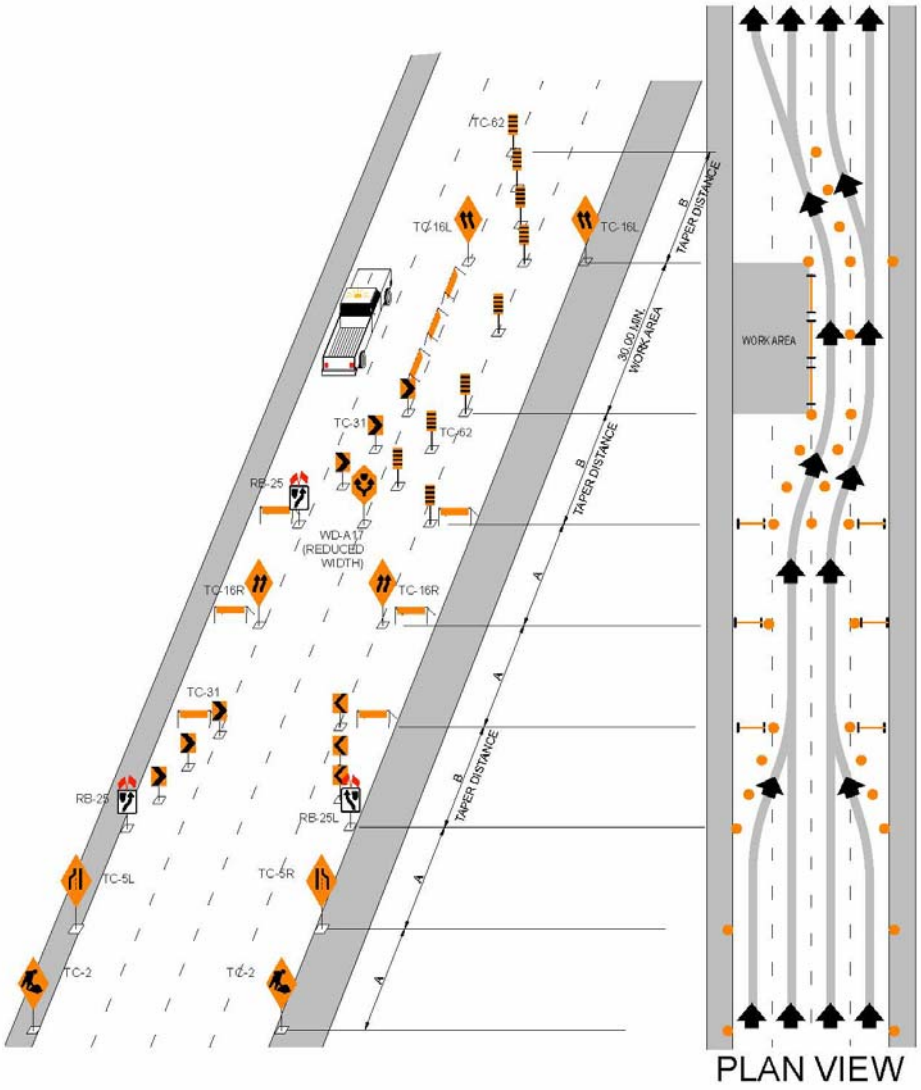
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 6

LONG TERM BLOCKAGE OF TWO LEFT HAND LANES ON MULTILANE ROADWAY
(TWO LANE REALIGNMENT ALTERNATIVE)



LONG TERM BLOCKAGE OF TWO RIGHT HAND LANES ON A MULTILANE ROADWAY (TWO LANE REALIGNMENT ALTERNATIVE)

(Figure 7)

Figure 7 depicts an alternative arrangement where the two right hand lanes of an eight lane divided highway or a four lane one-way roadway due to construction or repair. This alternative may be requested by Traffic Management or Traffic Services to maximize the vehicular capacity on a route. The Construction Agency shall place and maintain on a 24 hour per day basis the devices as indicated in Figure 7. The devices shall conform to the requirements of Section 5.00 and shall be kept clean and in proper working order.

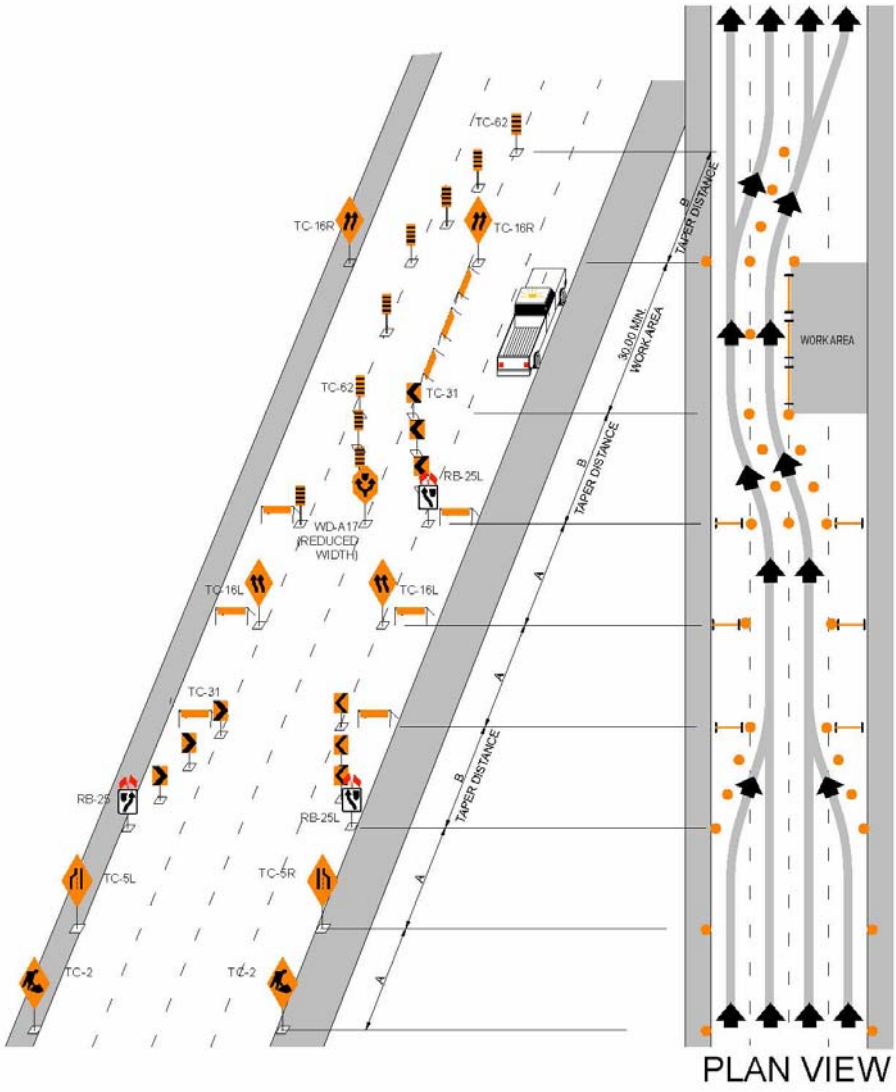
Distances A and B represented in Figure 7 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 7

LONG TERM BLOCKAGE OF TWO RIGHT HAND LANES ON A MULTILANE ROADWAY
(TWO LANE REALIGNMENT ALTERNATIVE)



LONG TERM BLOCKAGE ON A HORIZONTAL HIGHWAY CURVATURE
(ON A CURVE)
(Figure 8)

Figure 8 depicts the typical situation on a horizontal highway curve and indicates that the beginning of traffic control must occur on the street section of highway prior to the horizontal curve. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 8. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 8 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

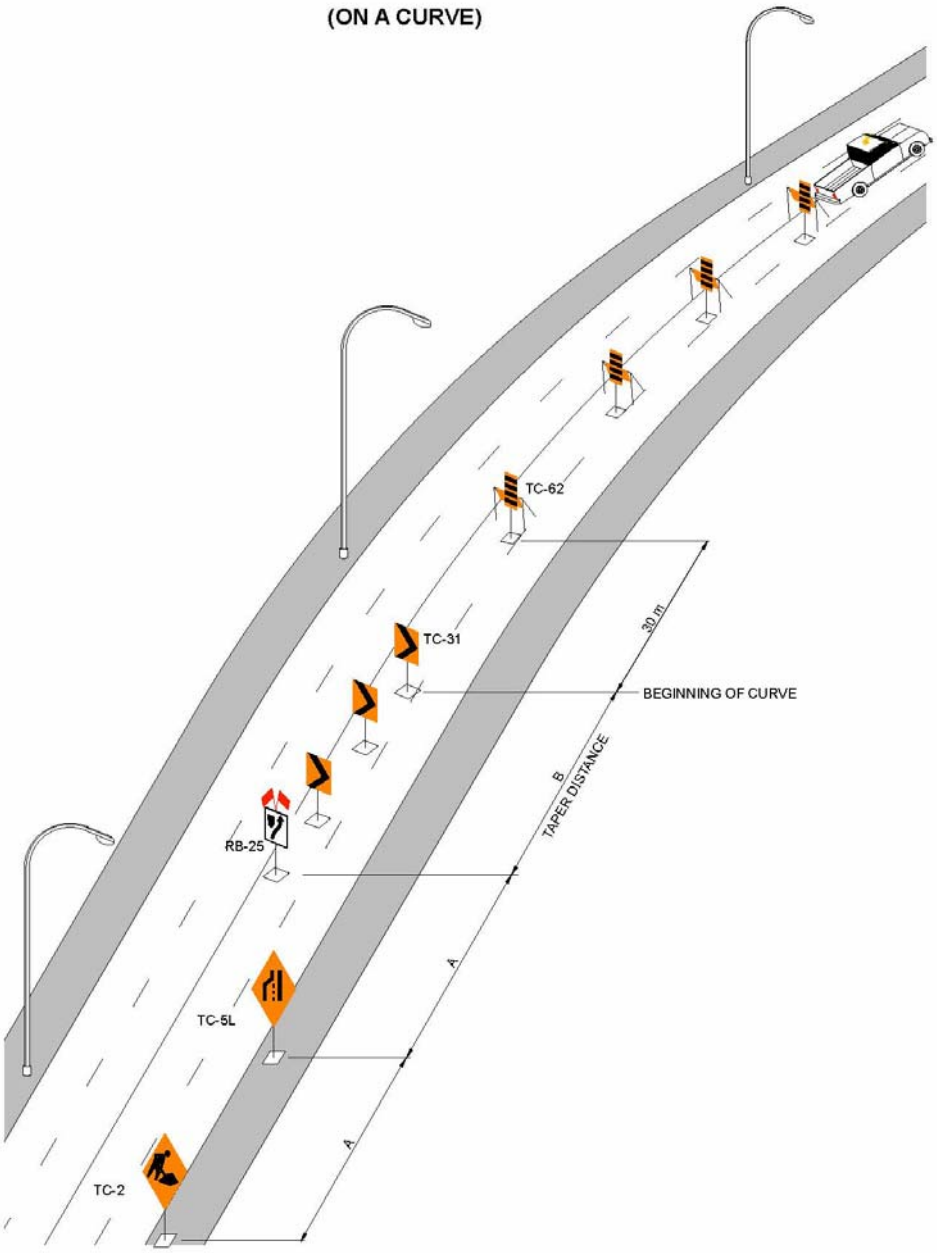
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 8

LONG TERM BLOCKAGE ON A HORIZONTAL HIGHWAY CURVATURE
(ON A CURVE)



LONG TERM BLOCKAGE ON A VERTICAL HIGHWAY CURVATURE
(APPROACHING AN UNDERPASS)
(Figure 9)

Figure 9 depicts the typical situation on a vertical highway curve and indicates that the beginning of traffic control must occur on the level section of highway prior to the vertical curve. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 9. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

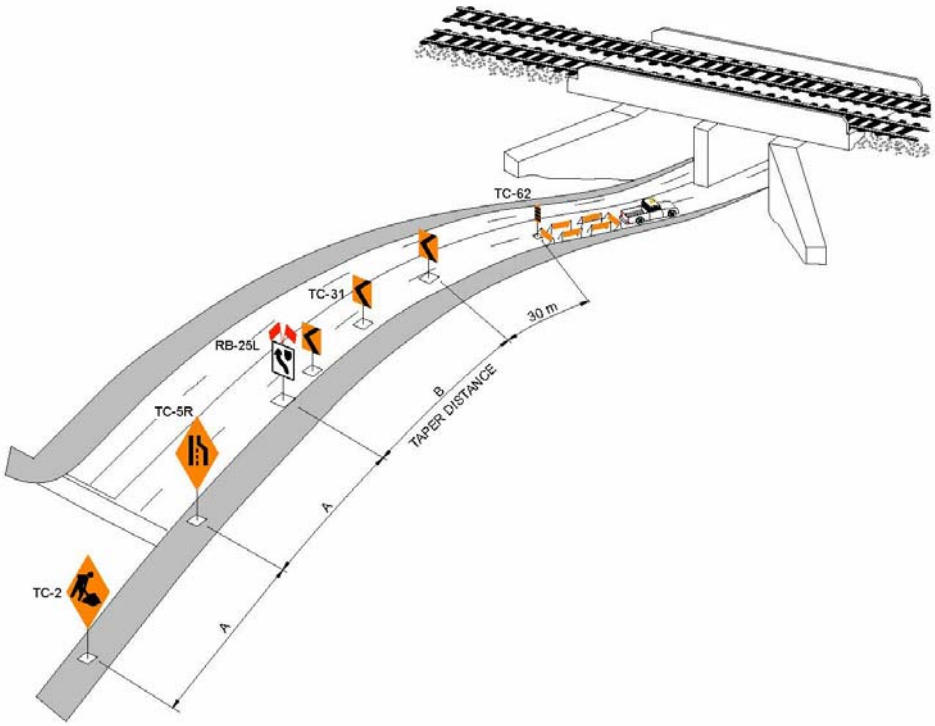
Distances A and B represented in Figure 9 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 9

LONG TERM BLOCKAGE ON A VERTICAL HIGHWAY CURVATURE
(APPROACHING AN UNDERPASS)



LONG TERM DIVERSION AROUND A HIGHWAY BLOCKAGE USING SHOULDER
(Figure 10)

Figure 10 depicts a typical situation of local diversion around a partial or complete highway blockage due to construction or repair. The diversion is created by temporary improvement and widening of the highway shoulder. The minimum acceptable design of the diversion is shown in Figure 10. The widening is to be well maintained for smooth traffic flow. The Construction Agency shall place and maintain on a 24 hour per day basis,the devices as indicated in Figure 10. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 10 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

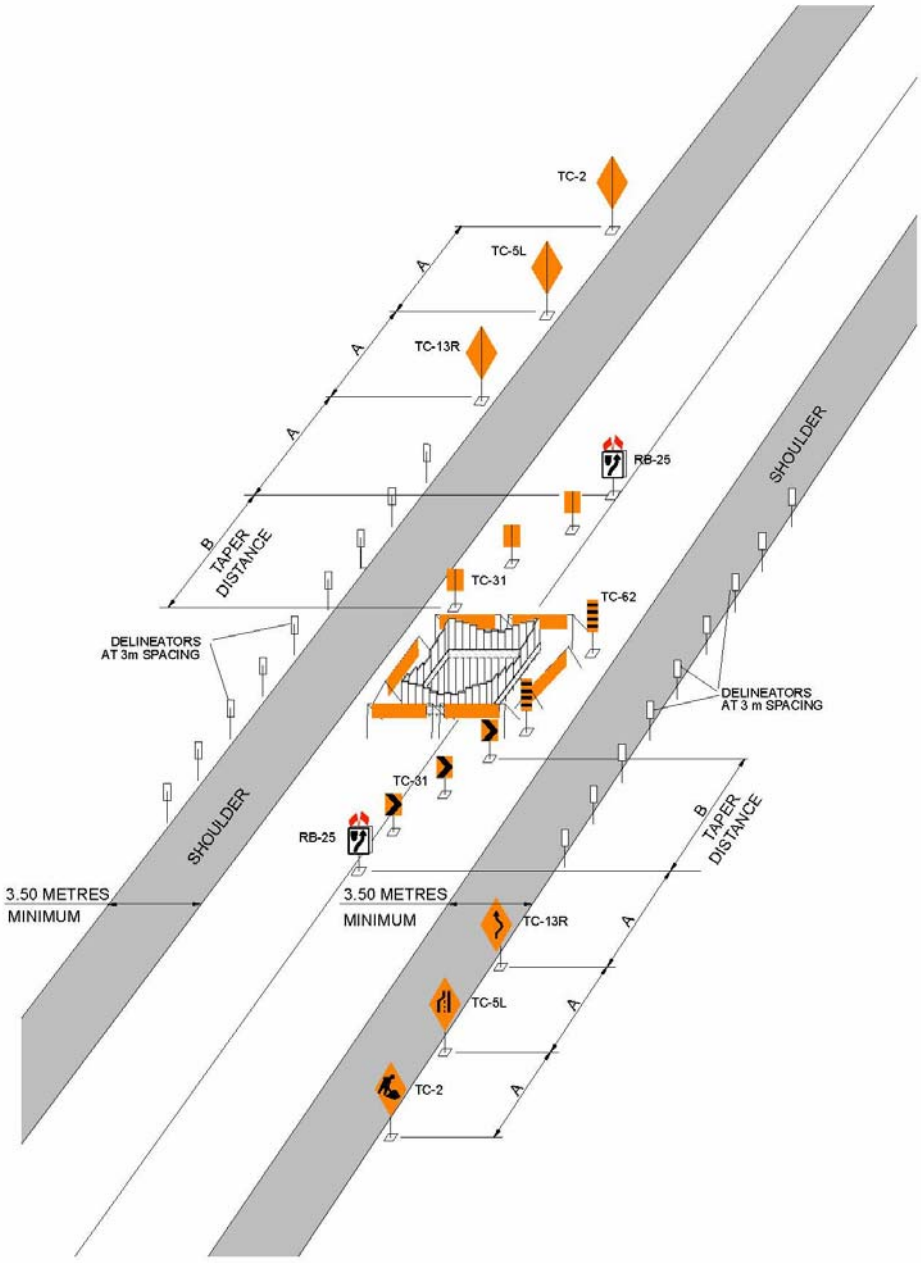
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 10

LONG TERM DIVERSION AROUND A HIGHWAY BLOCKAGE USING SHOULDER



LONG TERM BLOCKAGE OF HALF OF A FOUR LANE ROADWAY
(Figure 11)

Figure 11 depicts the typical situation where two adjacent lanes making up one half of a four lane roadway are blocked due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 11. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A, B and C represented in Figure 11 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	"C" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	100	15
60	60	60	120	15
70+	100	100	200	30

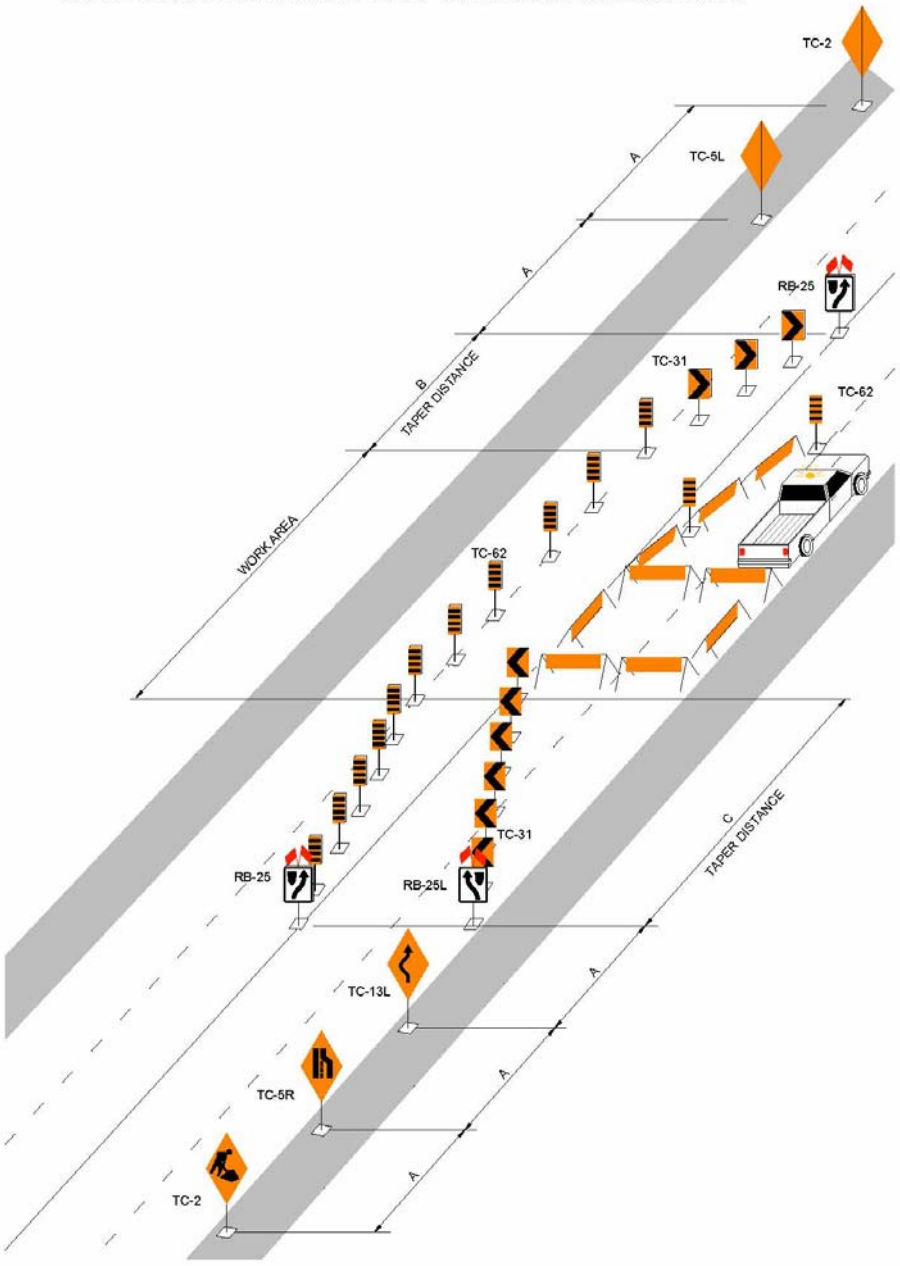
"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

"C" Two lane taper distance

FIGURE 11

LONG TERM BLOCKAGE OF HALF OF A FOUR LANE ROADWAY



LONG TERM BLOCKAGE REQUIRING FLAGPERSONS
(Figure 12)

Figure 12 depicts the typical situation where blockage of a non-divided highway is so extensive that only one lane remains for two-way traffic. Under such a circumstance, the Construction Agency is mandated to provide flagpersons. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices and flagpersons as indicated in Figure 12. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A, B and C represented in Figure 12 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

SPEED LIMIT (km/h)	"A" (m)	B" (m)	"C" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	100	15
60	60	60	120	15
70+	100	100	200	30

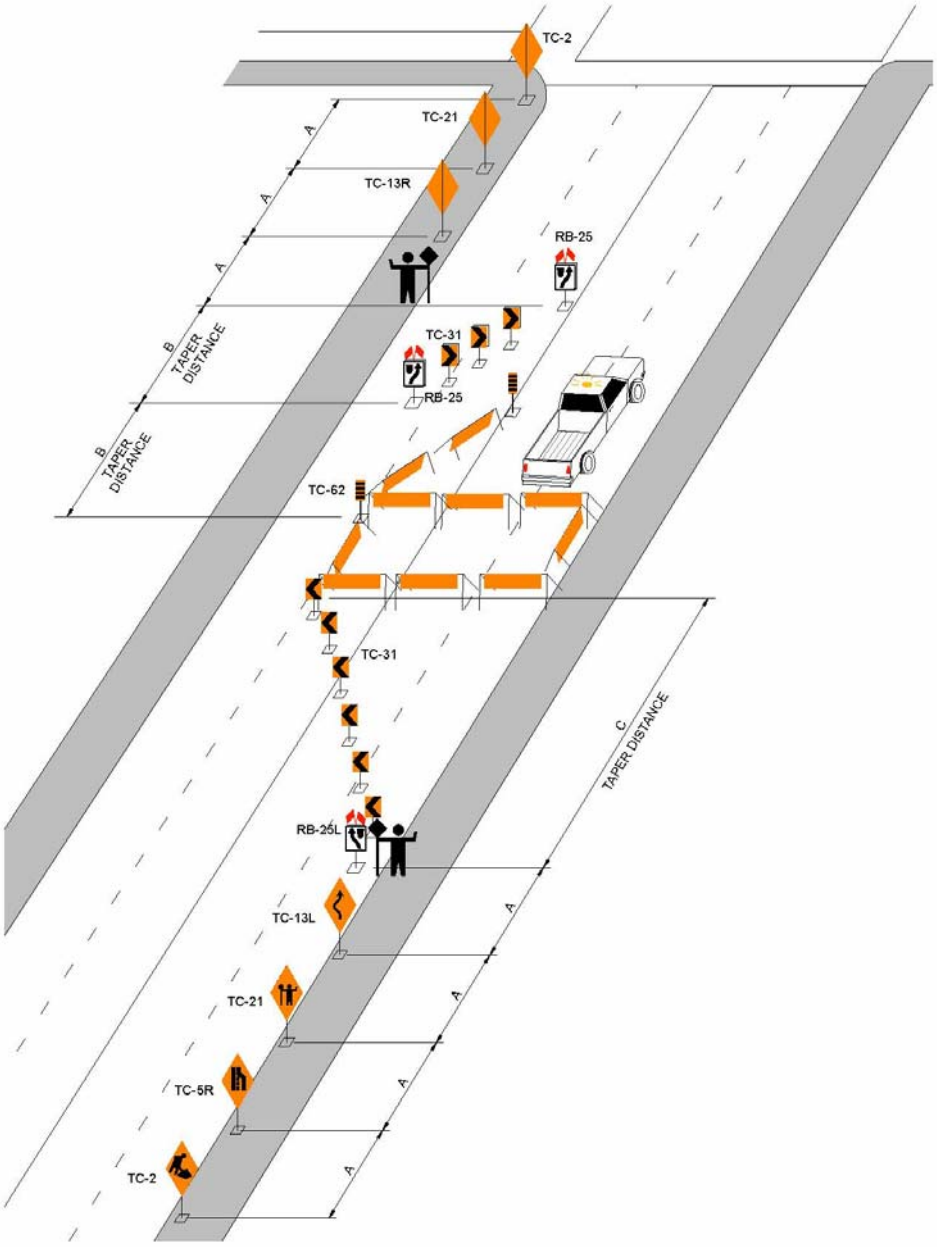
"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

"C" Multi-lane taper distance

FIGURE 12

LONG TERM BLOCKAGE REQUIRING FLAGPERSONS



TEMPORARY LONG TERM ONE-WAY OPERATION OF A NON-REGIONAL COLLECTOR STREET (Figure 13)

Figure 13 depicts a typical situation where blockage of a non-regional collector street results in the implementation of temporary one-way operation. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 13. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order. Traffic Services will be responsible for the installation of the necesary regulatory signs to give effect to the one-way operation.

Distance A represented in Figure 13 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

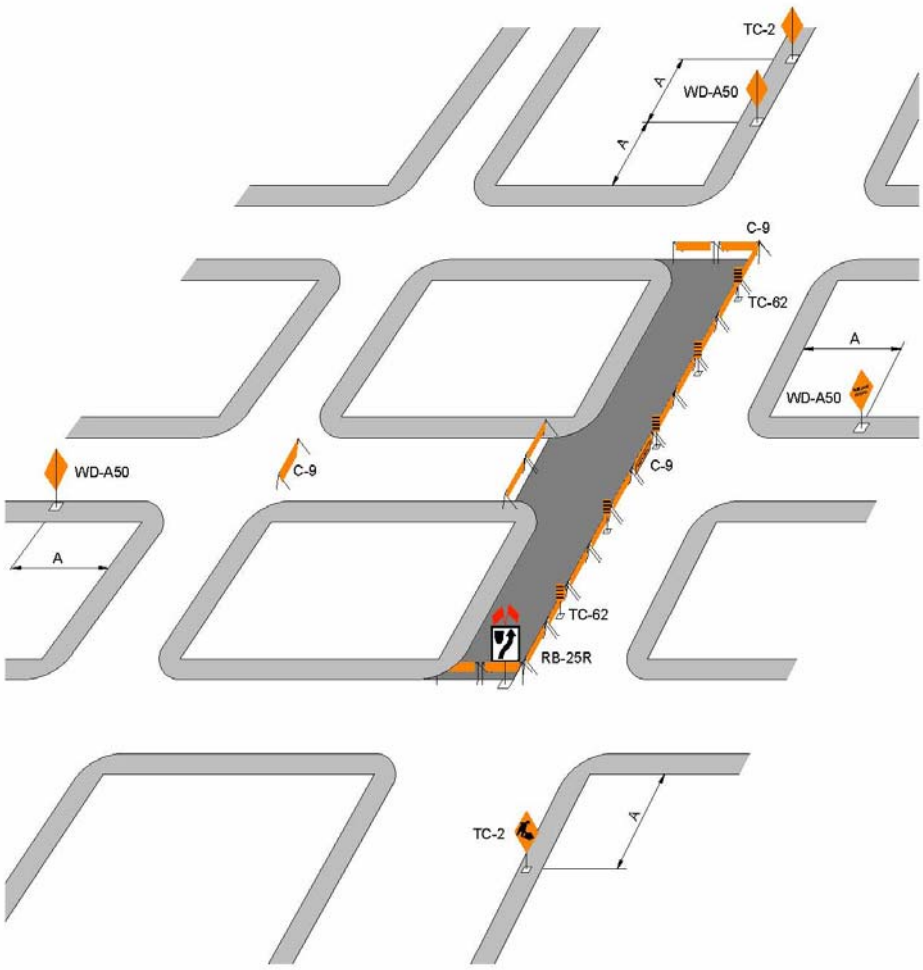
Note: A list of Regional Streets is contained in Schedule E of The City of Winnipeg Streets By-law #1481/77 (all other streets are classified as non-regional streets, some of which are non-regional collector streets and some of which are non-regional local streets).

SPEED LIMIT (km/h)	"A" (m)
50	50
60	60
70+	100

"A" Distance between temporary traffic control devices approaching the taper.

FIGURE 13

TEMPORARY LONG TERM ONE-WAY OPERATION
OF A NON-REGIONAL COLLECTOR STREET



Note: Required regulatory signs to be placed by Traffic Services are not shown in the illustration.

LONG TERM BLOCKAGE OF ONE HALF OF A NON-REGIONAL LOCAL STREET
(Figure 14)

Figure 14 depicts the typical situation of blockage of one half of a non-regional local street due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 14. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 14 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

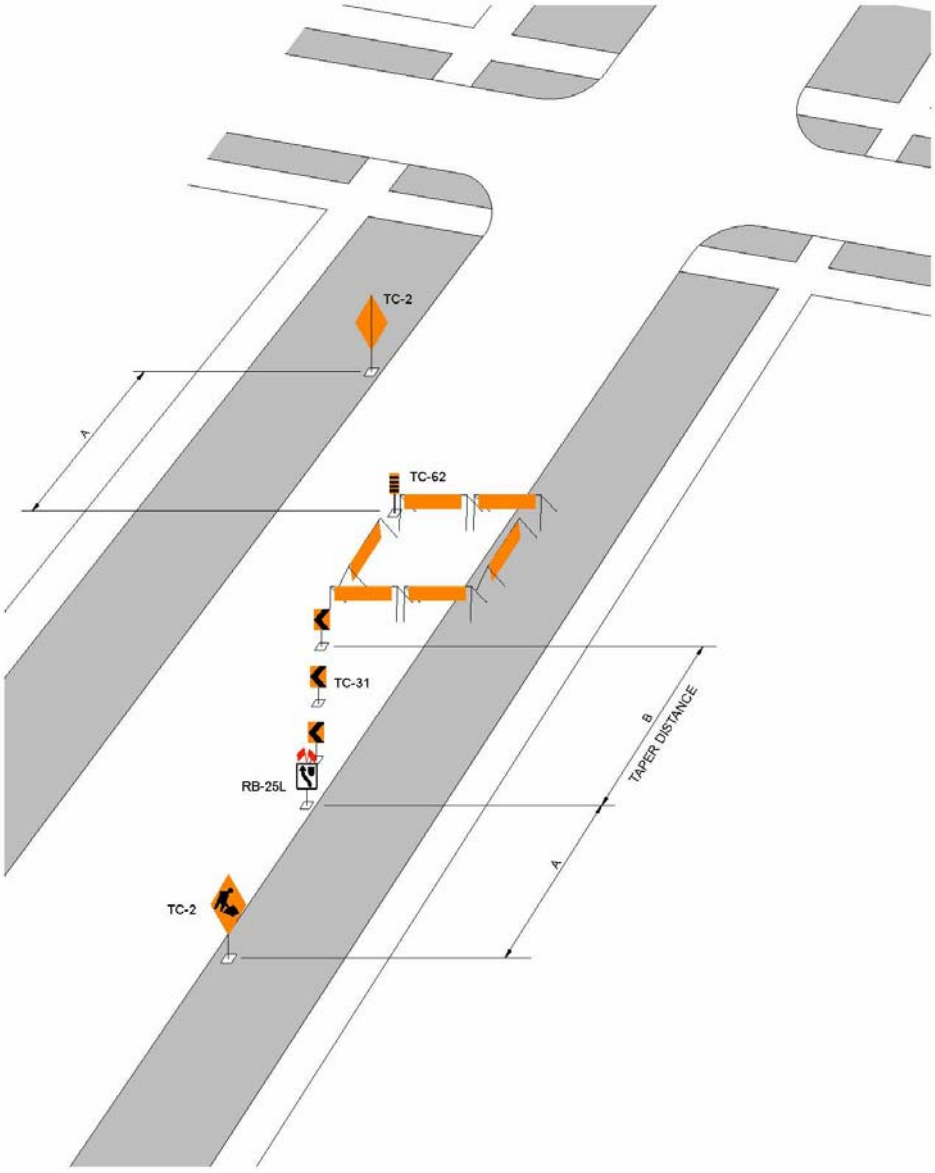
Note: This situation may be used on other streets subject to the approval of Transportation Engineering or Traffic Services and subject to the use of supplementary signing.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 14

LONG TERM BLOCKAGE OF HALF OF A NON-REGIONAL LOCAL STREET



LONG TERM CLOSURE OF ONE BLOCK OF A NON-REGIONAL STREET
(Figure 15)

Figure 15 depicts the closure of one block of a non-regional street due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 15. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distance A represented in Figure 15 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

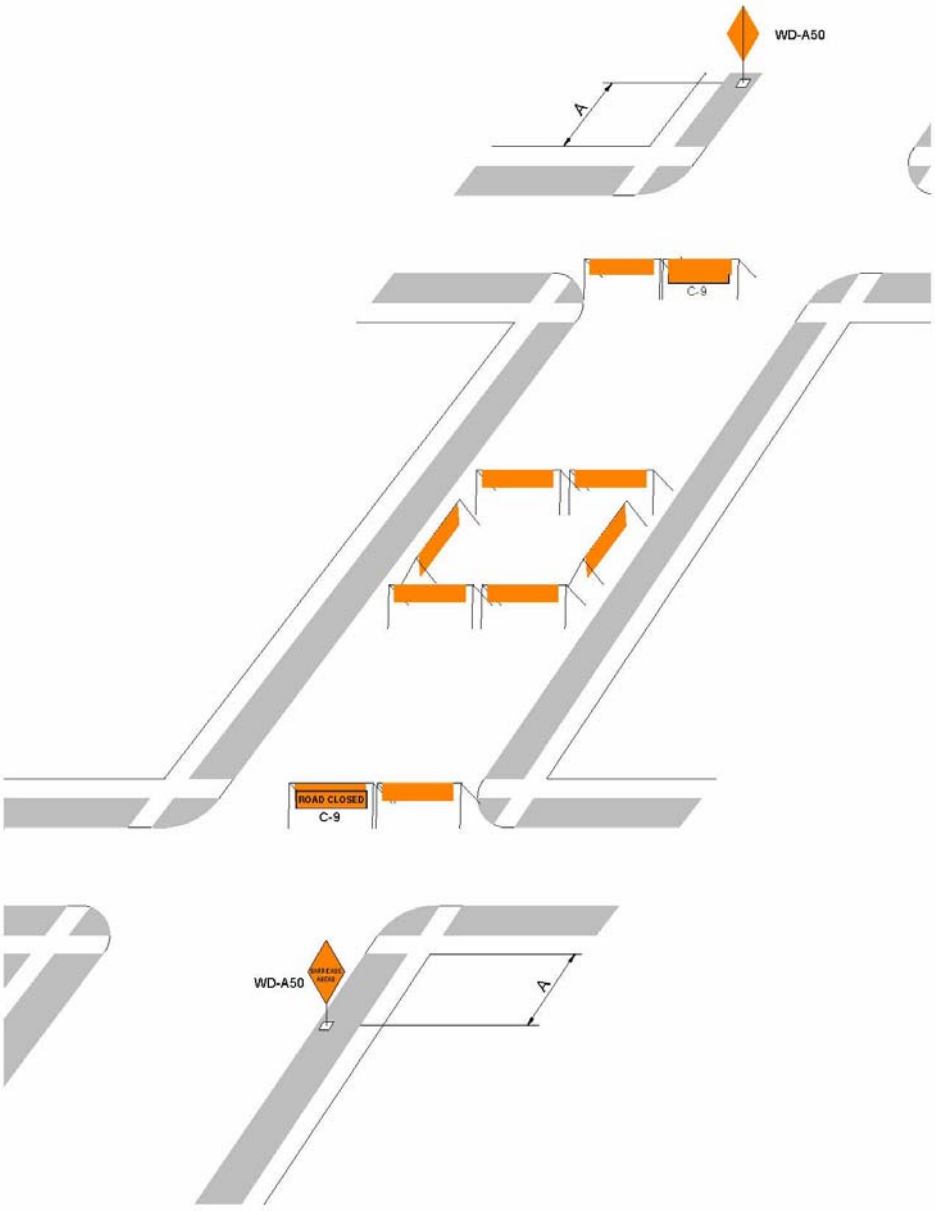
NOTE: Closures of this type on collector streets must be done in coordination with the Traffic Services Branch.

SPEED LIMIT (km/h)	"A" (m)
50	50
60	60
70+	100

"A" Distance between temporary traffic control device and the intersection.

FIGURE 15

LONG TERM CLOSURE OF ONE BLOCK OF A NON-REGIONAL STREET



NOTE: Regulatory signs that may potentially be required are not shown

LONG TERM COMPLETE CLOSURE OF SEVERAL BLOCKS OF A NON-REGIONAL STREET (Figure 16)

Figure 16 depicts a typical situation of complete closure of several blocks of a non-regional street due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 16. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distance A represented in Figure 16 shall be selected from the table below for the permanent posted speed limit on the highway at the construction site.

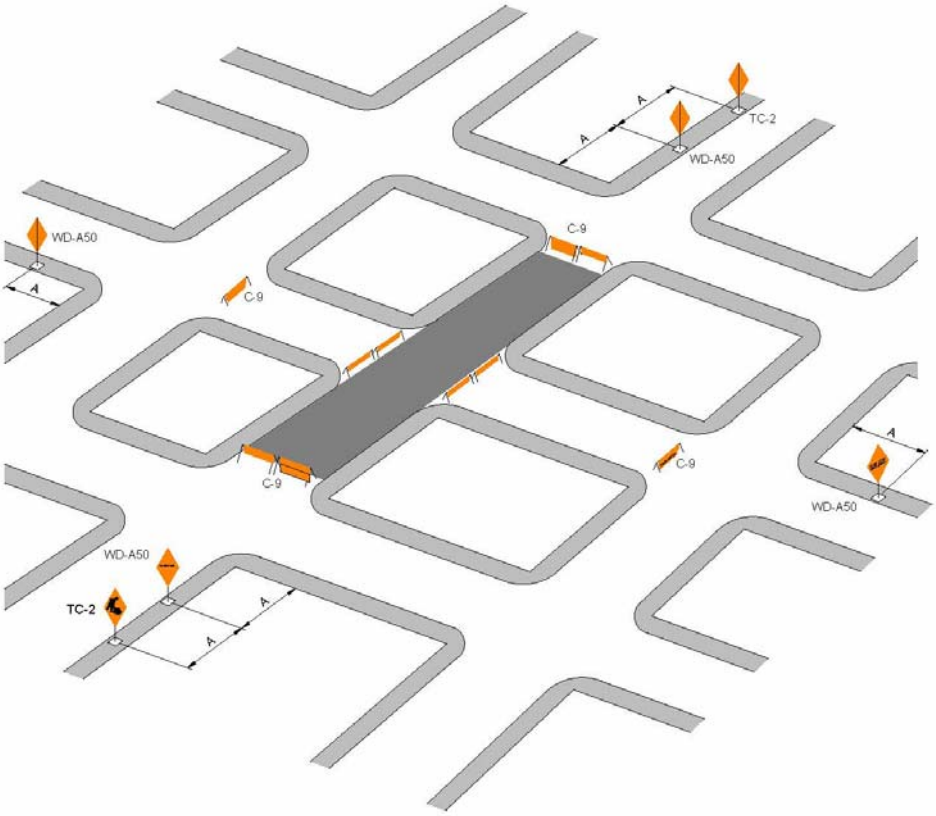
NOTE: Closures of this type must be done in coordination with the Traffic Services Branch.

SPEED LIMIT (km/h)	"A" (m)
50	50
60	60
70+	100

"A" Distance between temporary traffic control devices.

FIGURE 16

LONG TERM COMPLETE CLOSURE OF SEVERAL BLOCKS OF A NON-REGIONAL STREET



NOTE: Regulatory signs that may be required are not shown

LONG TERM CONSTRUCTION ADJACENT TO AN INTERSECTION OF A FOUR LANE UNDIVIDED HIGHWAY (Figure 17)

Figure 17 depicts two typical situations of partial blockages of a four lane undivided highway, adjacent to an intersection, due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 17. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 17 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

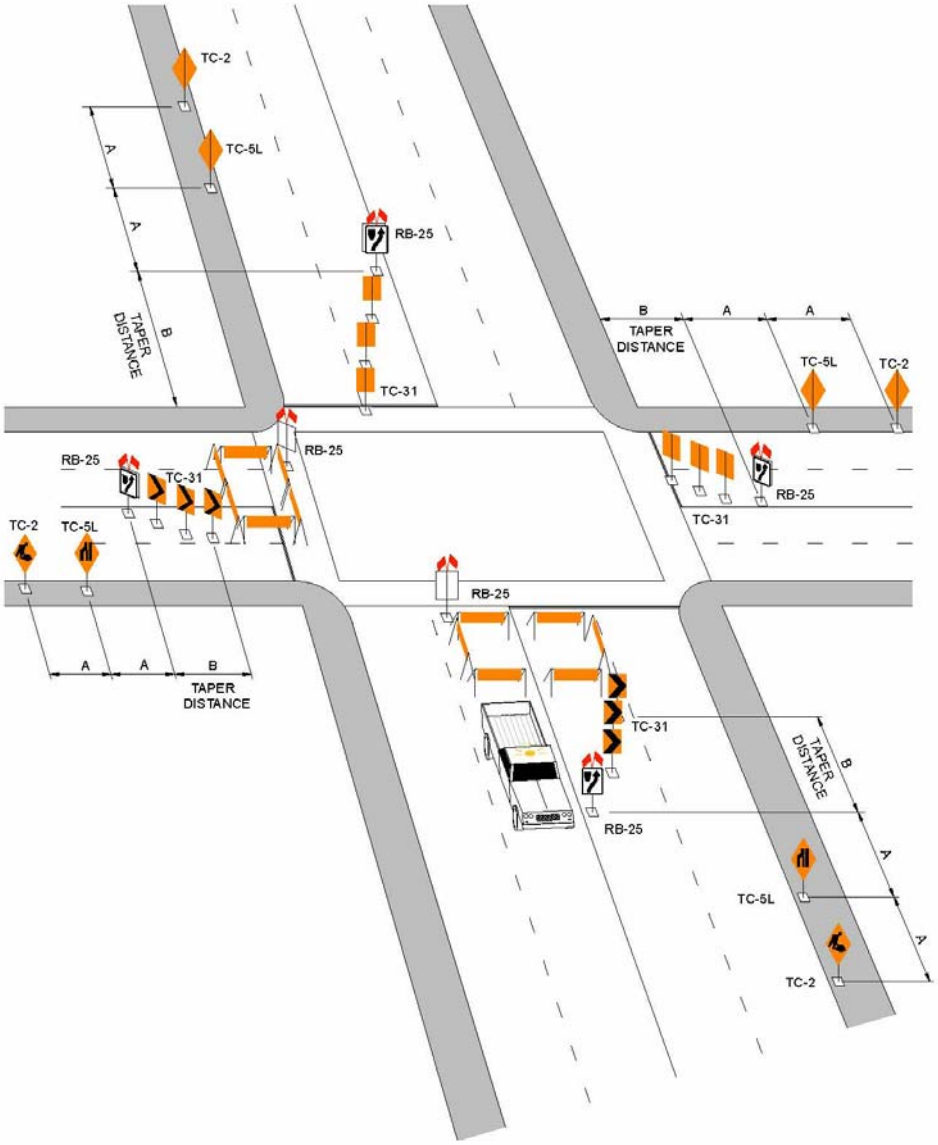
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 17

LONG TERM CONSTRUCTION ADJACENT TO AN INTERSECTION
OF A FOUR LANE UNDIVIDED HIGHWAY



LONG TERM CONSTRUCTION WITHIN AN INTERSECTION OF A FOUR LANE UNDIVIDED HIGHWAY (Figure 18)

Figure 18 depicts a typical situation of partial blockage of an intersection of two four lane roadways, due to construction or repair. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 18. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances A and B represented in Figure 18 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

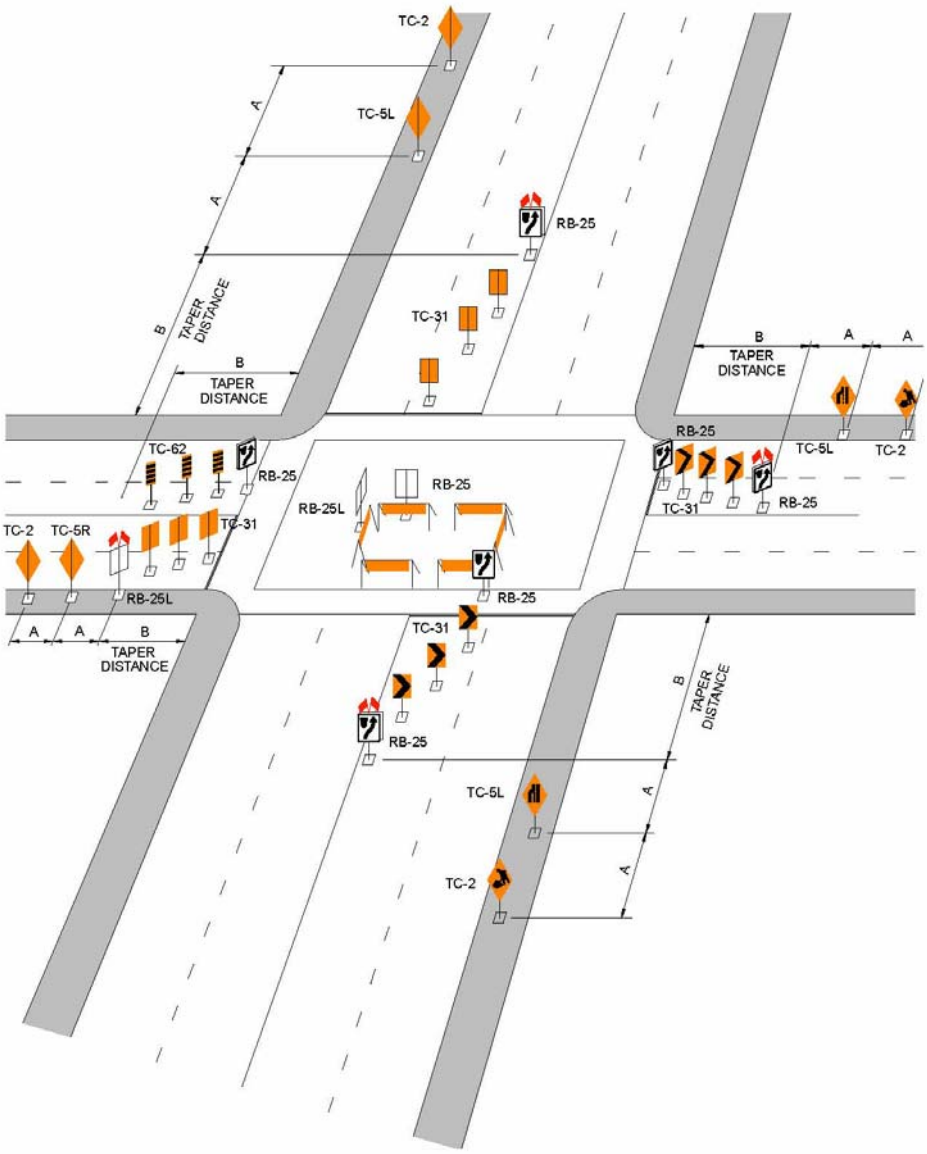
SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance

FIGURE 18

LONG TERM CONSTRUCTION WITHIN AN INTERSECTION OF
A FOUR LANE UNDIVIDED HIGHWAY



SHORT TERM BLOCKAGE OF CURB LANE OR LANES
(Figure 19)

Figure 19 depicts a typical situation where a curb lane or a curb lane plus the adjacent lane are blocked for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5R (Lane Closed Ahead) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the work site.
5. For setups on vertical curves, the beginning of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
6. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
7. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
8. Warning flags shall be mounted above the RB-25L traffic sign in each blocked lane.

Distances A, B and C represented in Figure 19 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	"C" (m)
50	n.a.	50	100
60	n.a.	60	120
70+	100	100	200

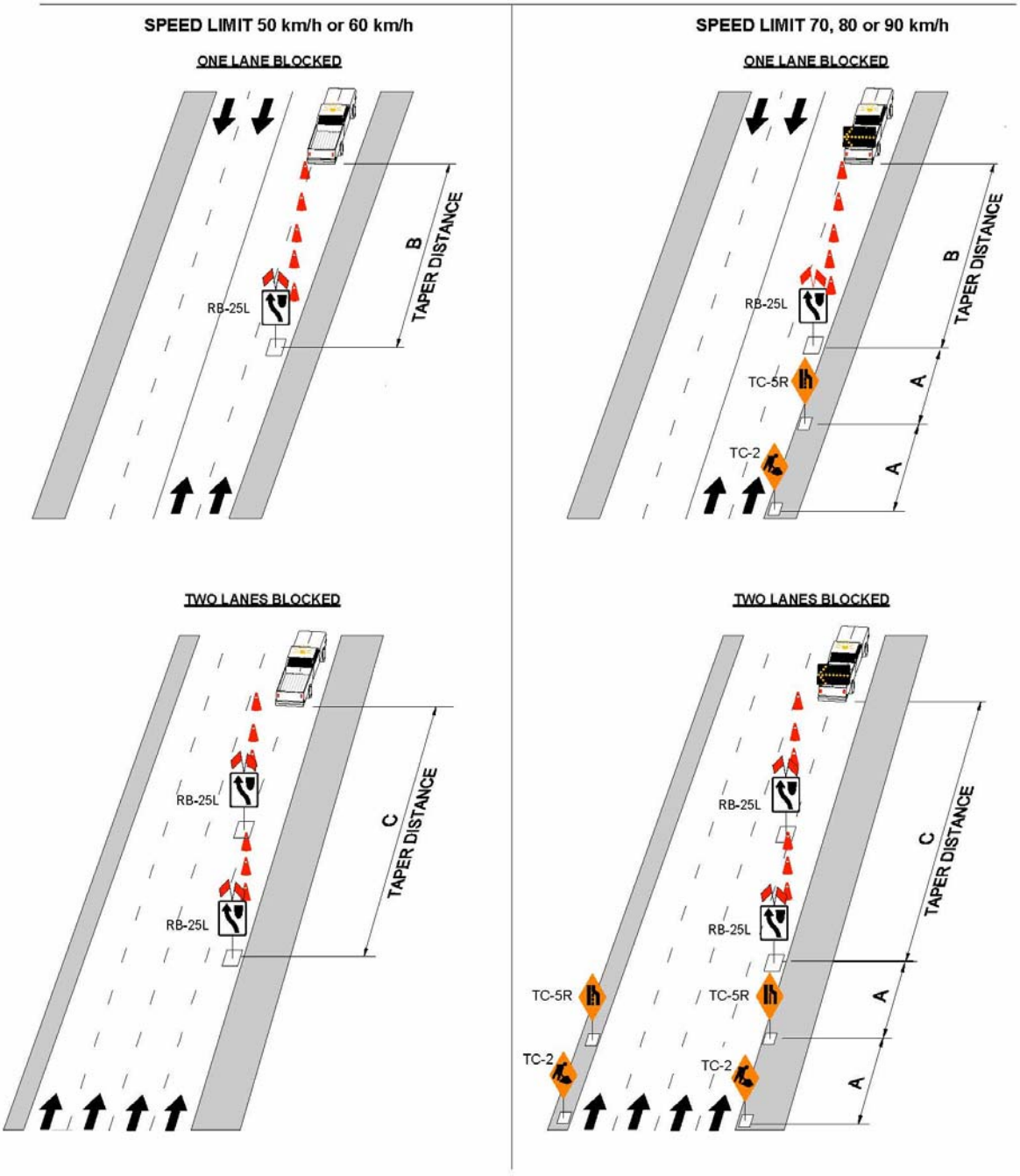
"A" Distance between temporary traffic control devices approaching the taper.

"B" Single lane taper distance.

"C" Two lane taper distance.

FIGURE 19

SHORT TERM BLOCKAGE OF CURB LANE OR LANES



SHORT TERM BLOCKAGE OF MEDIAN LANE OR LANES
(Figure 20)

Figure 20 depicts a typical situation where a median lane, or lanes, of a highway is blocked for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5L (Lane Closed Ahead) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the work site.
5. For setups on vertical curves, the commencement of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
6. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
7. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
8. Warning flags shall be mounted above the RB-25 traffic sign in each blocked lane.

Distances A, B and C represented in Figure 20 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	"C" (m)
50	n.a.	50	100
60	n.a.	60	120
70+	100	100	200

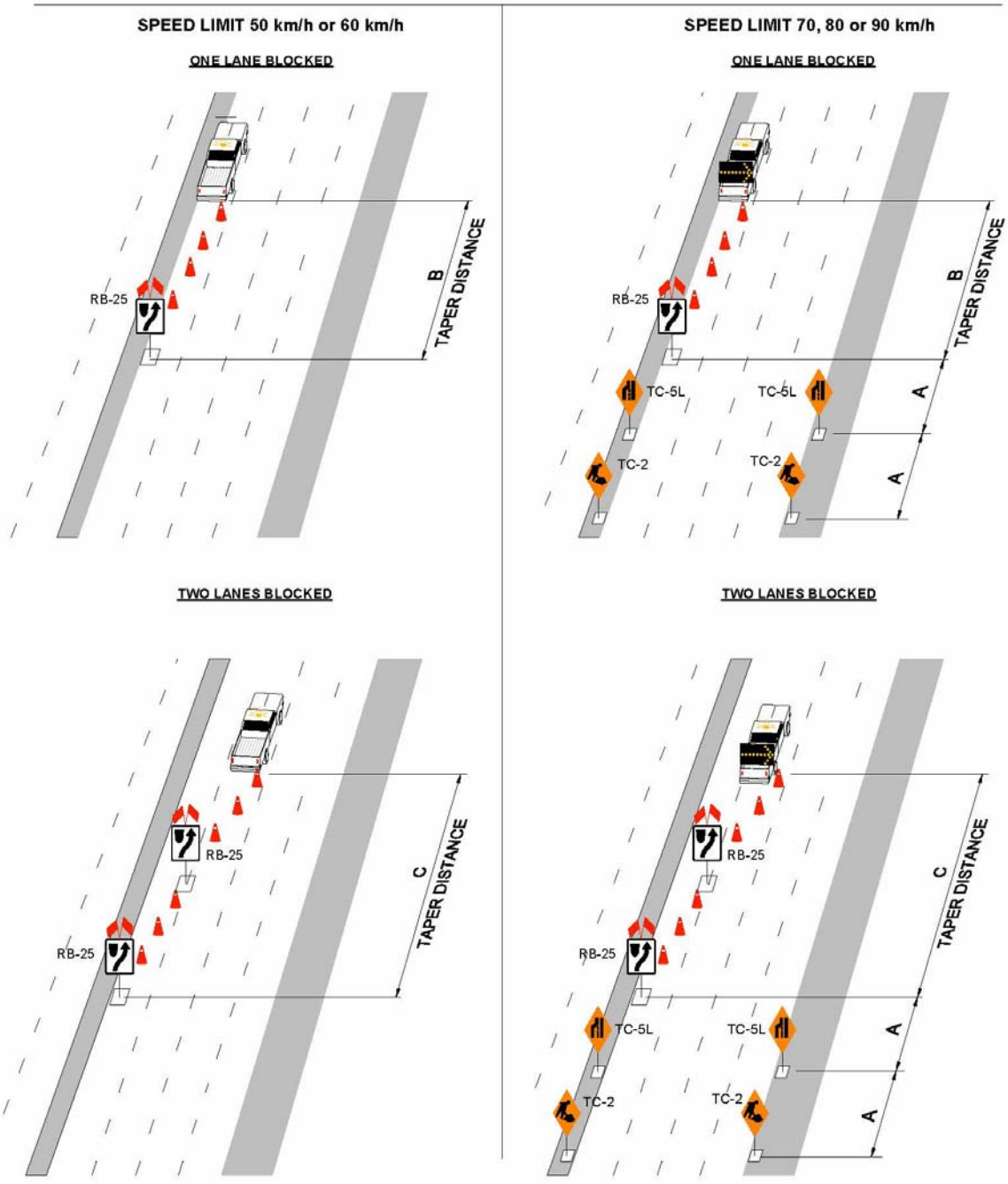
"A" Distance between temporary traffic control devices approaching the taper.

"B" Single lane taper distance.

"C" Two lane taper distance.

FIGURE 20

SHORT TERM BLOCKAGE OF MEDIAN LANE OR LANES



SHORT TERM BLOCKAGE OF CENTRE LANE OR LANES
(Figure 21)

Figure 21 depicts a typical situation where a centre lane, or lanes, of a highway is blocked for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and WD-17 (Double Arrow) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the work site.
5. For setups on vertical curves, the commencement of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
6. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
7. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
8. Warning flags shall be mounted above the WD-A17 traffic sign in each blocked lane.

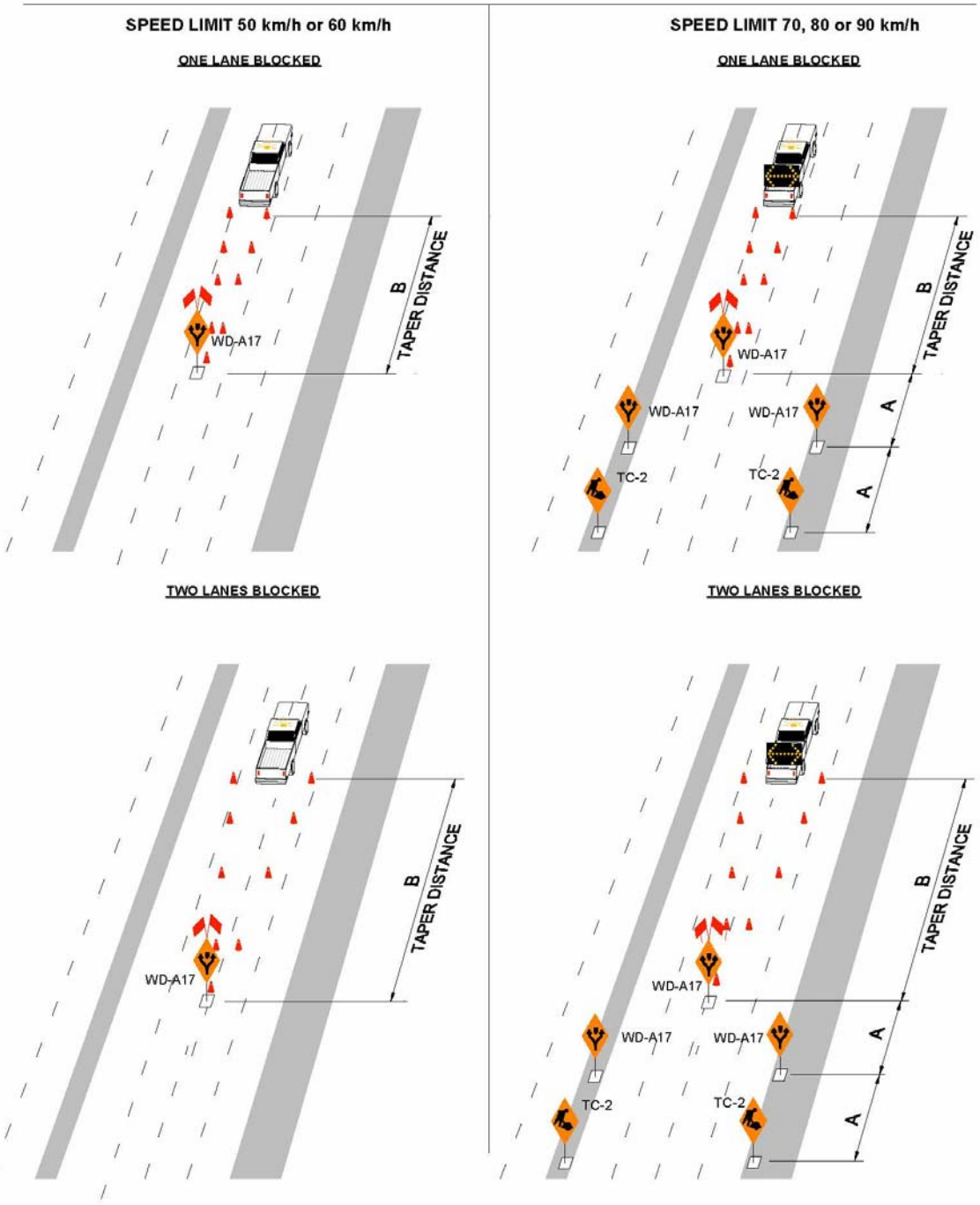
Distances A and B represented in Figure 21 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)
50	n.a.	50
60	n.a.	60
70+	100	100

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper length.

FIGURE 21

SHORT TERM BLOCKAGE OF CENTRE LANE OR LANES



SHORT TERM BLOCKAGE ON A HORIZONTAL CURVE

(Figure 22)

Figure 22 depicts a typical situation where a lane of a highway is blocked on a horizontal curve for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5 or WD-17 (Lane Closed Ahead or Double Arrow) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the worksite.
5. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
6. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
7. Warning flags shall be mounted above the RB-25 traffic sign in each blocked lane.

Distances A and B represented in Figure 22 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

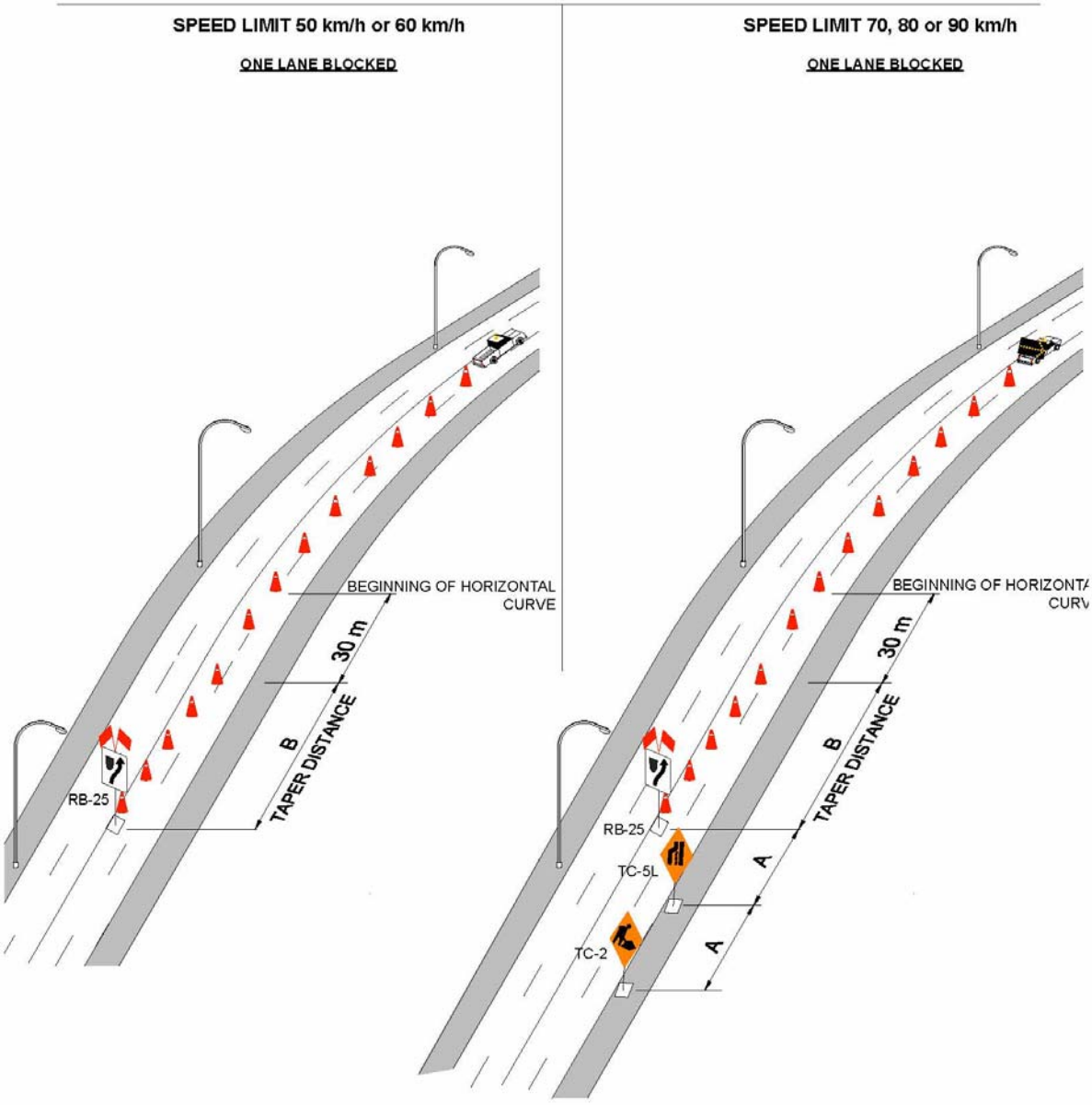
SPEED LIMIT (km/h)	"A" (m)	"B" (m)
50	n.a.	50
60	n.a.	60
70+	100	100

"A" Distance between temporary traffic control devices approaching the taper.

"B" Taper distance.

FIGURE 22

SHORT TERM BLOCKAGE ON A HORIZONTAL CURVE



SHORT TERM BLOCKAGE ON A VERTICAL CURVE
(Figure 23)

Figure 23 depicts a typical situation where a lane of a highway is blocked on a vertical curve for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5 or WD-17 (Lane Closed Ahead or Double Arrow) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The beginning of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
5. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
6. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
7. Warning flags shall be mounted above the RB-25L traffic sign in each blocked lane.

Distances A and B represented in Figure 23 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)
50	n.a.	50
60	n.a.	60
70+	100	100

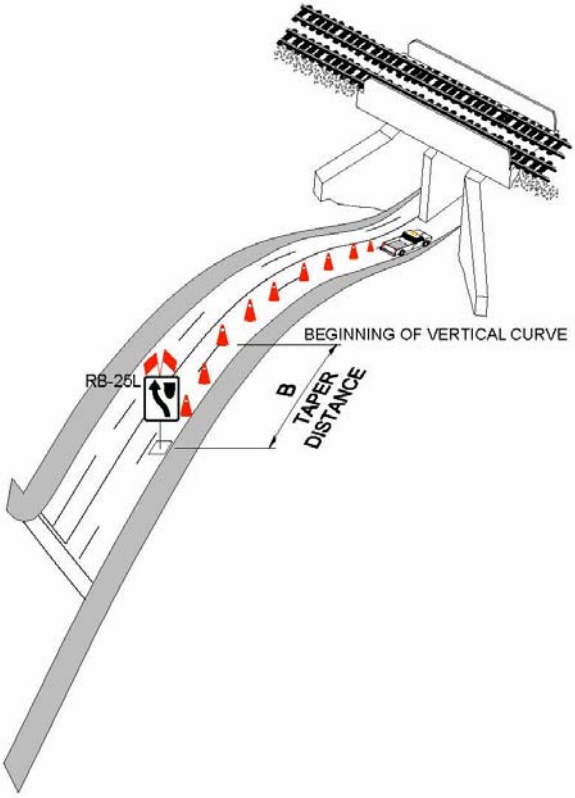
"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance.

FIGURE 23

SHORT TERM BLOCKAGE ON A VERTICAL CURVE

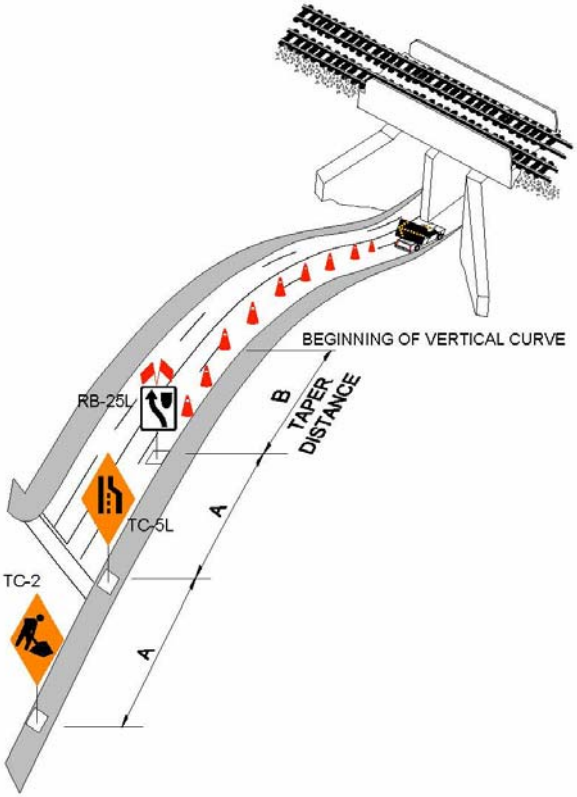
SPEED LIMIT 50 km/h or 60 km/h

ONE LANE BLOCKED



SPEED LIMIT 70, 80 or 90 km/h

ONE LANE BLOCKED



SHORT TERM BLOCKAGE OF A CURB LANE OR MEDIAN LANE ADJACENT TO AN INTERSECTION
(Figure 24)

Figure 24 depicts a typical situation where a curb or median lane adjacent to an intersection is blocked for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. Must be supplemented with advance warning signs TC-2 (Roadwork) and TC-5 (Lane Closed Ahead) when used on streets with a 70, 80 or 90 km/h posted speed limit. Use of a flashing or sequential arrow traffic control device is recommended on these higher speed streets.
4. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the worksite.
5. The beginning of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
6. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a require ment for work at night.
7. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
8. Warning flags shall be mounted above the RB-25 and RB-25L traffic sign in each blocked lane.

Distances A and B represented in Figure 24 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)
50	n.a.	50
60	n.a.	60
70+	100	100

"A" Distance between temporary traffic control devices approaching the taper.

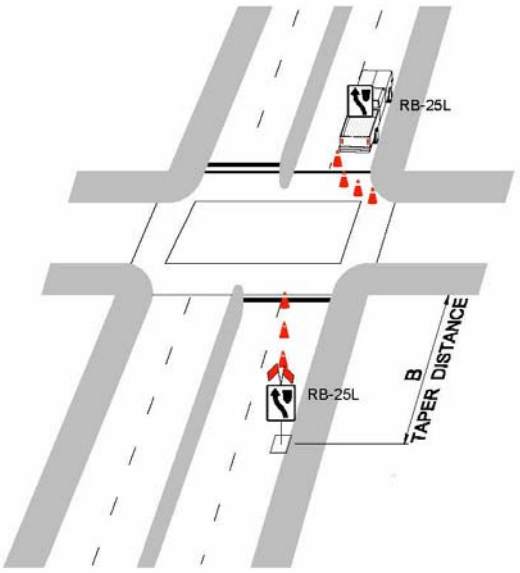
"B" Single lane taper distance.

FIGURE 24

SHORT TERM BLOCKAGE OF A CURB LANE OR MEDIAN LANE ADJACENT TO AN INTERSECTION

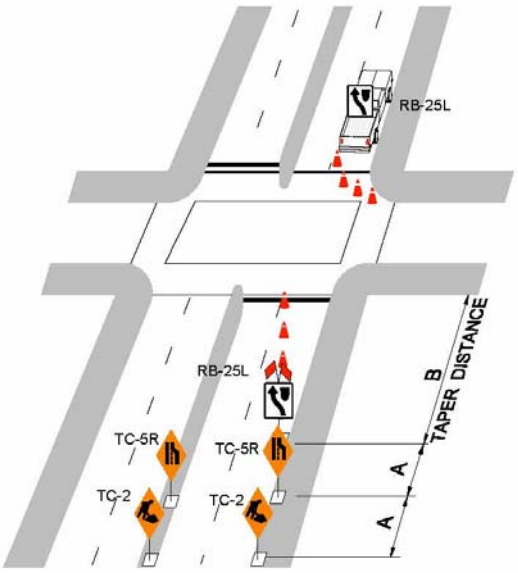
SPEED LIMIT 50 km/h or 60 km/h

CURB LANE BLOCKED

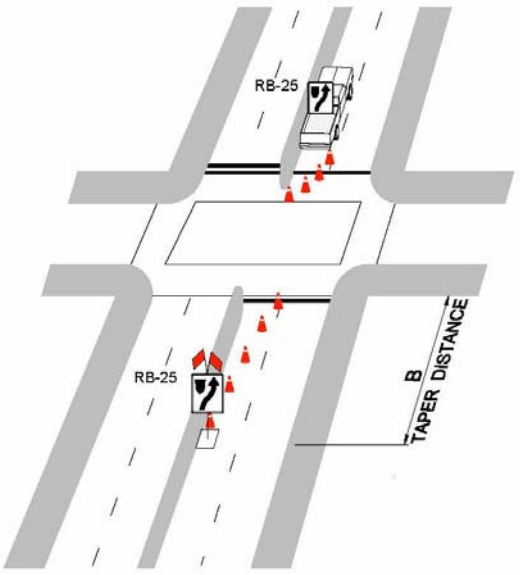


SPEED LIMIT 70, 80 or 90 km/h

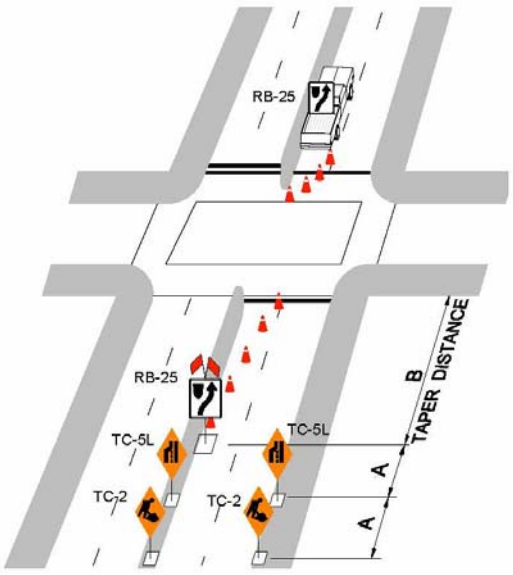
CURB LANE BLOCKED



MEDIAN LANE BLOCKED



MEDIAN LANE BLOCKED



SHORT TERM BLOCKAGE WITHIN AN INTERSECTION
EIGHT LANE DIVIDED AND SIX LANE DIVIDED HIGHWAY
(Figure 25)

Figure 25 depicts a short term partial blockage of an intersection of an eight lane divided highway and a six lane divided highway for a period longer than 30 minutes but less than two hours. The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed two hours duration.
2. No more than two lanes are closed at any one time and there must be at least one other traffic lane available for that direction of travel.
3. The blockage must be set up 30 m in advance of a horizontal curve and a line of cones extended around the horizontal curve to the worksite.
4. The beginning of the short term sign setup must occur on the level section of highway prior to the vertical curve and carry through to the worksite.
5. May not be used at night without written consent from the Traffic Management Branch (ph. 986-5640). Use of a flashing or sequential arrow traffic control device is a requirement for work at night.
6. The reflectorized cones shall be not less than 600 mm in height. Chevrons may be used in place of cones.
7. Warning flags shall be mounted above the WD-A17 and RB-25L traffic sign in each blocked lane.

Distances B and C represented in Figure 25 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

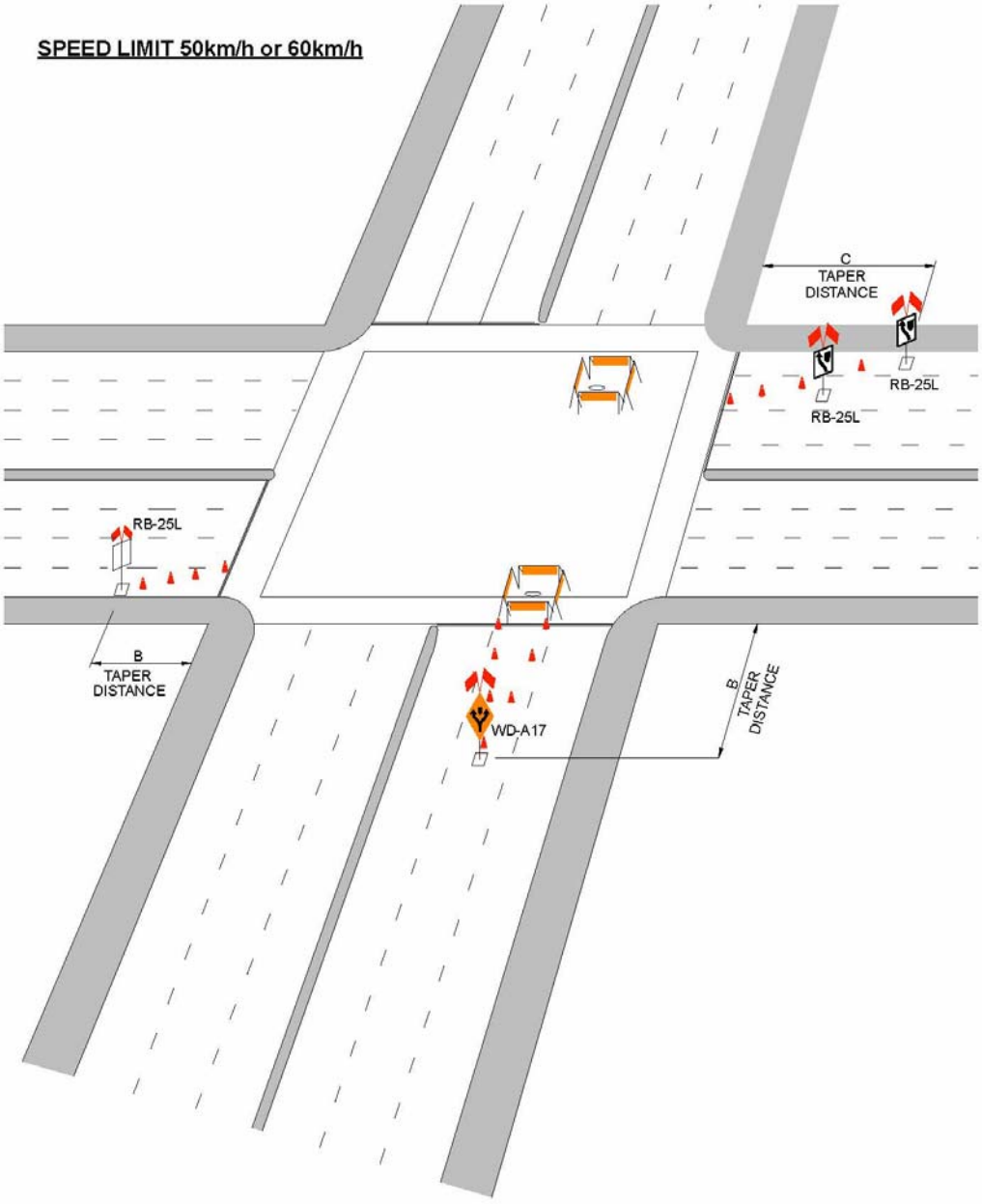
SPEED LIMIT (km/h)	"B" (m)	"C" (m)
50	50	100
60	60	120

"B" Single lane taper distance.

"C" Two lane taper distance.

FIGURE 25

SHORT TERM BLOCKAGE WITHIN AN INTERSECTION
EIGHT LANE DIVIDED AND SIX LANE DIVIDED HIGHWAY



MOBILE AND VERY SHORT DURATION WORKSITES
(Figure 26)

Figure 26 depicts vehicles suitably equipped to act as traffic control vehicles for mobile and very short duration worksites (worksites that move continuously or intermittently stopping at a fixed location for up to 30 minutes). The devices shall conform to the requirement of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. The blockage shall not exceed 30 minutes duration.
2. Only one lane is closed at any one time and there must be at least one other lane available for that direction of travel.
3. A buffer vehicle equipped with a flashing or sequential arrow traffic control device must be used where visibility of the worksite is limited by horizontal or vertical curves (example: bridges, overpasses or underpasses). The buffer vehicle should be located at the most visible location available. The table below provides guidance as to appropriate separation distances between the buffer vehicle and the worksite.

Speed Limit	50 km/h	60 km/h	70 km/h	80 km/h	90 km/h
Buffer Vehicle to Worksite Separation Distance ('A')	35 m	45 m	50 m	55 m	65 m

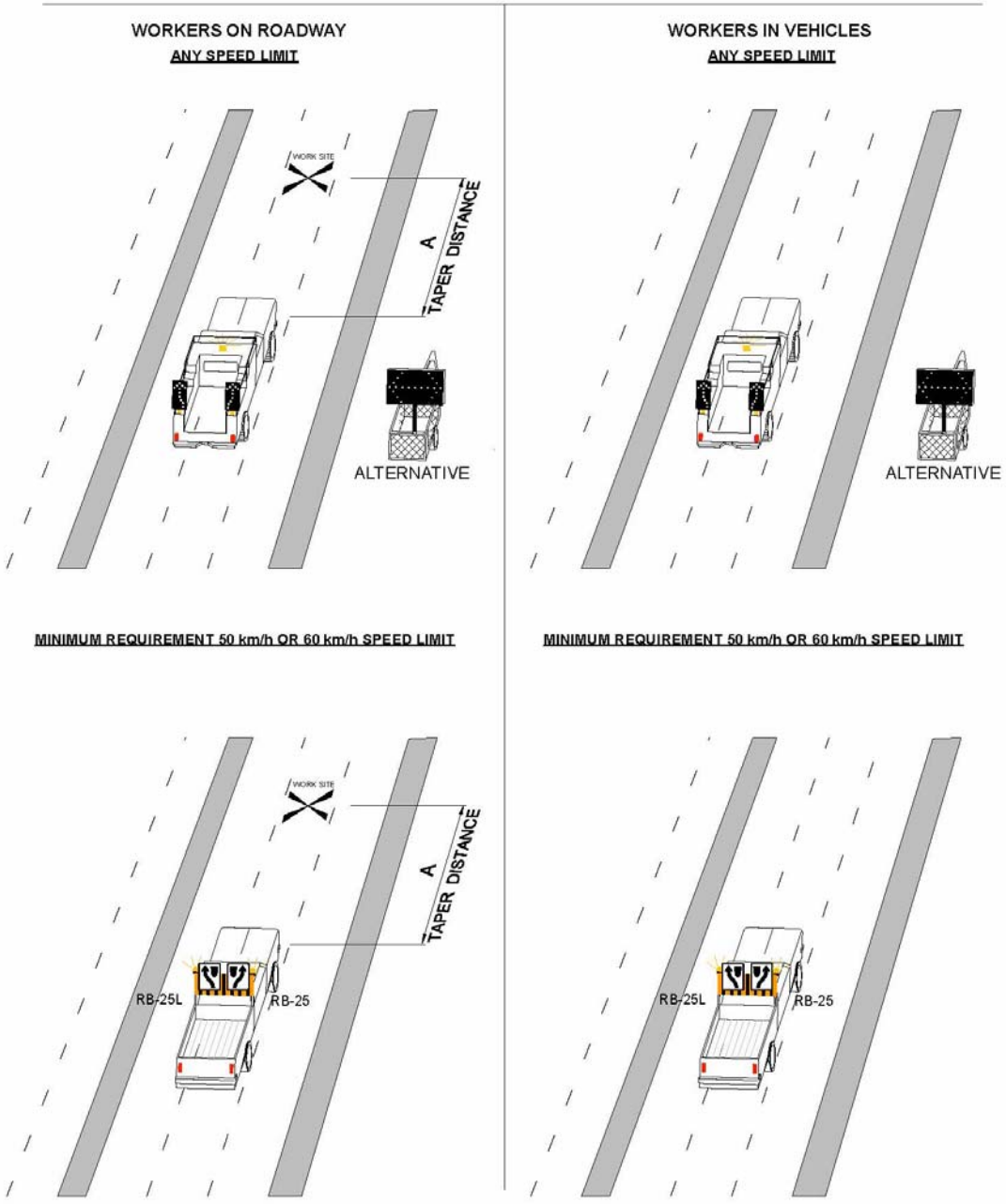
Refer to Section 3.01C for graphic illustrating above noted separation distances

4. On streets with a posted speed limit of 70, 80 or 90 km/h, a flashing or sequential arrow traffic control device is required.
5. A flashing or sequential arrow traffic control device is required at night.
6. The flashing or sequential arrow traffic control device must be turned off when traffic control is no longer required or when the vehicle is being moved from one work site to another.
7. Truck or trailer mounted impact attenuators (also known as crash cushions) are recommended for the first vehicle or trailer in a mobile or very short duration setup on a roadway with a posted speed limit of 70, 80 or 90 km/h.
8. The minimum requirement for streets with 50 km/h or 60 km/h speed limits are:

- Two flashing amber beacons at least 2.0 m from ground level.
- Orange and black reflectorized hazard panel with a minimum dimension of 2.0 m by 0.5 m at least 1.0 m from ground level.
- Two 600 mm x 750 mm reflectorized black on white "Keep Right" and/or "Keep Left" regulatory signs.
- Where it is possible to pass on the right, a "Keep Right" sign shall be used. Where it is possible to pass on the left, a "Keep Left" sign shall be used. Where it is possible to pass on either the right or the left, a "Keep Right" and a "Keep Left" sign shall be used. The "Keep Right" and/or "Keep Left" signs mounted on the vehicle must not be visible to motorists when not in use.

FIGURE 26

MOBILE AND VERY SHORT DURATION WORKSITES



CLOSURE OF HALF OF A TWO LANE TWO WAY UNDIVIDED HIGHWAY (Figure 27)

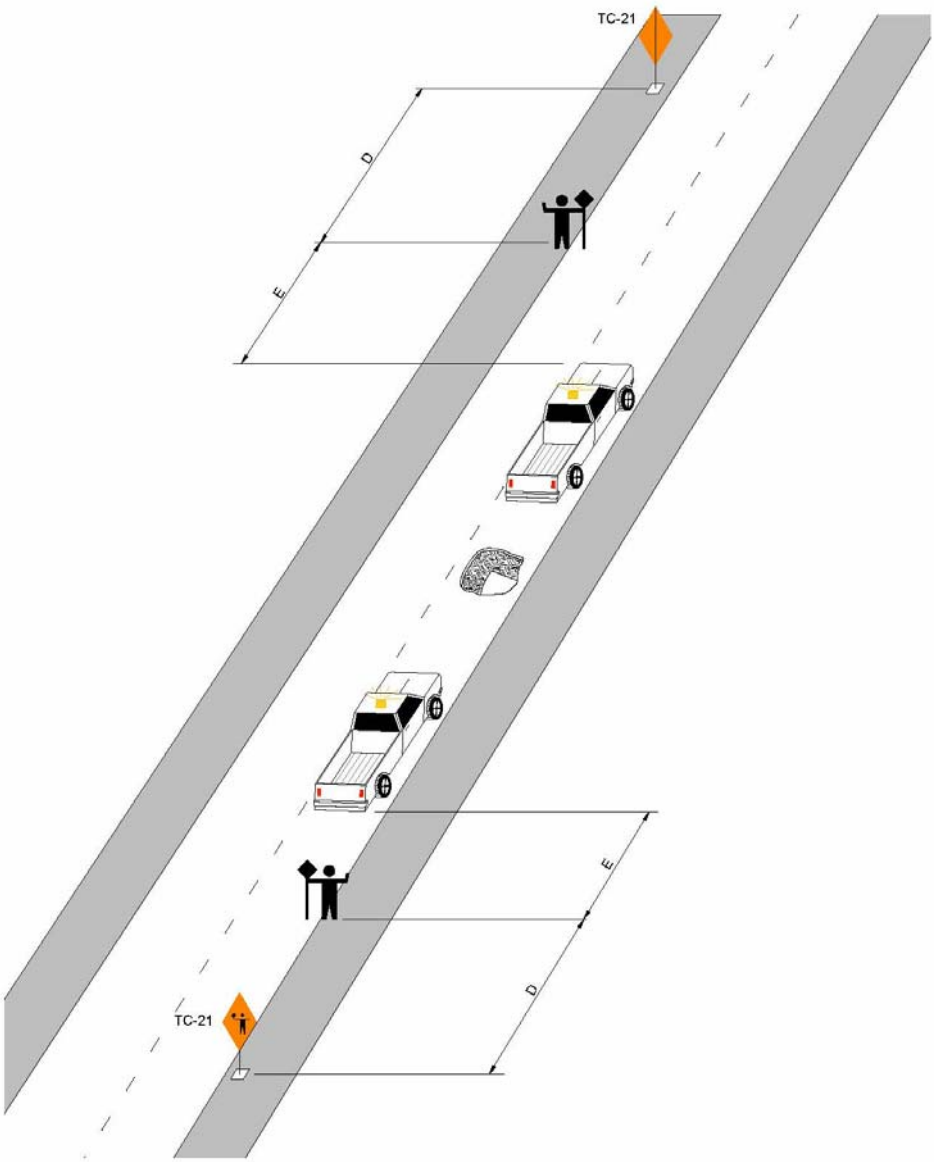
Figure 27 depicts the typical situation of a blockage of one direction on a two way highway so that only one lane remains open for two-way traffic. Under such circumstances, the Construction Agency is mandated to provide flagpersons. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices and flagpersons as indicated in Figure 27. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

Distances D and E represented in Figure 27 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"D" SIGNS IN ADVANCE OF FLAGPERSON (m)	"E" FLAGPERSONS IN ADVANCE OF WORK SITE (m)
50	90	50
60	90	50
70+	120	60

FIGURE 27

CLOSURE OF HALF OF A TWO LANE TWO WAY
UNDIVIDED HIGHWAY



CLOSURE OF A SIDEWALK
(DIVERSION)
(Figure 28)

Figure 28 depicts a typical situation of closure of a public sidewalk due to construction or repair, and shows temporary provision for pedestrians upon the roadway.
The use of the roadway for this purpose is permitted only if no alternative is available. The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 28. The devices shall conform to the requirements of Section 5.00, and shall be kept clean and in proper working order.

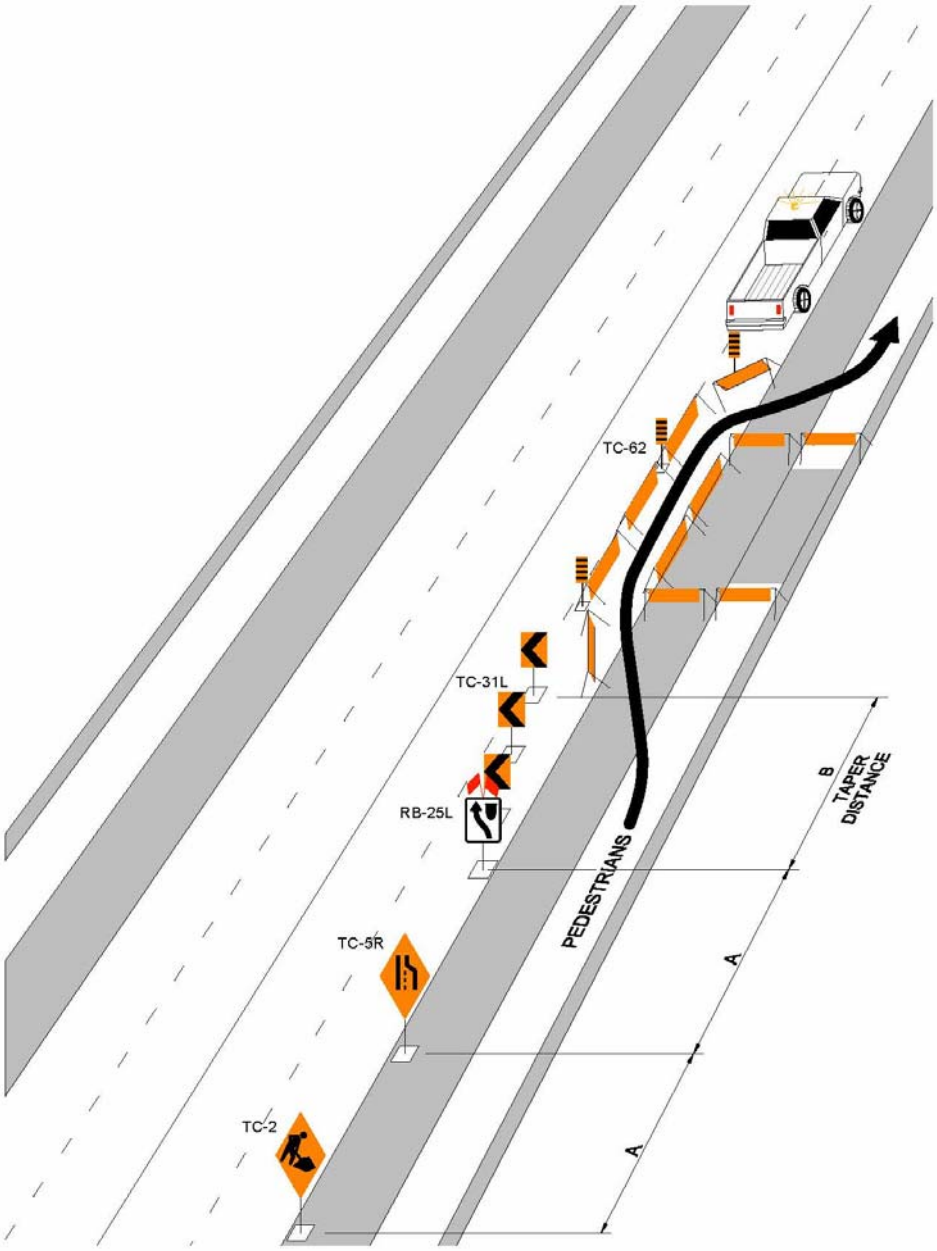
Distances A and B represented in Figure 28 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)	"B" (m)	APPROXIMATE SPACING BETWEEN PORTABLE SIGNS WITHIN A TAPER (m)
50	50	50	15
60	60	60	15
70+	100	100	30

"A" Distance between temporary traffic control devices approaching the taper.
"B" Taper distance

FIGURE 28

CLOSURE OF A SIDEWALK
(DIVERSION)



CLOSURE OF A SIDEWALK
(DETOUR)
(Figure 29)

Figure 29 depicts a typical sidewalk closure due to construction or repair. Pedestrians must detour. The devices shall conform to the requirements of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

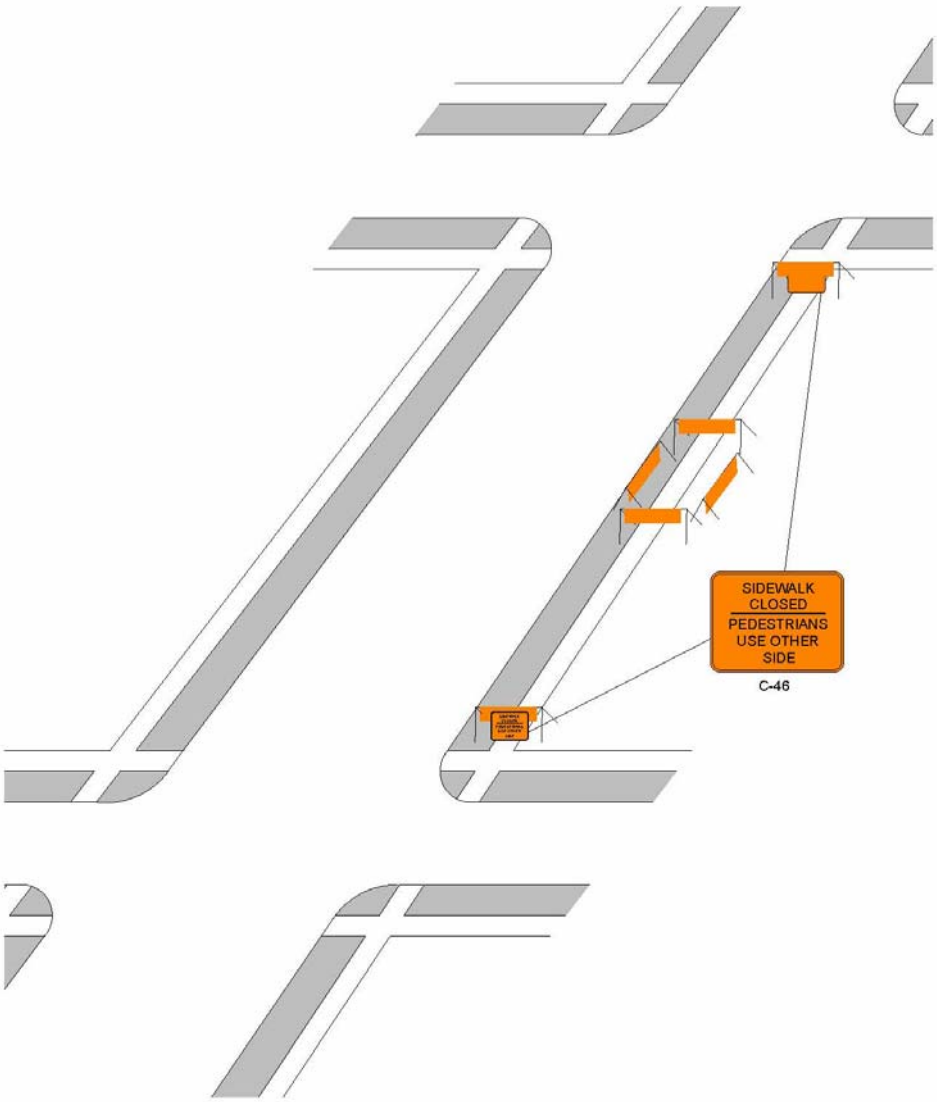
1. Barricades must be present at the worksite at all times.

2. Barricades must be placed in advance of the worksite at the nearest cross street in both approaching directions.

3. Signs indicating "Sidewalk Closed - Pedestrians Use Other Side" must be placed on the barricades that are placed in advance of the worksite.

FIGURE 29

CLOSURE OF A SIDEWALK
(DETOUR)



PARTIAL BLOCKAGE OF A SIDEWALK
(Figure 30)

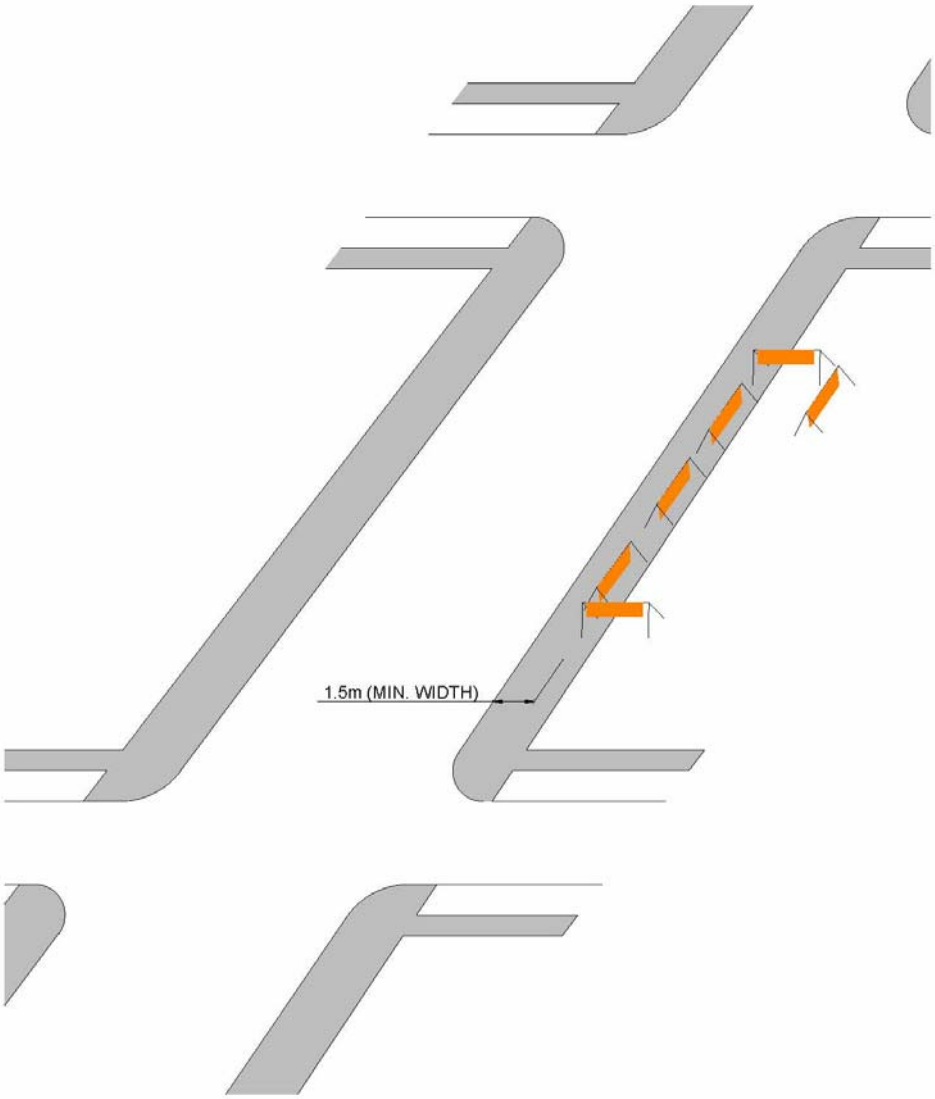
Figure 30 depicts a typical partial sidewalk blockage due to construction, repair or building maintenance. The devices shall conform to the requirements of Section 5.00 and shall be kept clean and in proper working order and the following conditions must prevail.

1. Barricades must be present at the worksite at all times.

2. A minimum width of 1.5 metres must remain unobstructed on the sidewalk for pedestrians such that an unobstructed pathway is free of any features that might endanger the unrestricted passage of pedestrians.

FIGURE 30

PARTIAL BLOCKAGE OF A SIDEWALK



MAINTENANCE OF GRANULAR SURFACE ROADWAYS
(Figure 31)

Figure 31 depicts a typical situation where maintenance is being carried out across the full width or any portion thereof of a granular surface (gravel) roadway. The Construction Agency shall place and maintain the devices as indicated in Figure 31. When the section of roadway upon which work is being carried out extends beyond 1000 metres, additional signs must be installed approximately 1000 metres from the beginning of the worksite, preferably far-side of any intersecting street for both directions of travel. Any section of roadway upon which work is being undertaken must be completed by the end of the workday. The devices shall conform to the requirements of Section 5.00 and shall be kept clean and in proper working order.

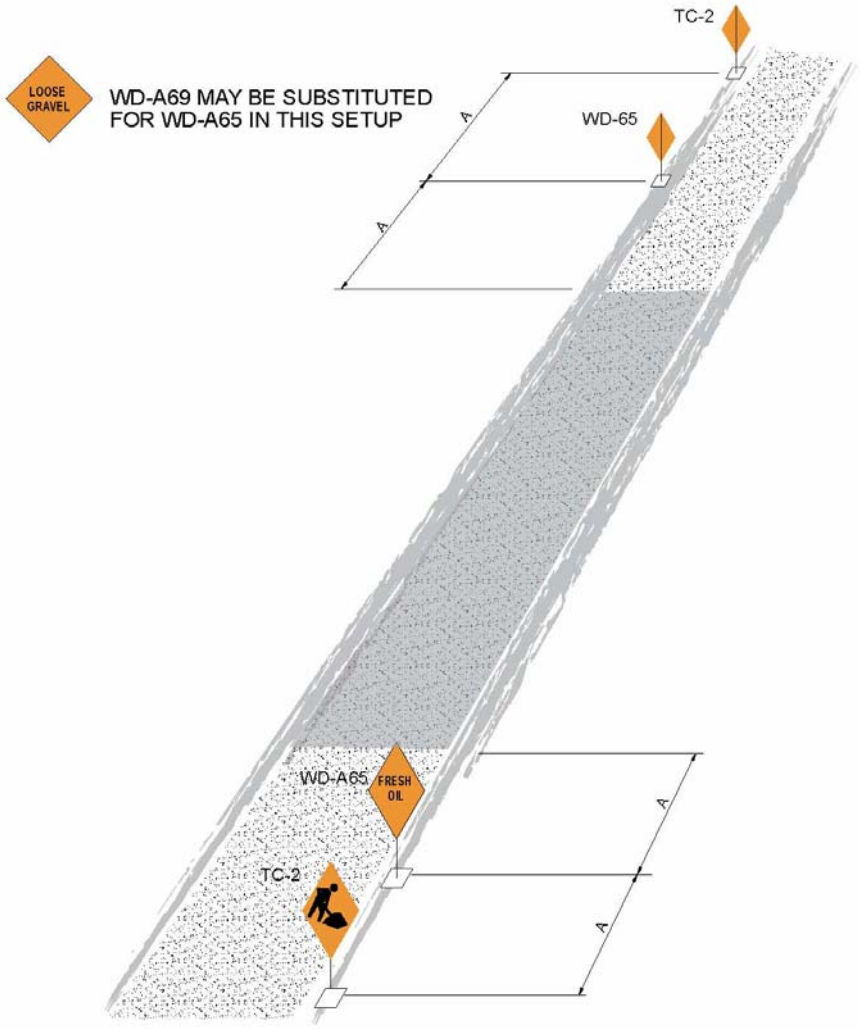
Distance A represented in Figure 31 shall be selected from the table below for the permanent posted speed limit on the highway at that point.

SPEED LIMIT (km/h)	"A" (m)
50	50
60	60
70+	100

"A" Distance between temporary traffic control devices.

FIGURE 31

MAINTENANCE OF GRANULAR SURFACE ROADWAYS

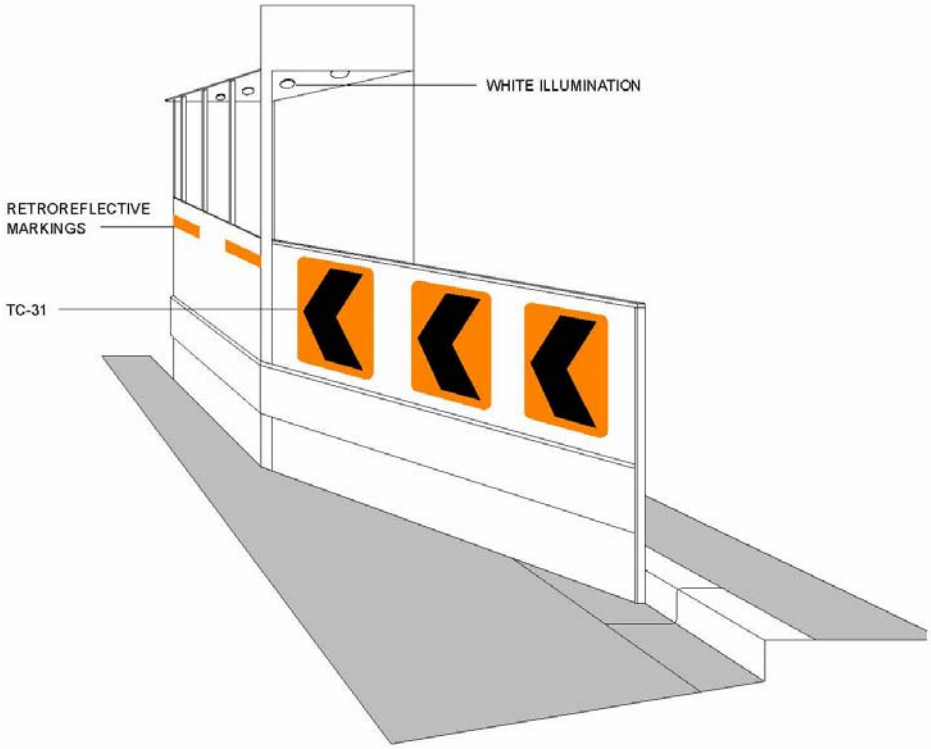


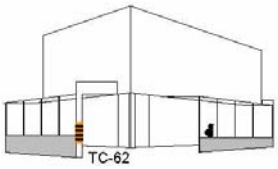
COVERED WALKWAYS
(Figure 32)

Figure 32 depicts a typical situation involving the closure of a public sidewalk due to construction or repair on adjacent private property, and its substitution with an adjacent temporary covered walkway. The necessary placements of white illumination within the covered walkway, and location of traffic control devices on the exterior of the covered walkway, are shown.The Construction Agency shall place and maintain on a 24 hour per day basis, the devices as indicated in Figure 32. The devices shall be kept clean and in proper working order. Refer to Manitoba Regulation 217/2006 for the covered walkway requirements in Manitoba, including on rights-of- way in The City of Winnipeg, as well as general duties related to safe work procedures. Note that a Use of Street Permit is required for a covered walkway within the right-of-way.

FIGURE 32

COVERED WALKWAY ON ROADWAY





NOTE:
INSTALL ADVANCE SIGNING AS SPECIFIED IN FIGURE 28
IN CONJUNCTION WITH COVERED WALKWAY ON THE ROADWAY

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Appendix

List of Regional Streets

(April 2010)

STREET	FROM	TO
Academy Road	Maryland Bridge	Kenaston Boulevard
Alexander Avenue	Main Street	Princess Street
Archibald rue	CPR Keewatin Subdivision	Fermor Avenue
Arlington Street	Portage Avenue	Inkster Boulevard
Arlington Street Bridge		
Balmoral Street	Notre Dame Avenue	Ellice Avenue
Bishop Grandin Blvd.	Waverley Street	Lagimodiere Blvd.
Bison Drive	Waverley Street	Pembina Highway
Broadway	Portage Avenue	Main Street
Brookside Boulevard	Mollard Road	Oak Point Highway
Carlton Street	Notre Dame Avenue	Broadway
Century Street	St. James Bridge	Dublin Avenue
Century Street/Portage Avenue Interchange		
Chancellor Matheson Road	Pembina Highway	University Crescent
Chancellor Drive	Pembina Highway	A point 100 m west
Chief Peguis Trail	Main Street	Henderson Highway
Colony Street	Portage Avenue	Ellice Avenue
Colony Street	St. Mary Avenue	York Avenue
Concordia Avenue	Gateway Road	Lagimodiere Blvd.
Concordia Overpass		
Cornish Avenue	Maryland Street	Sherbrook Street
Corydon Avenue	Donald Street	Roblin Boulevard
Cumberland Avenue	Maryland Street	Donald Street

Dakota Street	St. Mary's Road	Aldgate Road
Des Meurons rue	Provencher Boulevard	Marion Street
Day Street	Pandora Avenue	Regent Ave West
Disraeli Bridge and Overpass		
Disraeli Freeway	Main Street	Disraeli Bridge
Disraeli Freeway Interchange		
Disraeli Street	Sutherland Avenue	Rover Avenue
Donald Street	Notre Dame Avenue	McMillan Avenue
Dublin Avenue	Notre Dame Avenue	King Edward St.
Dublin Avenue Crossing of Omand's Creek		
Dufferin Avenue	Salter Street	McGregor Street
Dugald Road	Lagimodiere Boulevard	P.T.H. 101
Dugald Road Overpass of the CNR Line West of Terracon Place		
Dunkirk Drive	St. Vital Bridge	St. Mary's Road
Dunkirk Drive/Kingston Row/ Churchill Drive Interchange		
Eastway	Empress Street	Empress St. East
Edmonton Street	Broadway	Portage Avenue
Edmonton Street	Ellice Avenue	Cumberland Ave.
Ellice Avenue	Notre Dame Avenue	Ferry Road
Empress Street East	Doreen Street	Rapelje Avenue
Empress Street	Portage Avenue	Wellington Ave.
Empress Street Overpass		
Erin Street	Notre Dame Avenue	Portage Avenue
Fermor Avenue	Dunkirk Drive	Plessis Road
Fermor Avenue Crossing of Seine River		
Ferry Road	Portage Avenue	Ellice Avenue
Fort Street	Broadway	Portage Avenue
Fort Garry Bridges		
Garry Street	Broadway	Ellice Avenue
Gateway Road	Munroe Avenue	Concordia Avenue
Gladstone Street	Sutherland Avenue	Disraeli Street
Goulet Street	St. Mary's Road	Youville Street
Graham Avenue	Vaughan Street	Main Street
Grant Avenue	Pembina Highway	Roblin Boulevard
Grassie Boulevard	Lagimodiere Boulevard	Plessis Road

Hargrave Street	Broadway	Notre Dame Avenue
Harkness Avenue	Stradbrook Avenue	Mayfair Avenue
Henderson Highway	Disraeli Bridge	Glenway Avenue
Henderson Highway/ Talbot Avenue Interchange		
Hespler Avenue	Redwood Bridge	Henderson Highway
Higgins Avenue	Princess Street	Louise Bridge
Inkster Boulevard	Main Street	Brookside Boulevard
Isabel Street	Notre Dame Avenue	Logan Avenue
James Avenue	King Street	Main Street
Johnson Avenue	Henderson Highway	Levis Street
Jubilee Avenue	Osborne Street	Pembina Highway
Jubilee Overpass of Pembina Highway		
Keewatin Street	Notre Dame Avenue	Old Commonwealth Path
Kenaston Boulevard	Scurfield Boulevard	St. James Bridge
Kenaston Boulevard/ St. James Bridge Interchange		
Kennedy Street	Cumberland Avenue	Ellice Avenue
Kennedy Street	Portage Avenue	Broadway
Kildonan Settlers Bridge		
King Street	Smith Street	Higgins Avenue
King Edward Street E.	St. Matthews Avenue	King Edward Street
King Edward Street	King Edward Street E.	Oak Point Highway
King Edward Street Crossing of Omand's Creek		
Kintyre Street	St. James Bridge	Portage Avenue
Lagimodiere Blvd.	John Bruce Road	North City Limit
Lagimodiere Boulevard/ Concordia Avenue Interchange		
Lagimodiere Blvd. Overpass of CNR Reddit Subdivision		
Leila Avenue	Agnes Arnold Place	Main Street
Levis Street	Johnson Avenue	Watt Street
Levis Street	Nairn Avenue	Talbot Avenue
Logan Avenue	Disraeli Freeway	King Edward Street
Louise Bridge		

McGillivray Blvd.	Pembina Highway	Southwest City Limit
McGregor Street	Dufferin Avenue	Templeton Avenue
McMillan Avenue	Donald Street	Osborne Street
McPhillips Street	Notre Dame Avenue	North City Limit
Main Street	Assiniboine River	North City Limit
Main/Norwood Bridges		
Marion Street	St. Mary's Road	Lagimodiere Blvd.
Maryland Bridges		
Maryland Street	Notre Dame Avenue	Maryland Bridge
Mayfair Avenue	Harkness Avenue	Queen Elizabeth Way
Memorial Boulevard	York Avenue	Portage Avenue
Midtown Bridge		
Midwinter Avenue	Henderson Highway	Stadacona Street
Mission Street	Plinguet Street	Panet Road
Mountain Avenue	Main Street	McPhillips Street
Moray Street	North Bank of the Assiniboine River	Ness Avenue
Munroe Avenue	Henderson Highway	Gateway Road
Nairn Avenue	Stadacona Street	Panet Road
Nairn Overpass		
Ness Avenue	Sturgeon Road	St. James Street
Notre Dame Avenue	Portage Avenue	King Edward Street
Oak Point Highway	King Edward Street	Brookside Boulevard
Osborne Bridge		
Osborne Street	St. Mary Avenue	St. Vital Bridge
Pandora Avenue E.	Day Street	Ravenhurst Street
Partridge Avenue	Leila Avenue	Main Street
Pembina Highway	Osborne Street	South City Limit
Pembina Highway/ Bishop Grandin Blvd. Interchange		
Pembina Highway Crossing of La Salle River		
Pembina Highway/Jubilee Avenue Interchange		
Pioneer Avenue	Main Street	Provencher Bridge
Plessis Road	P.T.H. 1 East	Grassie Boulevard
Portage Avenue	Main Street	St. Charles Street
Portage Avenue Crossing of Omand's Creek		
Portage Avenue Crossing of Sturgeon Creek		
Portage Avenue East	Westbrook Street	Main Street
Prairie Grove Road	St. Anne's Road	P.T.H. 59

Princess Street	Notre Dame Avenue	Higgins Avenue
Provencher Blvd.	Archibald rue	Provencher Bridge
Provencher Boulevard Crossing of Seine River		
Provencher Bridge		
Queen Elizabeth Way	Assiniboine River	Red River
Queen Street	Portage Avenue	Century Street Ramp
Ravenhurst Street	Pandora Avenue E.	Dugald Road
Redwood Avenue	Salter Street	Redwood Bridge
Redwood Bridge		
Regent Avenue	Panet Road	Day Street
River Avenue	Harkness Avenue	Wellington Crescent
River Road	St. Vital Road	St. Mary's Road
Riverton Avenue	Henderson Highway	Midwinter Avenue
Roblin Boulevard	Corydon Avenue	P.T.H. 100
Route 90/165 Ext.	Scurfield Boulevard	Waverley Street
St. Anne's Road	St. Mary's Road	Forbes Road
St. James Bridges and Interchange		
St. James Street	Portage Avenue	Notre Dame Avenue
St. John Ambulance Way	Portage Avenue	Empress Street East
St. Mary Avenue	Main Street	Spence Street
St. Mary's Road	Red River	Red River Floodway
St. Vital Bridges		
Salter Street	Logan Avenue	Leila Avenue
Sargent Avenue	Ferry Road	Edmonton Street
Saskatchewan Avenue	P.T.H. 101	Sturgeon Road
Selkirk Avenue	McPhillips Street	Main Street
Shaftesbury Blvd.	Wilkes Avenue	Corydon Avenue
Sherbrook Street	Maryland Bridge	Logan Avenue
Silver Avenue	Sturgeon Road	Hamilton Avenue
Silver Avenue	Century Street	St. James Street
Slaw Rebchuck Bridge		
Smith Street	Midtown Bridge	Notre Dame Avenue
Spence Street	St. Mary Avenue	Portage Avenue
Springfield Road	Henderson Highway	Lagimodiere Blvd.
Stadacona Street	Louise Bridge	Talbot Avenue
Stafford Street	Pembina Highway	Academy Road
Sterling Lyon Parkway	Wilkes Avenue	McCreary Road/ Shaftesbury Boulevard
Stradbrook Avenue	Wellington Crescent	Queen Elizabeth Way
Sturgeon Road	Portage Avenue	North City Limit
Sturgeon Road Crossing of Sturgeon Creek		

Tache Avenue	St. Mary's Road	Provencher Boulevard
Talbot Avenue	Riverton Avenue	Stadacona Street
Taylor Avenue	Pembina Highway	Kenaston Boulevard
Tim Sale Drive	Waverley Street	Waverley Street
Tuxedo Avenue	Kenaston Boulevard	Corydon Avenue
University Crescent	Pembina Highway	Chancellor Matheson Road
Vaughan Street	York Avenue	Ellice Avenue
Wall Street	Portage Avenue	Notre Dame Avenue
Warde Avenue	St. Mary's Road	St. Anne's Road
Waterfront Drive	Pioneer Avenue	York Avenue
Watt Street	CPR Keewatin Subdivision	Munroe Avenue
Waverley Street	Grant Avenue	Tim Sale Drive/Pine Road
	Hills	
Waverley Street	Grant Avenue	P.T.H. 100
Wellington Avenue	Winnipeg International Airport	Empress Street
Wellington Crescent	Academy Road	River Avenue
Westbrook Street	Water Avenue	Portage Avenue E.
Weston Street	Notre Dame Avenue	Logan Avenue
Westway	Empress Street	Empress Street E.
Wilkes Avenue	Waverley Street	Sterling Lyon Parkway
Wilkes Avenue	McCreary Road/Shaftesbury Boulevard	Provincial Trunk Highway No. 100
William Avenue	Main Street	McPhillips Street
William R. Clement Parkway	North Bank of the Assiniboine River	Grant Avenue
William Stephenson Way	Main Street	Provencher Bridge
York Avenue	Colony Street	Waterfront Drive
Youville Street	Goulet Street	Marion Street

Appendix B

THE CITY OF WINNIPEG

BY-LAW NO.

A By-law of THE CITY OF WINNIPEG to amend the Traffic By-law

THE CITY OF WINNIPEG, in Council assembled, enacts as follows:

1 *The City of Winnipeg Traffic By-law No. 1573/77 is amended by this By-law.*

2 *Subsection 2(2) is amended by adding the following definition in alphabetical order:*

"Manual of Temporary Traffic Control" means the Manual of Temporary Traffic Control in Work Areas on City Streets approved by the Council of the City of Winnipeg from time to time and, unless otherwise specified, refers to the most recently approved edition.

3 *Subsection 16(1) is repealed.*

4 *Subsection 16(2) is amended by striking out* "Manual of Temporary Traffic Control in Work Areas on City Streets, 2008 Edition" *and substituting* "Manual of Temporary Traffic Control".

DONE AND PASSED, this day of , 2011.

_____
Mayor

_____
City Clerk

Approved as to content:

_____
Director of Public Works

Approved as to form:

_____
For Director of Legal Services and City Solicitor