Saskatchewan
Ministry of
Highways and
Infrastructure

Traffic Control Device Manual For Work Zones

Typical Traffic Control Plans

The fundamental purpose of the manual to provide for the safe travel of motorists through work zones and to safeguard the workers. Everyone performing work on a highway has a responsibility to design, install and maintain traffic accommodation to achieve a high level of safety.

Work zones have a higher potential for traffic accidents because motorists may encounter unexpected situations. Highway workers are also at great risk as they carry out their duties on the roadway. The changing situations of highway work areas require special attention to standards and sound judgement.

This manual is intended for use by all ministry employees, contractors and others who are involved with maintenance and construction of provincial highways.

_____ _____

Deputy Minister

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TYPICAL PLANS

Subject: INTRODUCTION

TYPICAL PLANS

This section of the manual contains a number of typical plans, Sections 9-00 and 10-00 are general plans that may be adopted if a specific plan is not available or is inappropriate for the location or conditions. Sections 11-00 - 16-00 inclusive are site specific plans and should always be considered first when developing a traffic accommodation plan.

Any of the traffic accommodation plans are to be considered as guidelines and additional signs, devices and/or flagpersons may be required to take into consideration such factors as horizontal alignment, vertical alignment, unusual hazards and traffic volumes.

MINIMUM REQUIREMENTS

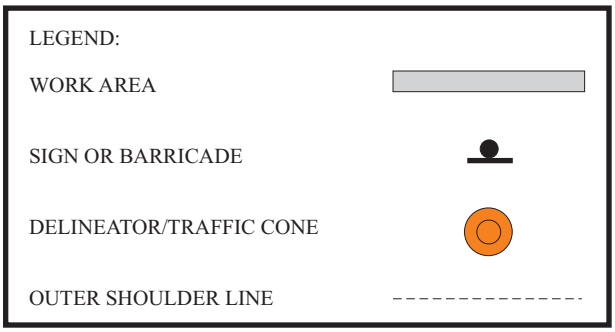
Every employee who may have reason to stop on the shoulder or roadway will have as a minimum a vehicle flashing light

OPERATION

When the work zone is inactive, including nights, weekends and holidays, signs not required for the accommodation of traffic will be removed or covered. All traffic control devices will be removed or covered immediately after they are no longer applicable.

LEGEND

The following legend pertains to all the typical Traffic Accommodation Plans.



"brief duration work"	Foreseen, planned road work that is carried out near an accompanying work vehicle, in conformity with a typical plan or: Unforeseen, unplanned road work that is carried out in conjunction with a vehicle equipped with a rotating/flashing amber light or flashing light board.
"fast moving work"	Crews often carry out certain fast moving operations on a two lane roadway which require short duration stops. This does not include slow moving mobile operations. The work vehicle stops on an intermittent basis to carry out these activities. Examples of fast moving work activities are the Friday field inspection of all highways performed by maintenance crews in their respective sections. Note: Any planned stops require as a minimum short duration traffic accommodation. For unplanned activity the work vehicle is equipped with a flashing light board operating in the flashing bar mode, or a rotating/flashing amber light as a replacement for normal signing due to the work site changing on a continuous basis.
"moving operations"	Roadwork performed using a vehicle moving up to 20 km/h for slow moving operations, or greater than 20 km/h for fast moving operations. The work area will be affected for a short duration of time and will then be returned to its original state. An example of a moving operation is paving.
"short duration work"	Short duration work includes any daytime maintenance activity, construction project, utility work, preliminary survey work, pavement marking or other miscellaneous highway activity planned for one day or less. When road work spans several days and normal traffic is restored at the end of each day, short duration work signing is installed each day.

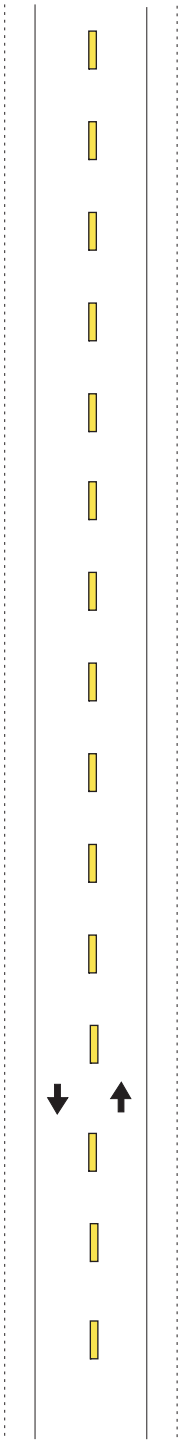
"stationary operation"	Any operation on the roadway where the surface is affected for several hours and the work is completed on a section basis rather than a continuous basis. Examples of this type of operation would be base surfacing where windrows are present on the road surface or the laying of the material is occurring.
"Long duration"	Long duration work includes all construction, maintenance and utility activities which require a work area for a period of time greater than one day. Typical Plans 10-02 to 10-13 inclusive present typical traffic accommodation plans for the most common types of long duration work.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

DEFINITION

Long duration work includes all construction, maintenance and utility activities which require a work area for a period of time greater than one day. Typical Plans10-02 to 10-13 inclusive present typical traffic accommodation plans for the most common types of long duration work.

TYPICAL PLAN



CONSTRUCTION LIMIT

2 km MINIMUM
TO
3 km MAXIMUM

CS-21

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. MAJOR CONSTRUCTION PROJECTS ARE THOSE PROJECTS THAT HAVE A VALUE GREATER THAN $3,000,000.
2. CORRESPONDING COURTESY SIGNS WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK

TYPICAL PLANS

Subject: TWO LANE HIGHWAY
BOTH LANES UNDER CONSTRUCTION
AADT ≤ 200

TYPICAL PLAN

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NOTES:

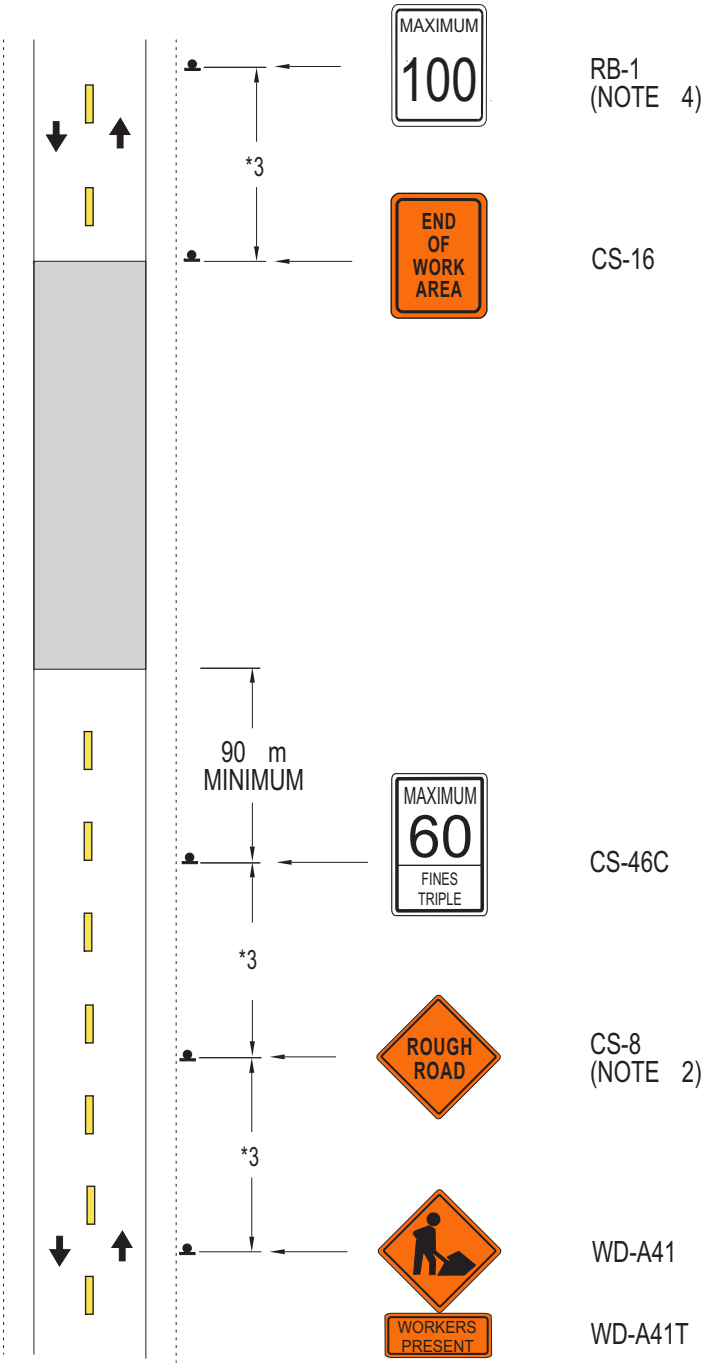
1. CORRESPONDING TRAFFIC CONTROL DEVICES WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.

2. THE FOLLOWING SIGNS MAY BE USED IN PLACE OF THE ROUGH ROAD SIGN:

BE PREPARED TO STOP	CS-5
FRESH OIL	CS-7
LOOSE GRAVEL	CS-9
LOOSE STONES	CS-28
PAVEMENT ENDS	WD-25

3. REFER TO 10-03-02 WHEN VISIBILITY IS IMPEDED.

4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.



TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK

TYPICAL PLANS

Subject: TWO LANE HIGHWAY
BOTH LANES UNDER CONSTRUCTION
AADT > 200

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FRESH OIL	CS-7
LOOSE GRAVEL	CS-9
LOOSE STONES	CS-28
PAVEMENT ENDS	WD-A25

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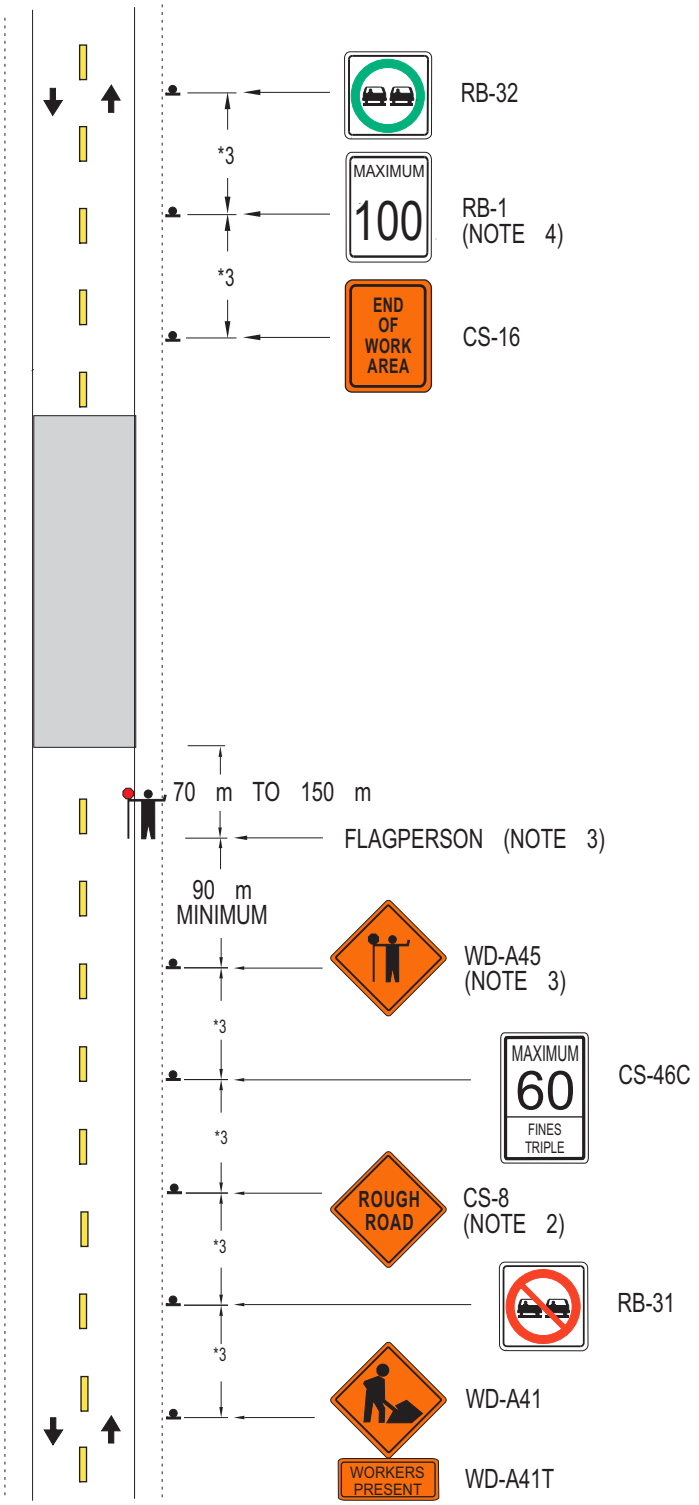

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: TWO LANE HIGHWAY
ONE LANE CLOSED
STATIONARY OPERATION

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
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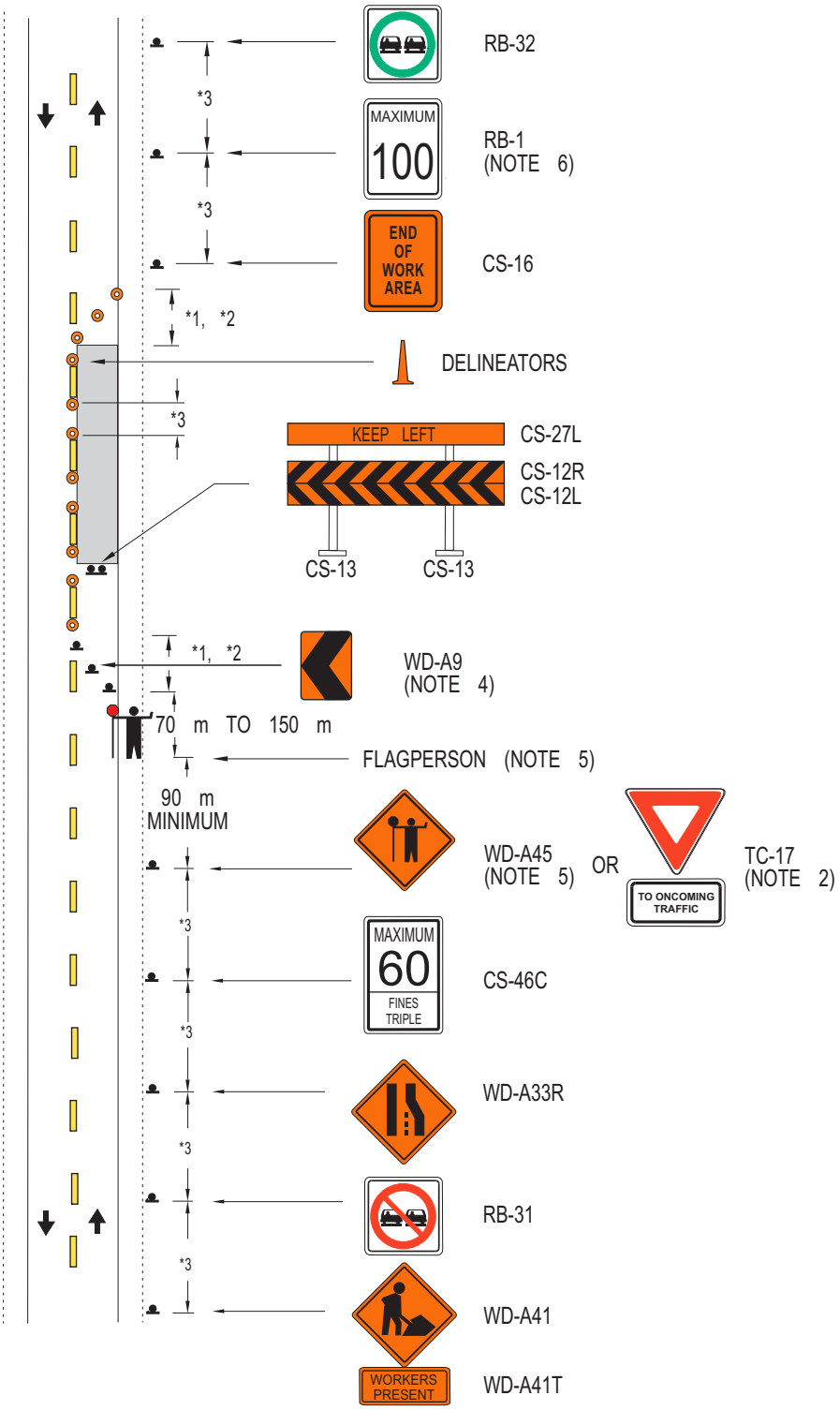
NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES EXCEPT WD-A33 WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. TC-17 WILL BE USED WHEN NO FLAGPERSON ON DUTY.
3. FLASHING LIGHT BOARDS SHOULD BE CONSIDERED ON HIGH VOLUME HIGHWAYS.
4. WD-A9 MAY BE REPLACED WITH DELINEATORS IN DAYTIME ONLY.
5. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO SE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.
6. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.



TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLAN

Subject: TWO LANE HIGHWAY
ONE LANE CLOSED
MOVING OPERATION

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
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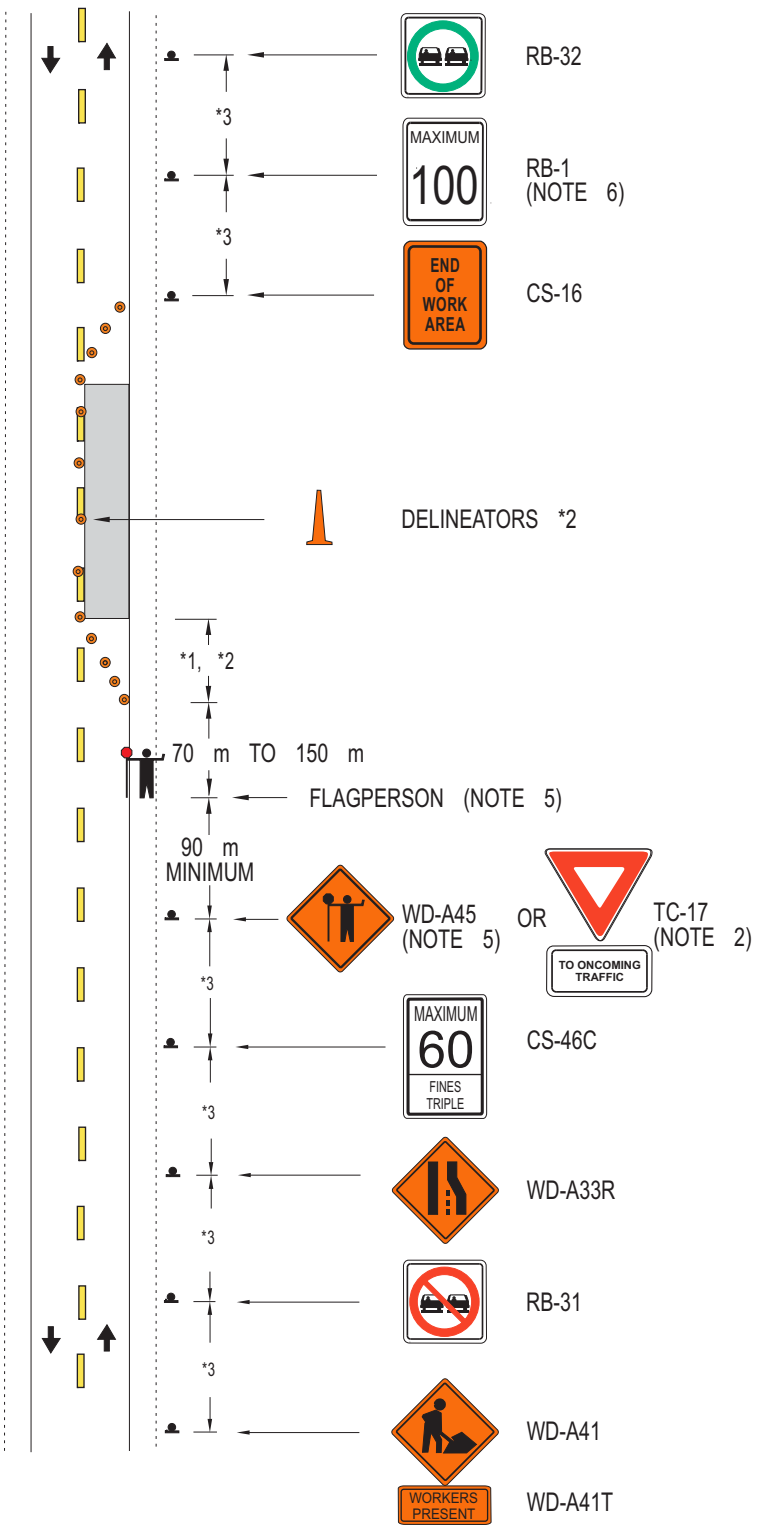
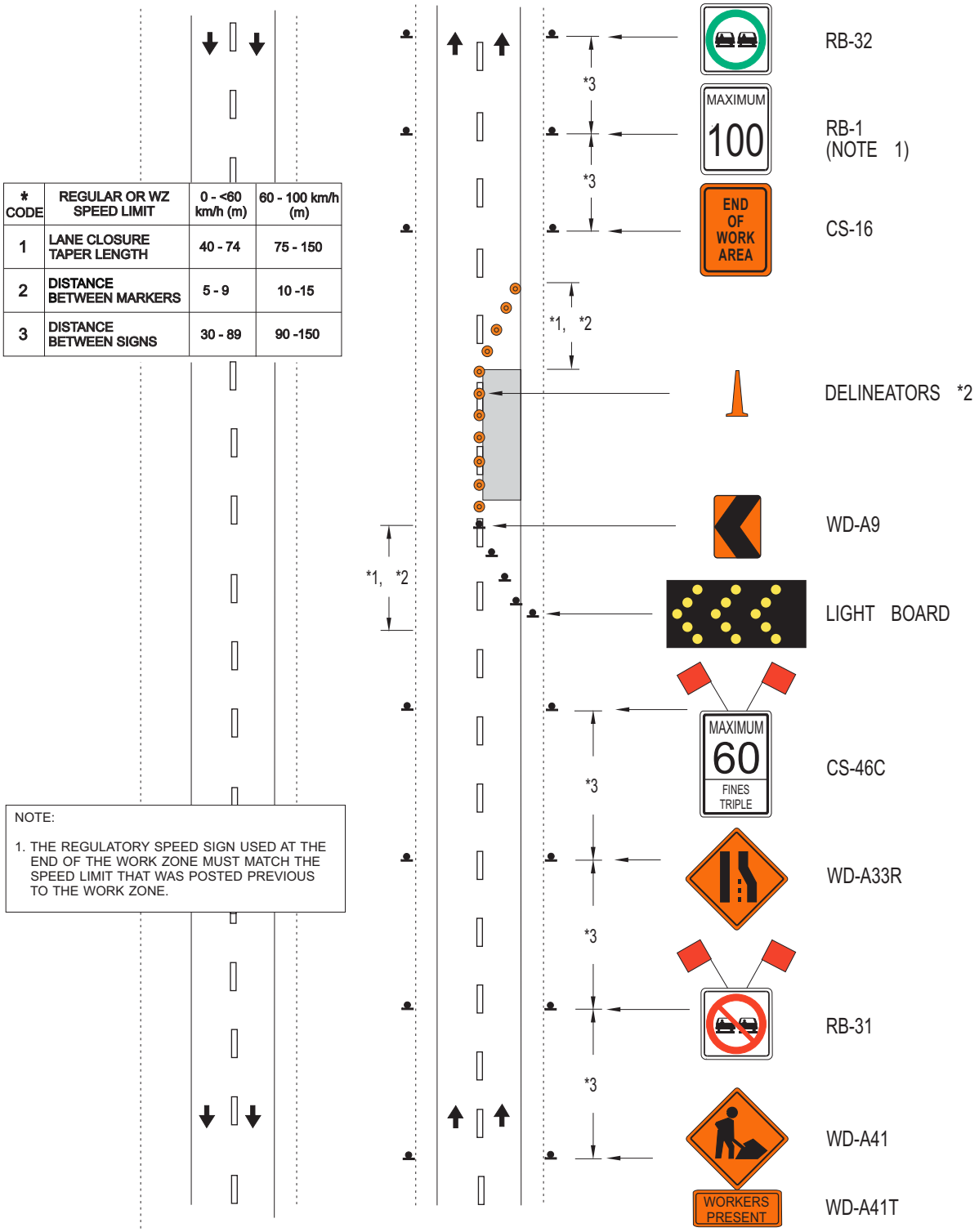


TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLAN

Subject: FOUR LANE HIGHWAY
ONE LANE CLOSED
STATIONARY OPERATION

TYPICAL PLAN



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NOTE:

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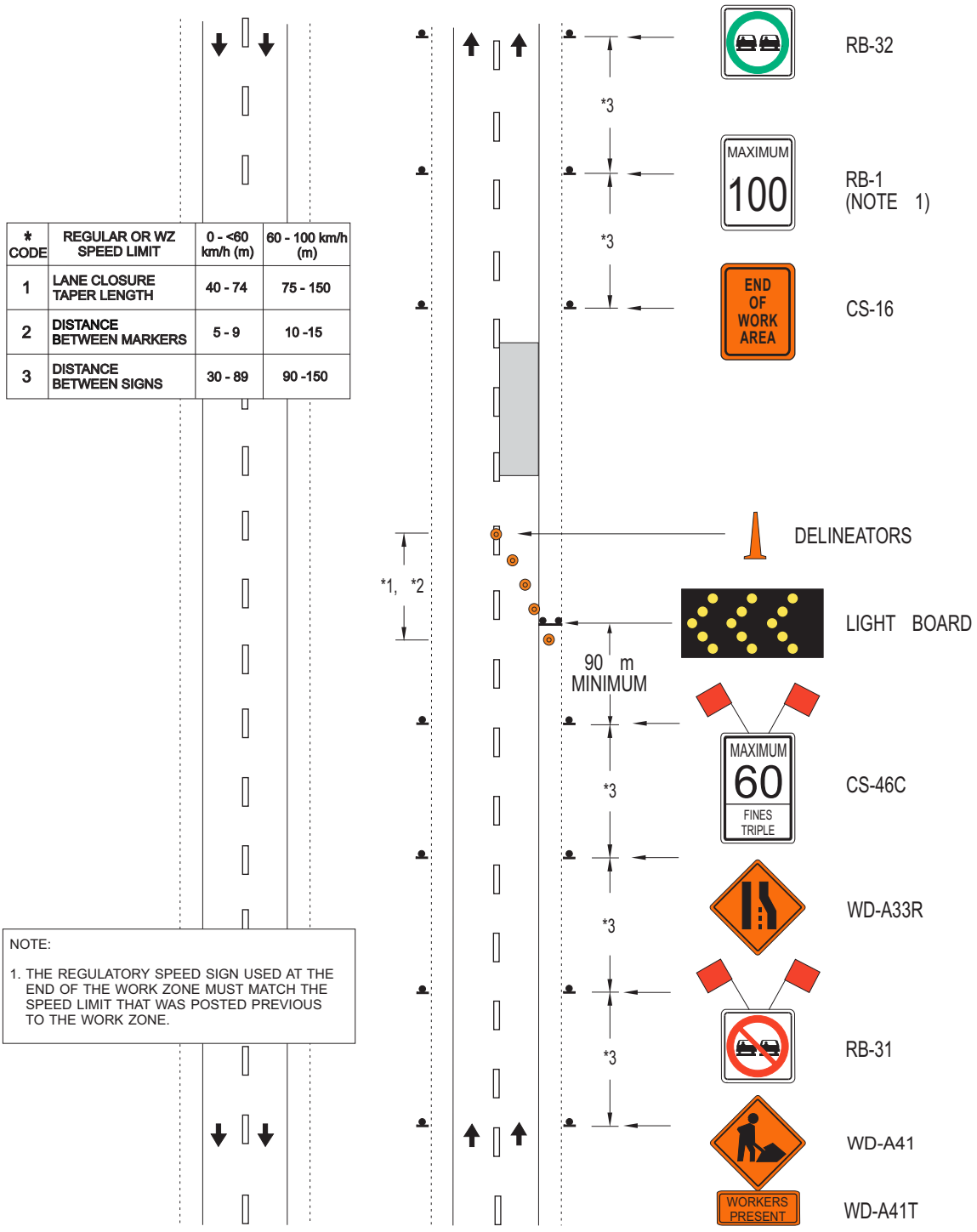
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: FOUR LANE HIGHWAY
ONE LANE CLOSED
MOVING OPERATION

TYPICAL PLAN



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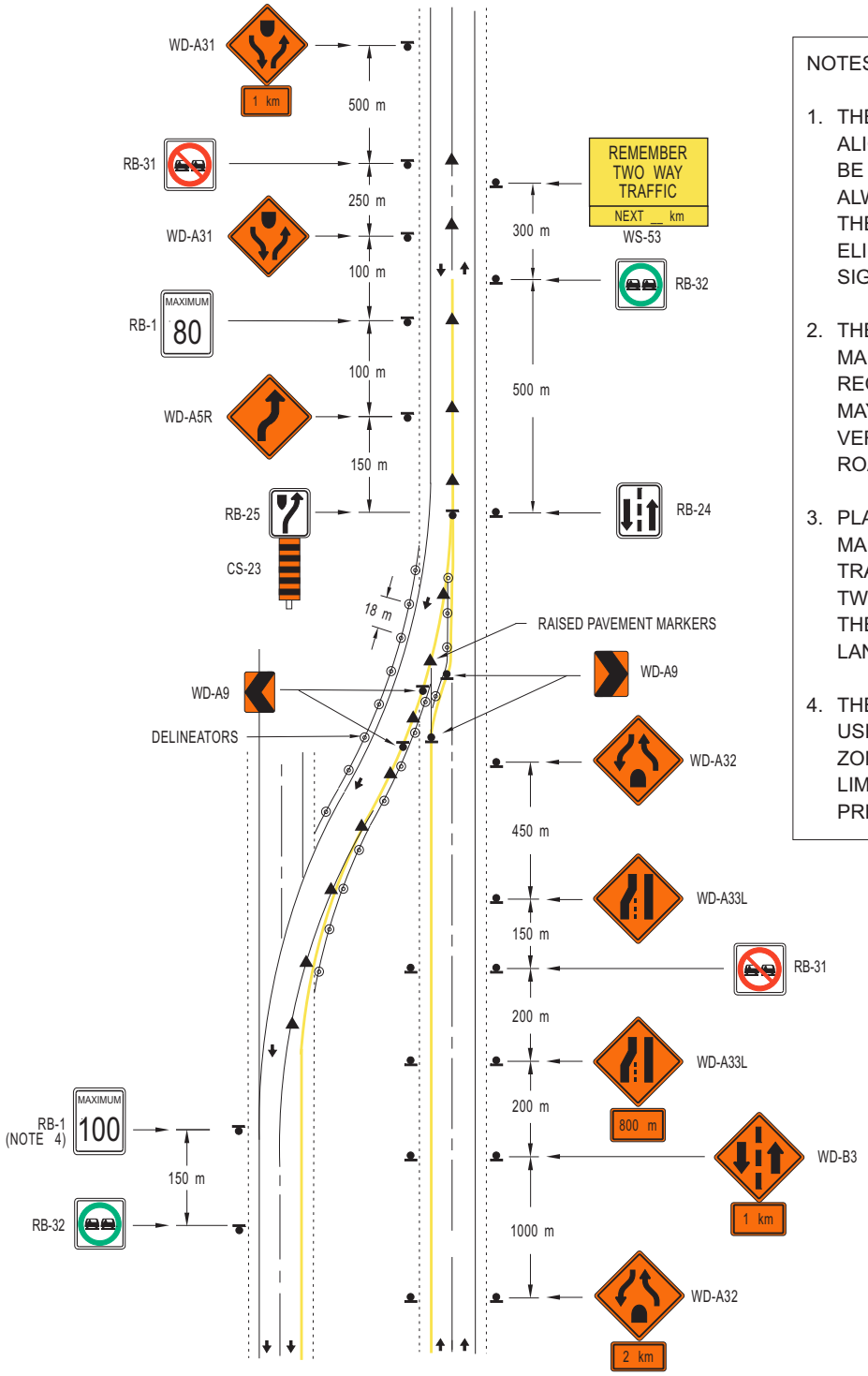
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG WORK DURATION
TYPICAL PLANS

Subject: STANDARD FOUR TO TWO LANE TEMPORARY RIGHT CROSSOVER SIGNING

TYPICAL PLAN



NOTES:

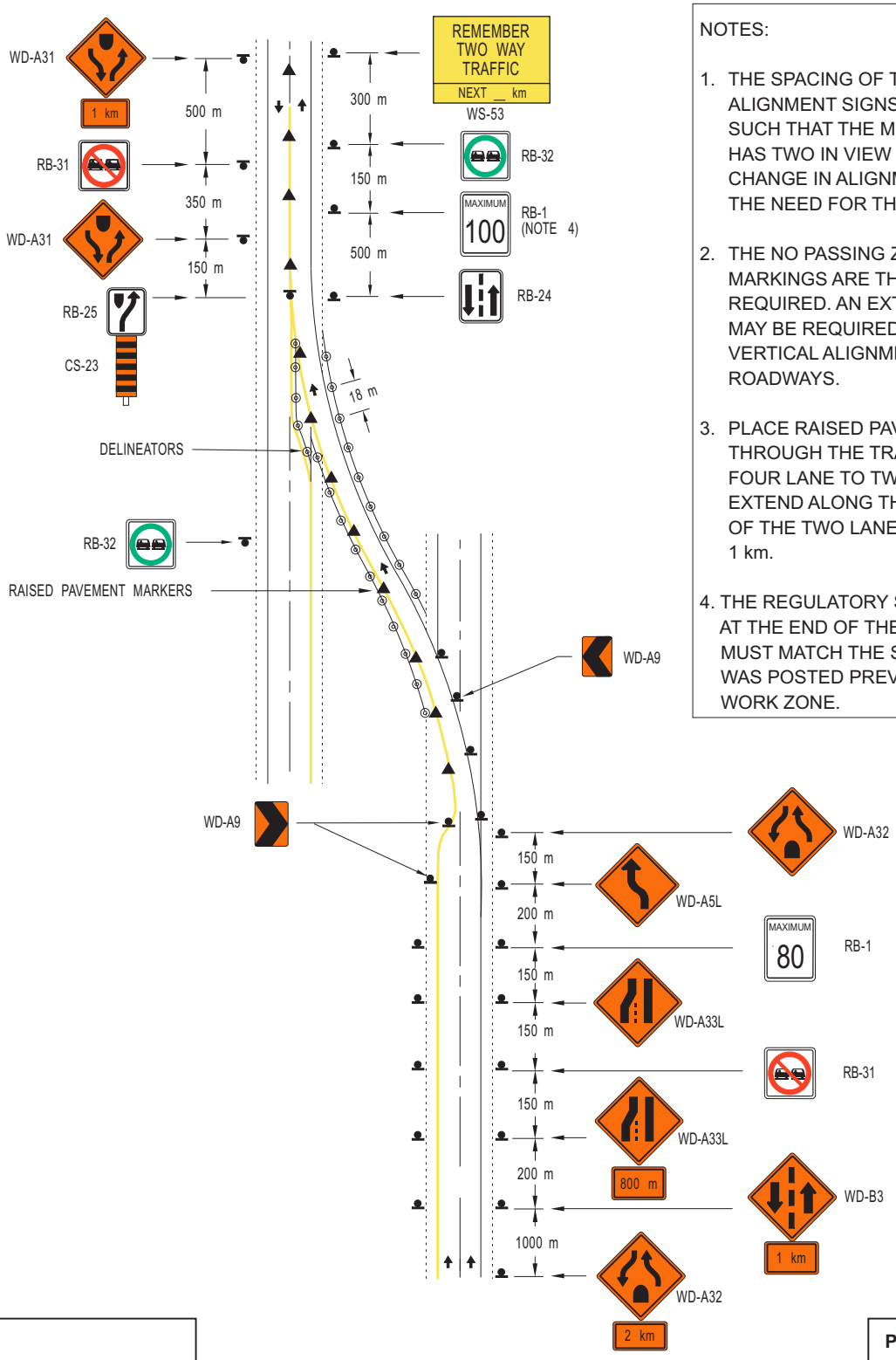
1. THE SPACING OF THE CHEVRON ALIGNMENT SIGNS (WD-A9) WILL BE SUCH THAT THE MOTORIST ALWAYS HAS TWO IN VIEW UNTIL THE CHANGE IN ALIGNMENT ELIMINATES THE NEED FOR THE SIGNS.
2. THE NO PASSING ZONE PAVEMENT MARKINGS ARE THE MINIMUM REQUIRED. AN EXTENDED ZONE MAY BE REQUIRED DEPENDING ON VERTICAL ALIGNMENT OF THE ROADWAYS.
3. PLACE RAISED PAVEMENT MARKERS THROUGH THE TRANSITION FROM FOUR LANE TO TWO LANE AND EXTEND ALONG THE CENTRELINE OF THE TWO LANE ROADWAY FOR 1 km.
4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: STANDARD FOUR TO TWO LANE TEMPORARY LEFT CROSSOVER SIGNING

TYPICAL PLAN



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TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK TYPICAL PLANS

Subject: SEAL COAT SIGNING

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
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NOTES:

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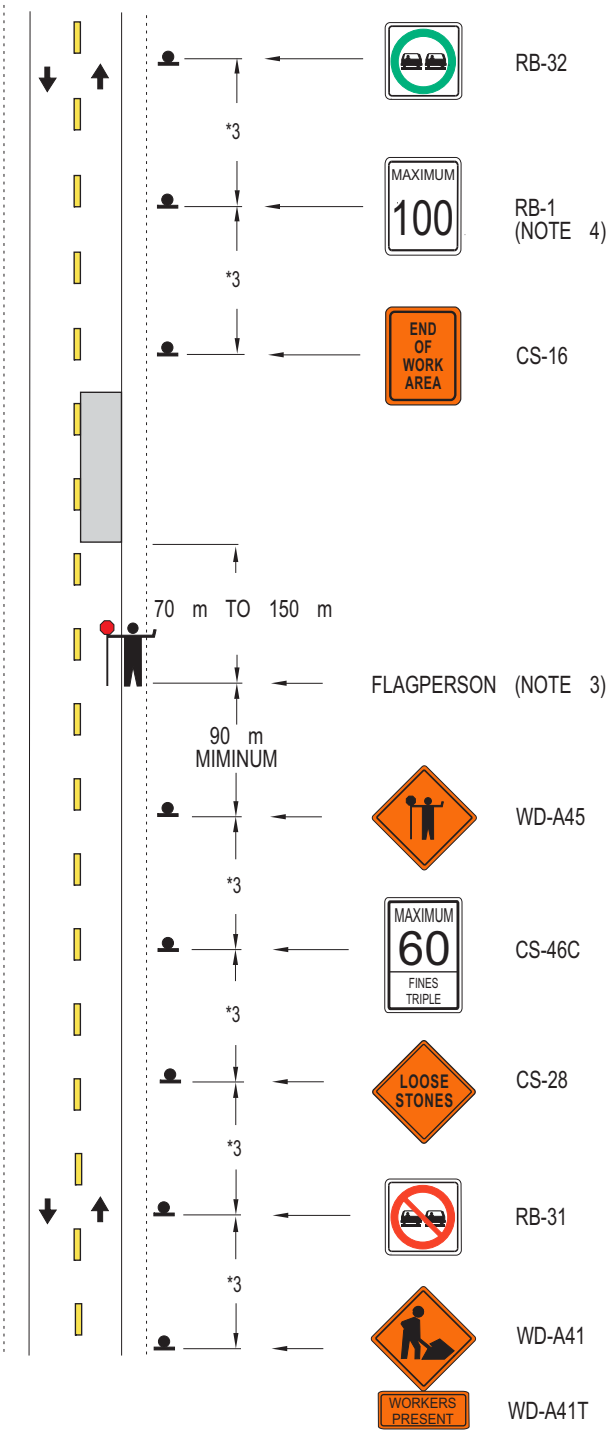
2. THE FOLLOWING SIGNS MAY BE USED IN PLACE OF THE LOOSE STONES SIGN:

   ROAD SWEEPER AHEAD CS-42
3. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.
4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.



TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: SIGNING OF FRESH OIL, PILED, WINDROWED OR LOOSELY SPREAD MATERIAL

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
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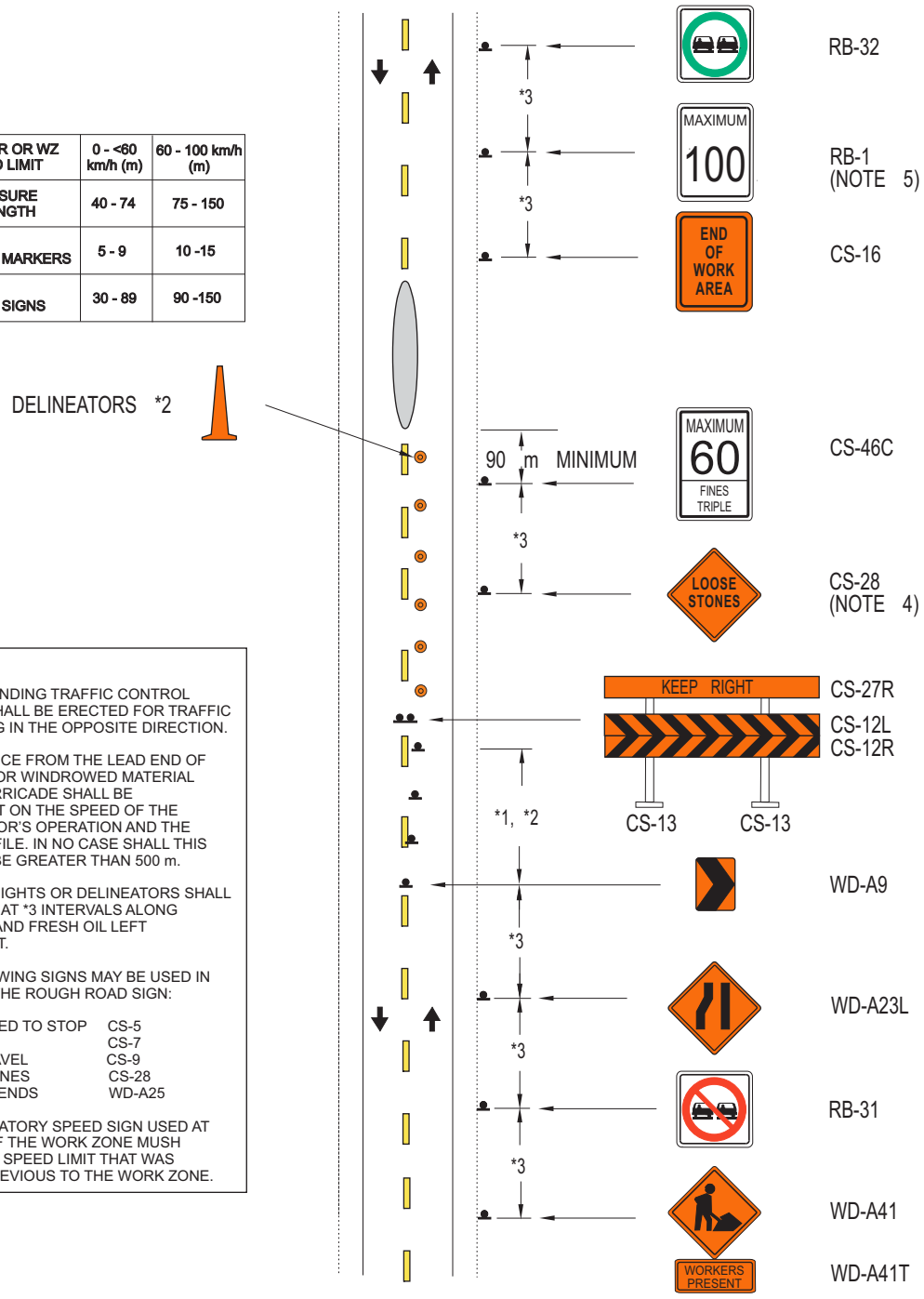


NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES SHALL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE DISTANCE FROM THE LEAD END OF THE PILED OR WINDROWED MATERIAL TO THE BARRICADE SHALL BE DEPENDENT ON THE SPEED OF THE CONTRACTOR'S OPERATION AND THE ROAD PROFILE. IN NO CASE SHALL THIS DISTANCE BE GREATER THAN 500 m.
3. FLASHING LIGHTS OR DELINEATORS SHALL BE SPACED AT *3 INTERVALS ALONG WINDROW AND FRESH OIL LEFT OVER NIGHT.
4. THE FOLLOWING SIGNS MAY BE USED IN PLACE OF THE ROUGH ROAD SIGN:

BE PREPARED TO STOP	CS-5
FRESH OIL	CS-7
LOOSE GRAVEL	CS-9
LOOSE STONES	CS-28
PAVEMENT ENDS	WD-A25

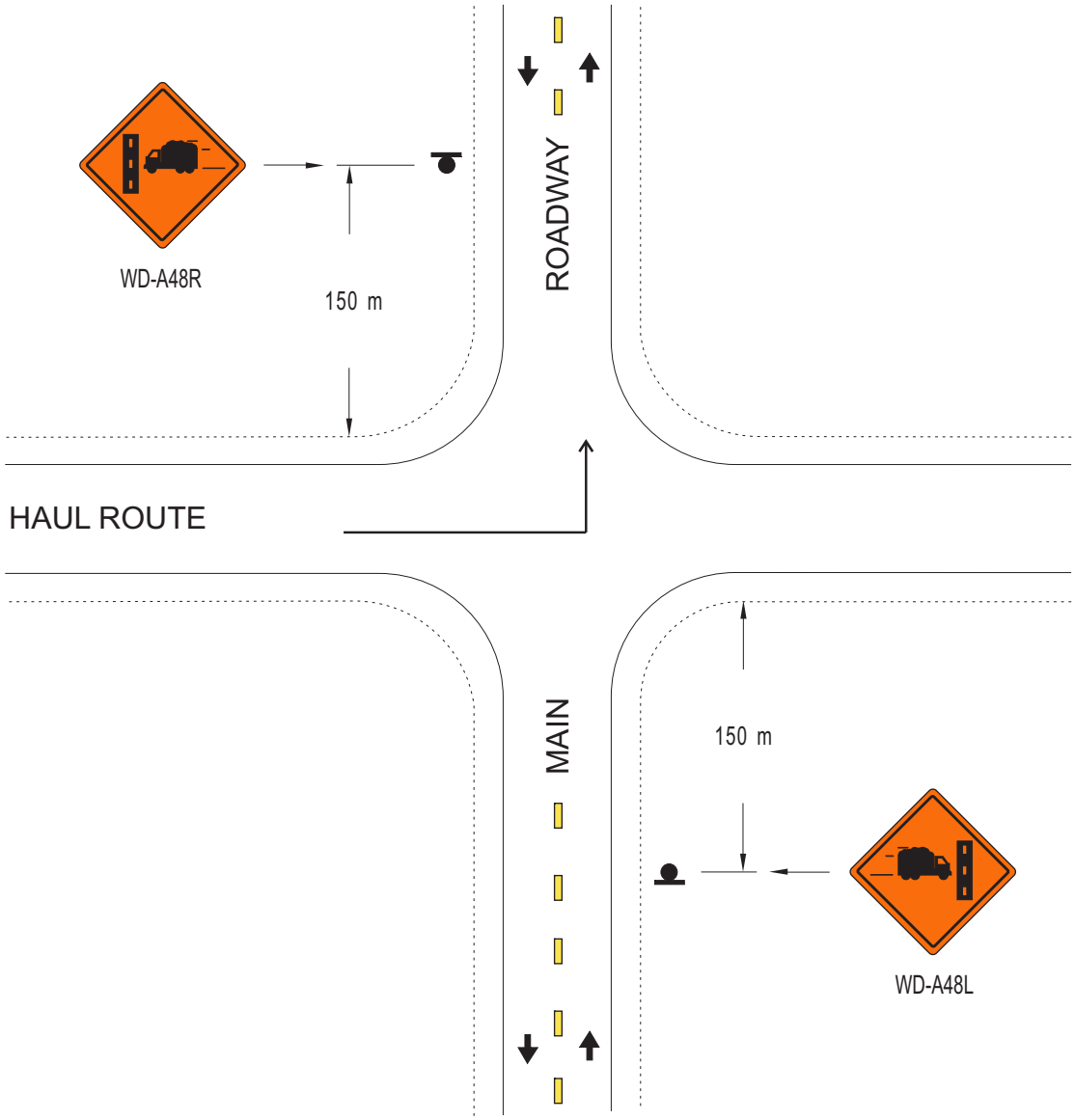
5. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUSH MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: TRUCKS ENTERING HIGHWAY

TYPICAL PLAN

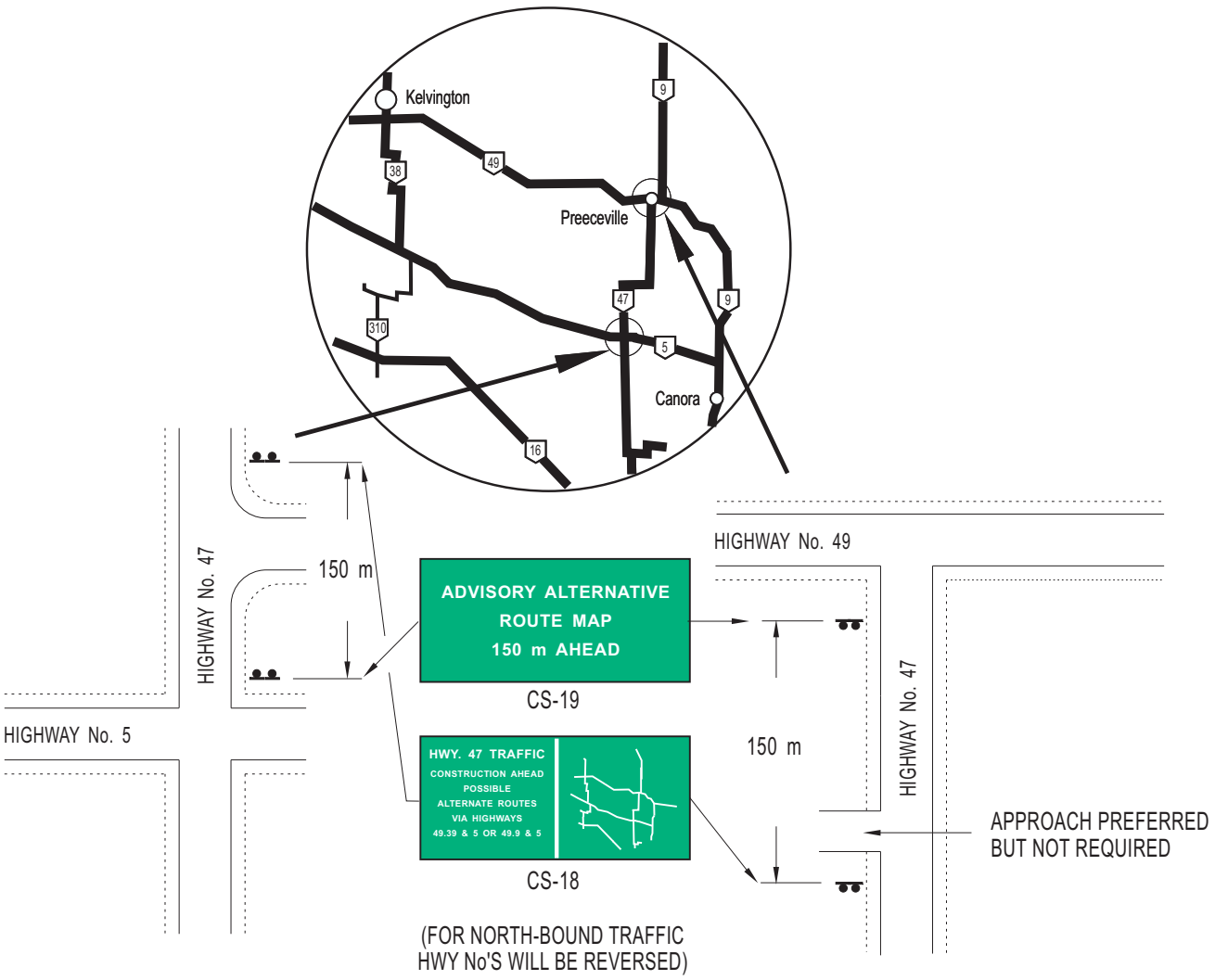


TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: ADVISORY ALTERNATE ROUTE SIGNS

TYPICAL PLAN



NOTES:

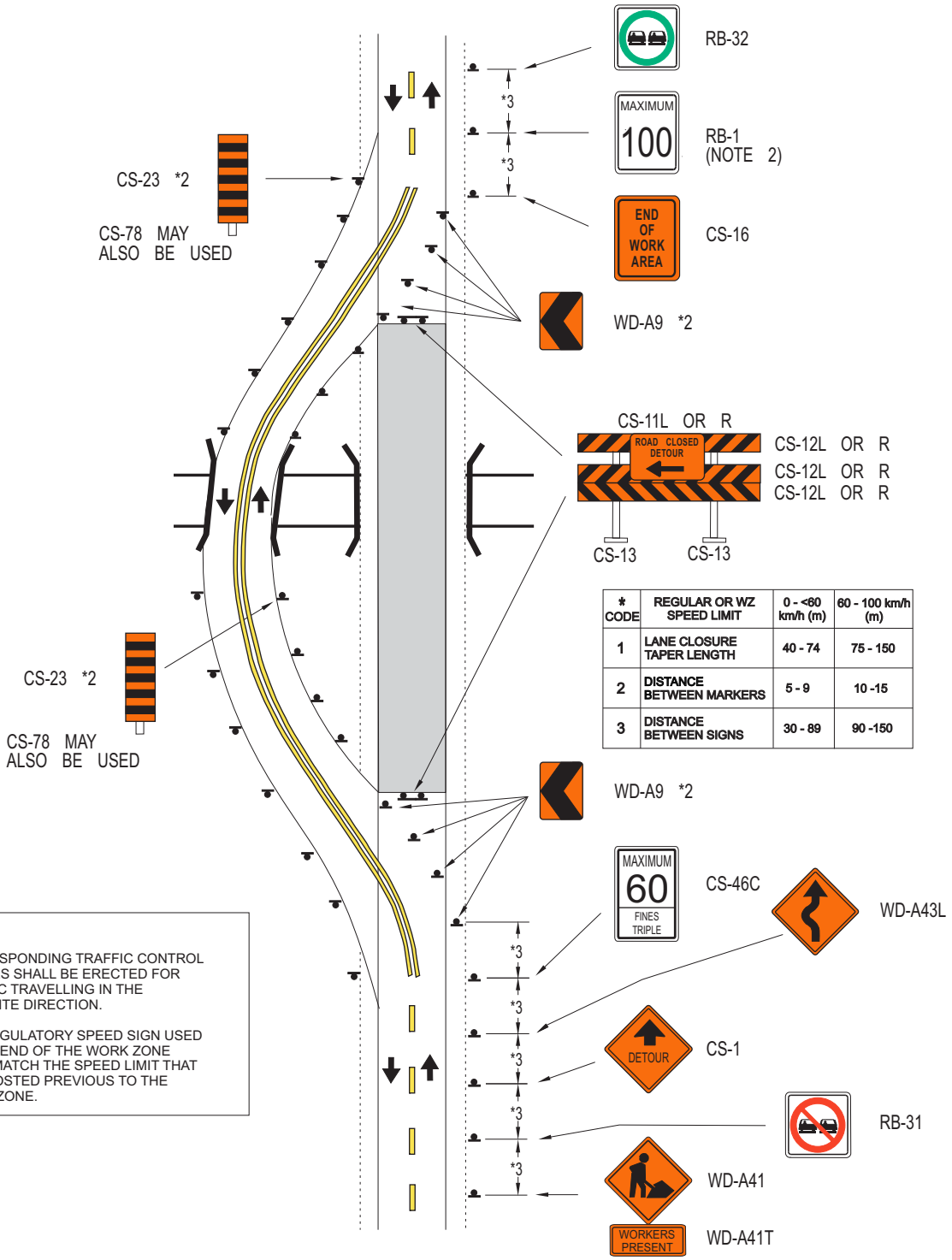
1. THE ALTERNATE ROUTE MAP MAY BE USED WHEN TRAVEL THROUGH THE CONSTRUCTION ZONE CANNOT BE ENSURED AT THE DESIGNATED CLASS OF TRAVEL ACCOMMODATION.
2. THE ALTERNATE ROUTE MAP WILL BE LOCATED SUFFICIENTLY IN ADVANCE OF THE CONSTRUCTION ZONE SO THAT THE MOTORIST CAN USE OTHER NUMBERED ROUTES TO BYPASS THE WORK AREA.
3. THE ALTERNATE ROUTE MAP WILL BE ERECTED IN SUCH A MANNER TO ALLOW VIEWING WITHOUT LEAVING THE VEHICLE.
4. DURING ADVERSE CONDITIONS THAT MAY REQUIRE TRAFFIC TO BE ASSISTED, FLAGPERSONS WILL BE USED TO SUPPLEMENT THE ALTERNATE ROUTE MAP.
5. THE ALTERNATE ROUTE MAP WILL NOT BE REQUIRED ON PROJECTS WHERE THERE ARE NO FEASIBLE ALTERNATE ROUTES.
6. OFFSET 2 m FROM SHOULDER LINE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: DETOUR SIGNING
TWO LANE HIGHWAY
LOCAL ROADSIDE DETOUR

TYPICAL PLAN



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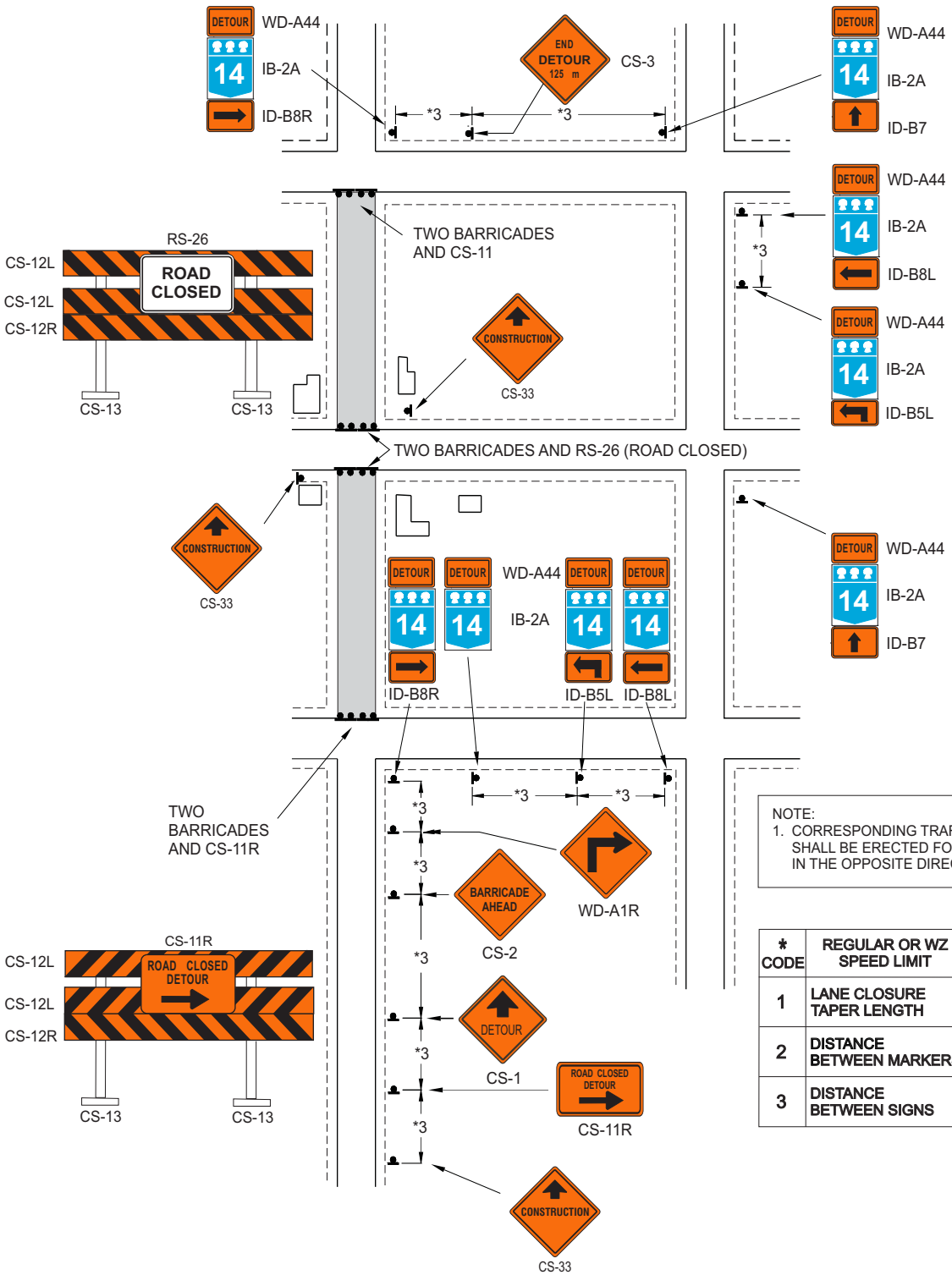
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: DETOUR SIGNING
EXTENSIVE DETOUR
COMPLETE EXCLUSION OF TRAFFIC

TYPICAL PLAN



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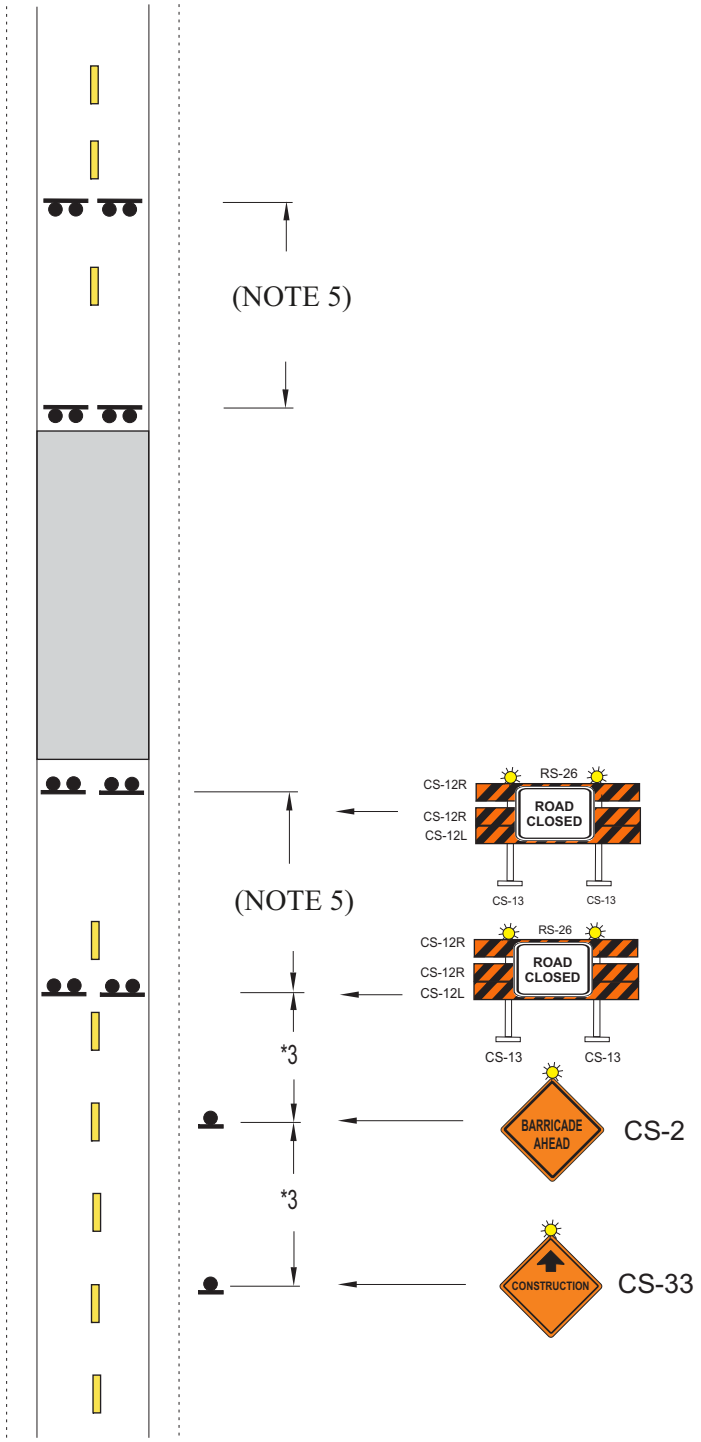
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: ROAD CLOSED

TYPICAL PLAN



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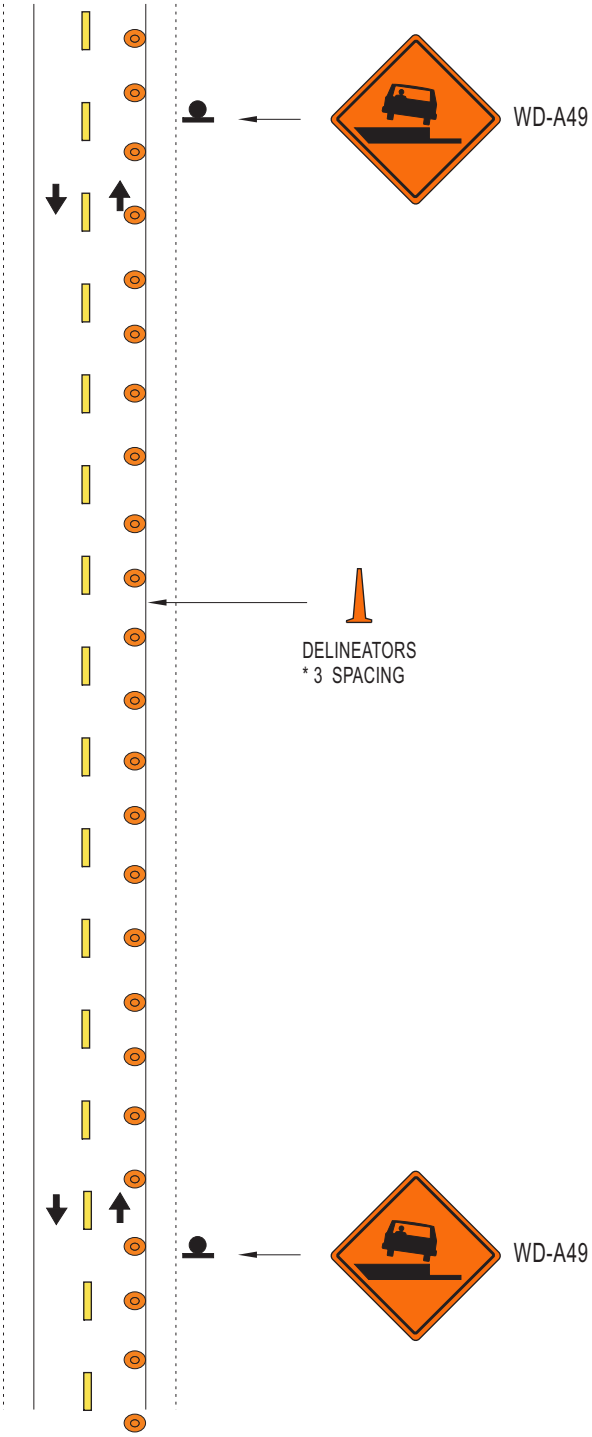
1. CORRESPONDING TRAFFIC CONTROL DEVICES WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. ADVANCE WARNING OF THE WORK ZONE CAN BE PROVIDED BY USING TCDM 10-10 & 10-11-02.
3. THE BARRICADE STAND MAY BE REPLACED BY INDUSTRY STANDARD WATER/SAND FILLED OR CONCRETE BARRIER STANDS TO MAKE A STANDARD BARRICADE.
4. A FLASHING LIGHT MAY BE PLACED ABOVE THE CS-33, CS-2 STANDARD BARRICADE, CONCRETE BARRIER OR WATER/SAND FILLED BARRIERS DURING HOURS OF DARKNESS.
5. THE DISTANCE BETWEEN BARRICADES WILL BE DEPENDENT ON ROADWAY GEOMETRICS AND/OR GEOGRAPHIC LOCATION.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK
TYPICAL PLANS

Subject: PAVEMENT EDGE DROP-OFF TRAVELLED WAY

TYPICAL PLAN



NOTES:

1. INSTALL WD-A49 SIGNS AT INTERVALS OF 3 km OR LESS.
2. DELINEATE PAVEMENT DROP-OFF WHEN DROP-OFF EXCEEDS 60 mm. INSTALL DELINEATORS ON THE TRAVELLED WAY AT EDGE OF DROP-OFF AND AT INTERVALS OF *3.

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

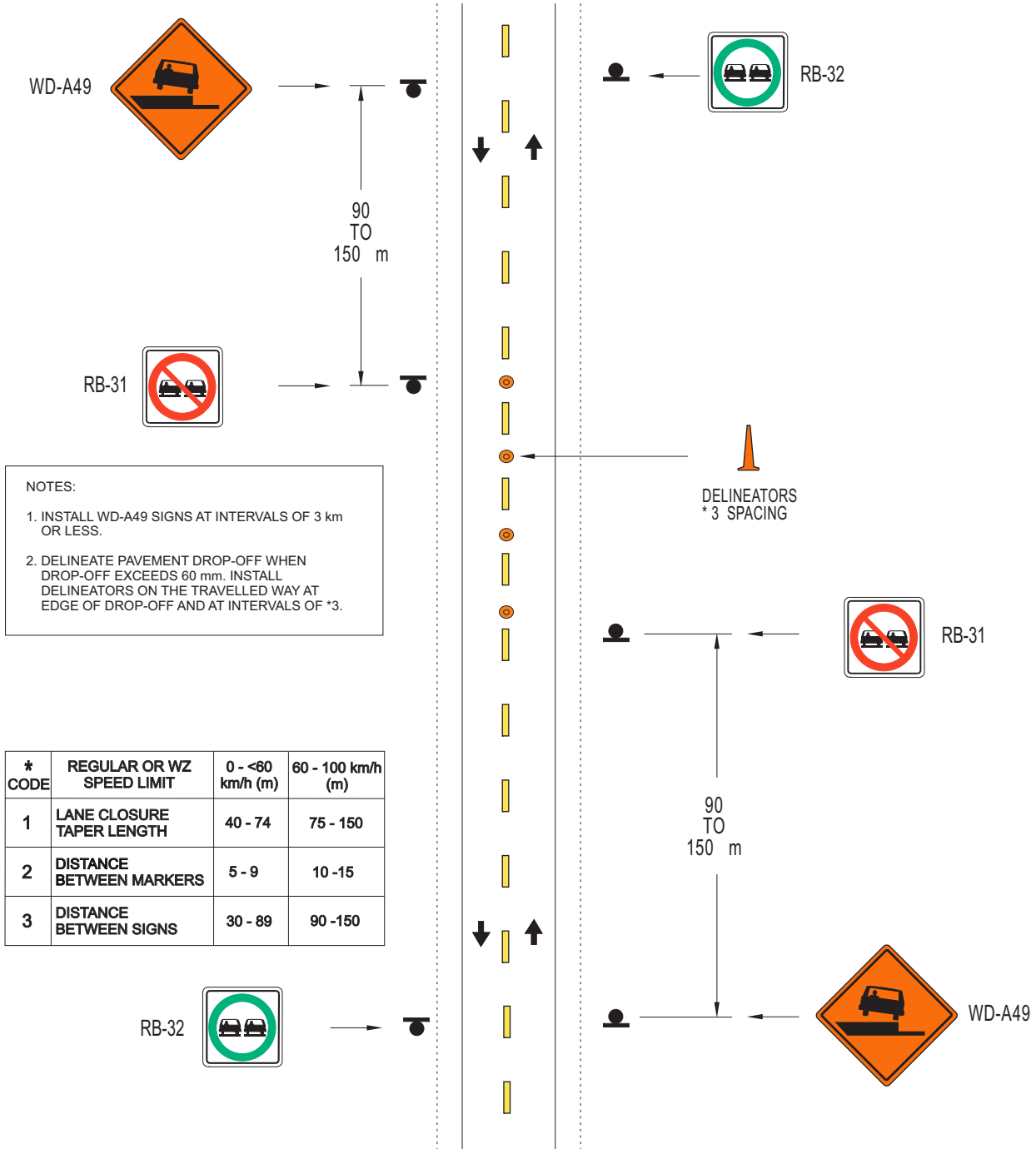
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: LONG DURATION WORK

TYPICAL PLANS

Subject: PAVEMENT EDGE DROP-OFF CENTRELINE

TYPICAL PLAN



NOTES:

1. INSTALL WD-A49 SIGNS AT INTERVALS OF 3 km OR LESS.
2. DELINEATE PAVEMENT DROP-OFF WHEN DROP-OFF EXCEEDS 60 mm. INSTALL DELINEATORS ON THE TRAVELLED WAY AT EDGE OF DROP-OFF AND AT INTERVALS OF *3.

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

Pavement Marking Traffic Accommodation Matrix

Pavement Marking Activity	Description	Traffic Accommodation Plan
Manual Premarking – 2-lane	▪ Performed prior to road marking in areas where there is no existing line for the striper to follow. ▪ The road is split to find centre every 200 to 300 metres. ▪ A line is then run in with a transit between the splits. ▪ The crew sets up a maximum 3 km work zone and works on centreline between 2 units equipped with lightboards, the distance between the units is generally never more than 300 metres. ▪ Traffic is passed to the right, unless there is no shoulder or shoulder is soft, in which case passing would be to the left.	TCDM 11-03-01
Manual Premarking 4-Lane	▪ Passing lane is closed. ▪ Work is done between 2 units. ▪ Transit operator always faces traffic.	TCDM 11-03-02
Erasing	▪ Removal of existing pavement markings. ▪ Work zones are identical to manual premarking.	TCDM 11-03-01 TCDM 11-03-02 TCDM 11-04 TCDM 11-15
Splitting	▪ Done prior to manual premarking. ▪ The road surface is measured (split) to obtain centre. ▪ A road is generally split every 300 metres. ▪ 2 workers measure the road in front of the unit, one marks the centre.	TCDM 11-03-01 TCDM 11-03-02
TRPM Placement	▪ Temporary raised pavement markers (TRPM's) are placed on existing lines prior to sealing and flushing operations to provide temporary delineation until a road is striped. ▪ Work zones are the same as for manual premarking.	TCDM 11-03-01 TCDM 11-03-02 TCDM 11-04 TCDM 11-15
Automated Premarking	▪ Premarking performed by a unit equipped with a closed circuit television system. ▪ Truck straddles centreline, traffic is passed to the left on narrow roads, to the right if shoulders allow.	TCDM 11-06
Brightening	▪ Brightening is manual premarking that is done where short sections of existing line are missing due to maintenance patching or where lines are too dim for the striper driver to see clearly. ▪ Generally done with 2-3 workers with one truck. ▪ The truck straddles centreline while the driver guides 1 or 2 workers placing marks on the road surface directly in front of the vehicle.	TCDM 11-03-01 TCDM 11-03-02

Pavement Marking Traffic Accommodation Summary

Premarking Intersections		TCDM 11-04
Premarking Medians		TCDM 11-15
Pavement Signs at Intersections	▪ Involves painting arrows in the driving and turning lanes at flared intersections, bypass lanes, and turning lanes on 2 and 4 lane highways. ▪ Uses a minimum of 2 people working between 2 trucks equipped with light boards. ▪ Traffic is passed to the right when arrows are painted in the driving lane.	TCDM 11-08-01 TCDM 11-08-02
Pavement Signs – Stop Bars	▪ Painting of stop bars at locations where Stop signs are located. ▪ As this is a stop condition no extra signing required, lane is closed with truck. A minimum of 2 people, one person is designated signaller.	TCDM 11-09
Pavement Signs – R.W. Crossing Bars & X-Walks	▪ Uses a minimum of 2 people. ▪ On a 2 lane highway the lane is closed using a truck with light board and a flagperson. ▪ 4 lane highways are painted closing the lane with a truck and traffic cones.	TCDM 11-10-01 TCDM 11-10-02
Pavement Signs – Painted Medians	▪ Involves the painting of transverse yellow crosshatch bars at 2 lane to 4 lane transitions and channelized intersections. ▪ 3 – 4 workers, one worker is designated signaller.	TCDM 11-15
Bridge Markings	▪ Transverse 60 cm bars marked on the shoulder of the road. ▪ Warn of locations where shoulder width narrows by .6 metres and the sight distance in advance of this transition is less than 500 metres.	TCDM 11-12
Curb Painting	▪ Lane adjacent to curb is closed by truck with light board.	TCDM 11-13

Pavement Marking Traffic Accommodation Summary

Edge Line Wraps	▪ Is the continuation of edge line marking from a highway to another highway or intersecting road. ▪ The original marking is done with the striping unit, restriping is done by using a small push type unit or a gun mounted on a 1 ton automated premarking unit. ▪ May require the unit to paint against traffic, in which case the operator does not proceed until traffic conditions allow. ▪ An accompanying unit with an operator is placed on the intersecting roadway to signal traffic. ▪ Yellow 4 lane wraps are always marked in the direction of traffic	TCDM 11-14-01 TCDM 11-14-02
Establishing No Passing Zones	▪ Done prior to striping. ▪ A car equipped with a DMI and a lightbar is used to establish areas where a minimum of 500 m of sight distance is not available and require barrier lines. ▪ The operator ensures that the vehicle when stopped is always visible for a minimum of 300 metres, if not a warning vehicle is used. ▪ Whenever possible this operation will be done in conjunction with premarking.	▪ The operator will proceed per the guidelines outlined in the task description. TCDM 11-11-03
Striping 2 - lane	▪ Pilot vehicle maintains a distance between the striper that allows the paint to dry to a trackfree state. ▪ Traffic is passed to the right if shoulders allow otherwise to the left when safe.	TCDM 11-11-01
Striping 4 - lane	▪ Traffic is directed into free lane.	TCDM 11-11-02

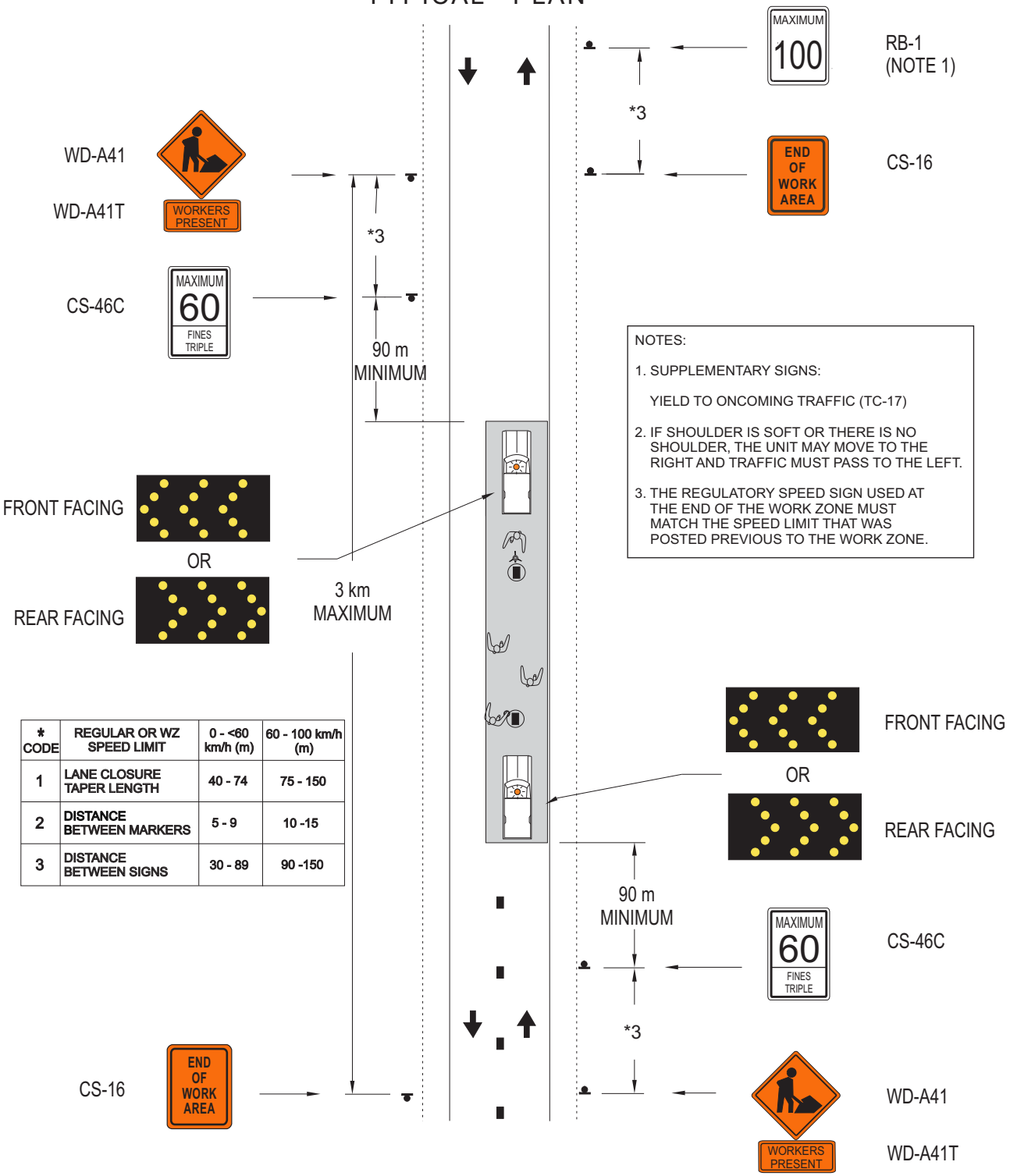
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING

TYPICAL PLANS

Subject: MANUAL PREMARKING, TRPM's BRIGHTENING & SPLITTING TWO LANE HIGHWAY

TYPICAL PLAN



NOTES:

1. SUPPLEMENTARY SIGNS:

   YIELD TO ONCOMING TRAFFIC (TC-17)

2. IF SHOULDER IS SOFT OR THERE IS NO SHOULDER, THE UNIT MAY MOVE TO THE RIGHT AND TRAFFIC MUST PASS TO THE LEFT.

3. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

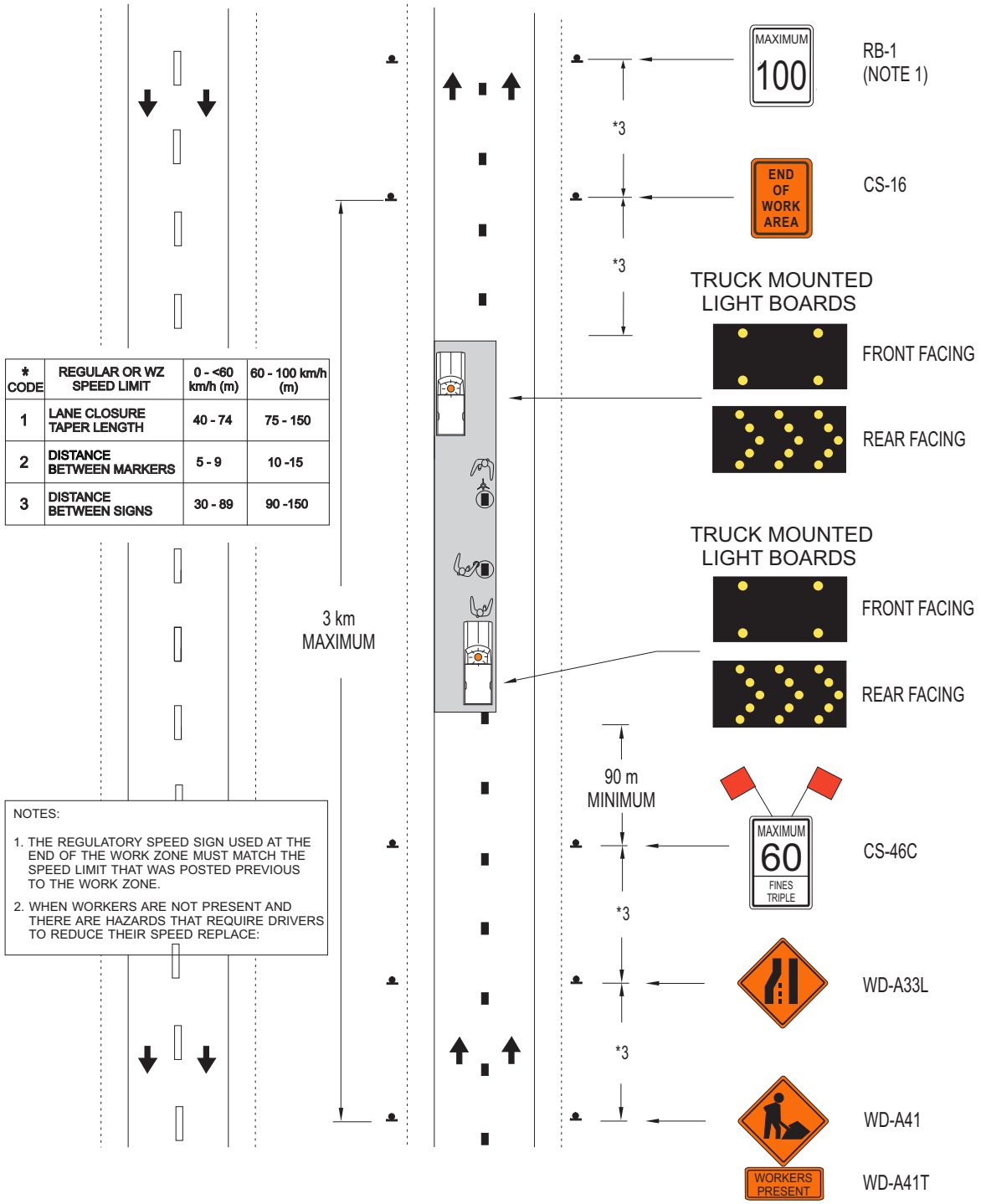
* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING
TYPICAL PLANS

Subject: MANUAL PREMARKING, TRPM's BRIGHTENING & SPLITTING FOUR LANE HIGHWAY

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.
2. WHEN WORKERS ARE NOT PRESENT AND THERE ARE HAZARDS THAT REQUIRE DRIVERS TO REDUCE THEIR SPEED REPLACE:

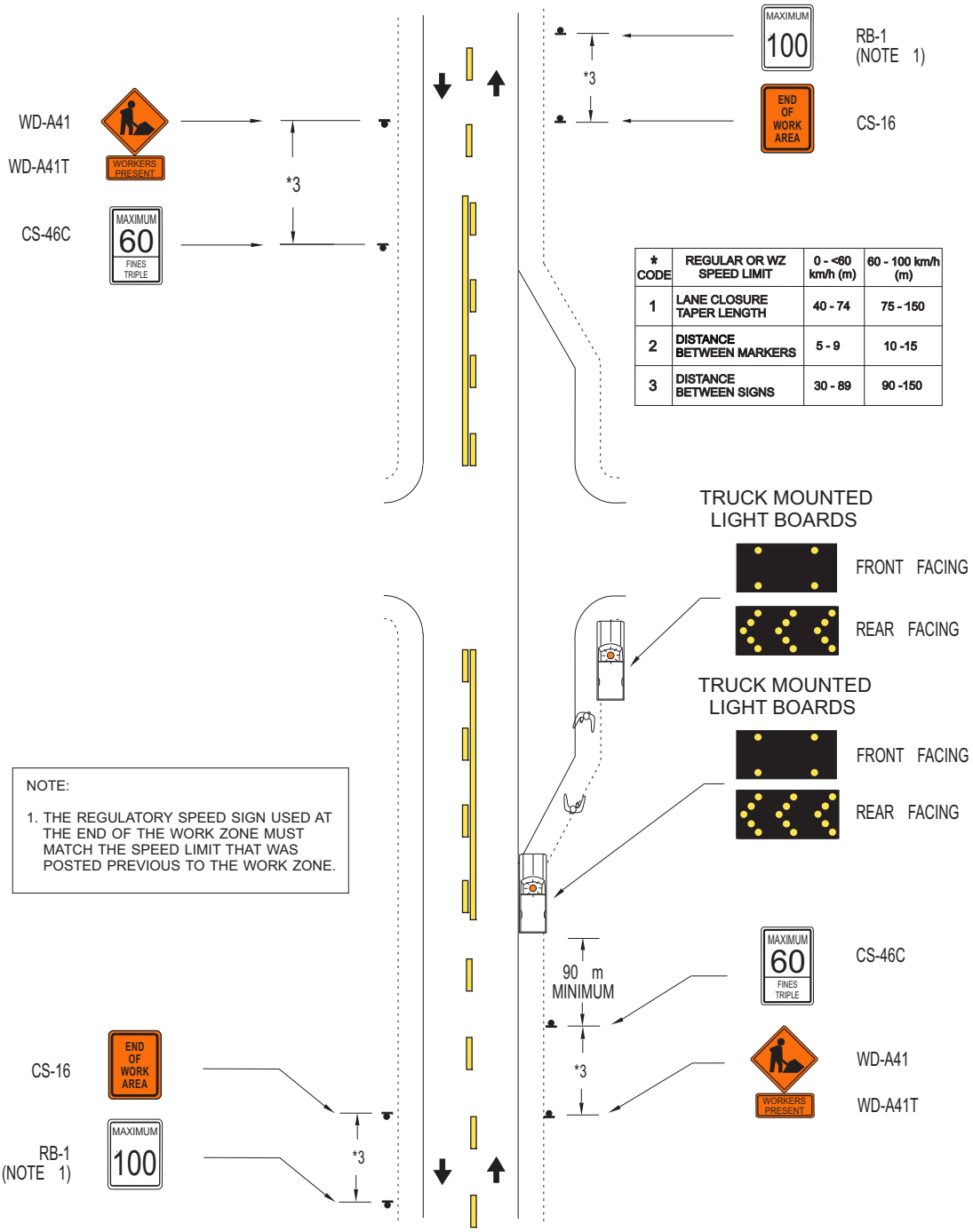
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING

TYPICAL PLANS

Subject: PREMARKING AT INTERSECTIONS

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

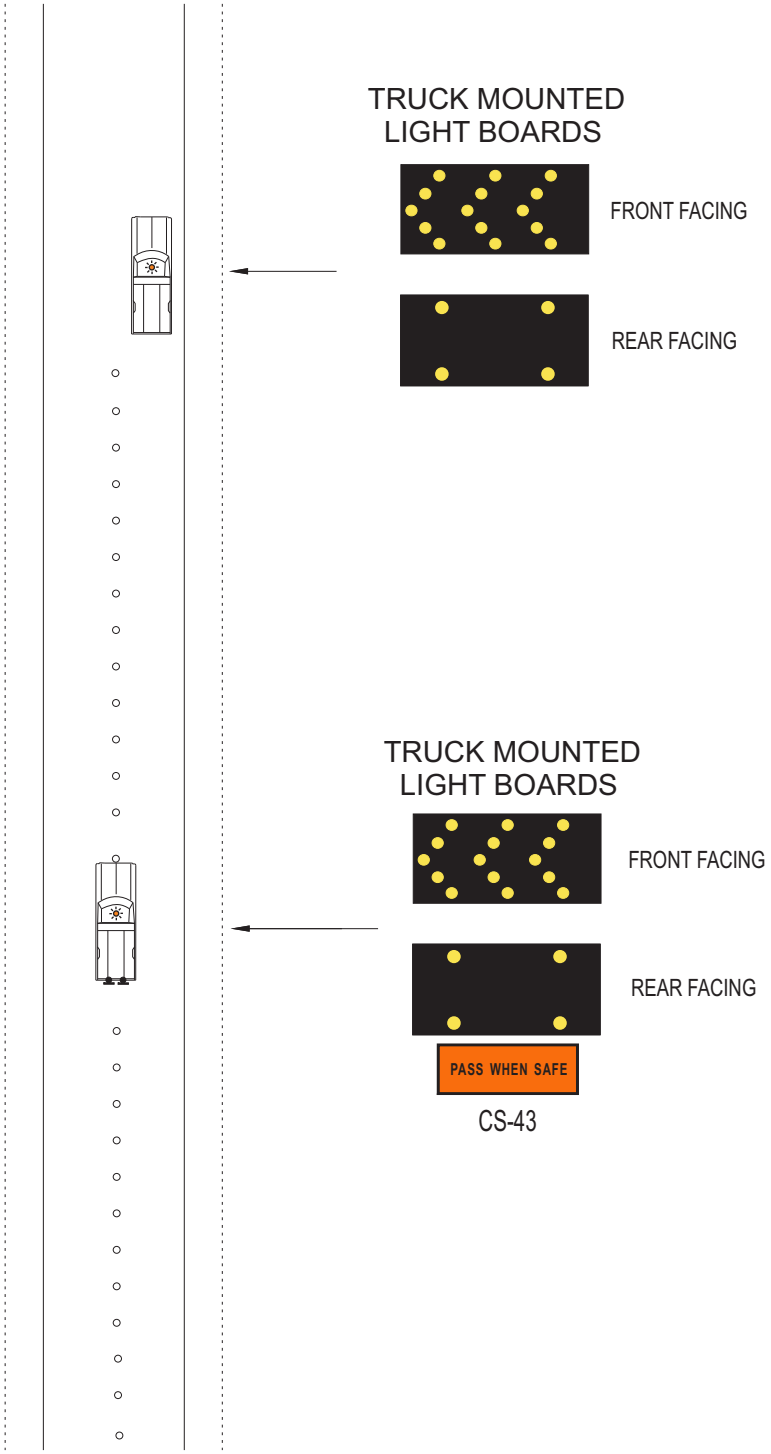
1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: AUTOMATED PREMARKING

TYPICAL PLAN



NOTE:

1. THE REAR FACING LIGHT BOARDS MAY INDICATE FLASHING CHEVRONS TO THE RIGHT WHERE SHOULDER WIDTH PERMITS PASSING ON THE RIGHT.

   PILOT VEHICLE IS EITHER IN FRONT OF OR BEHIND DEPENDING ON WORK CONDITIONS.

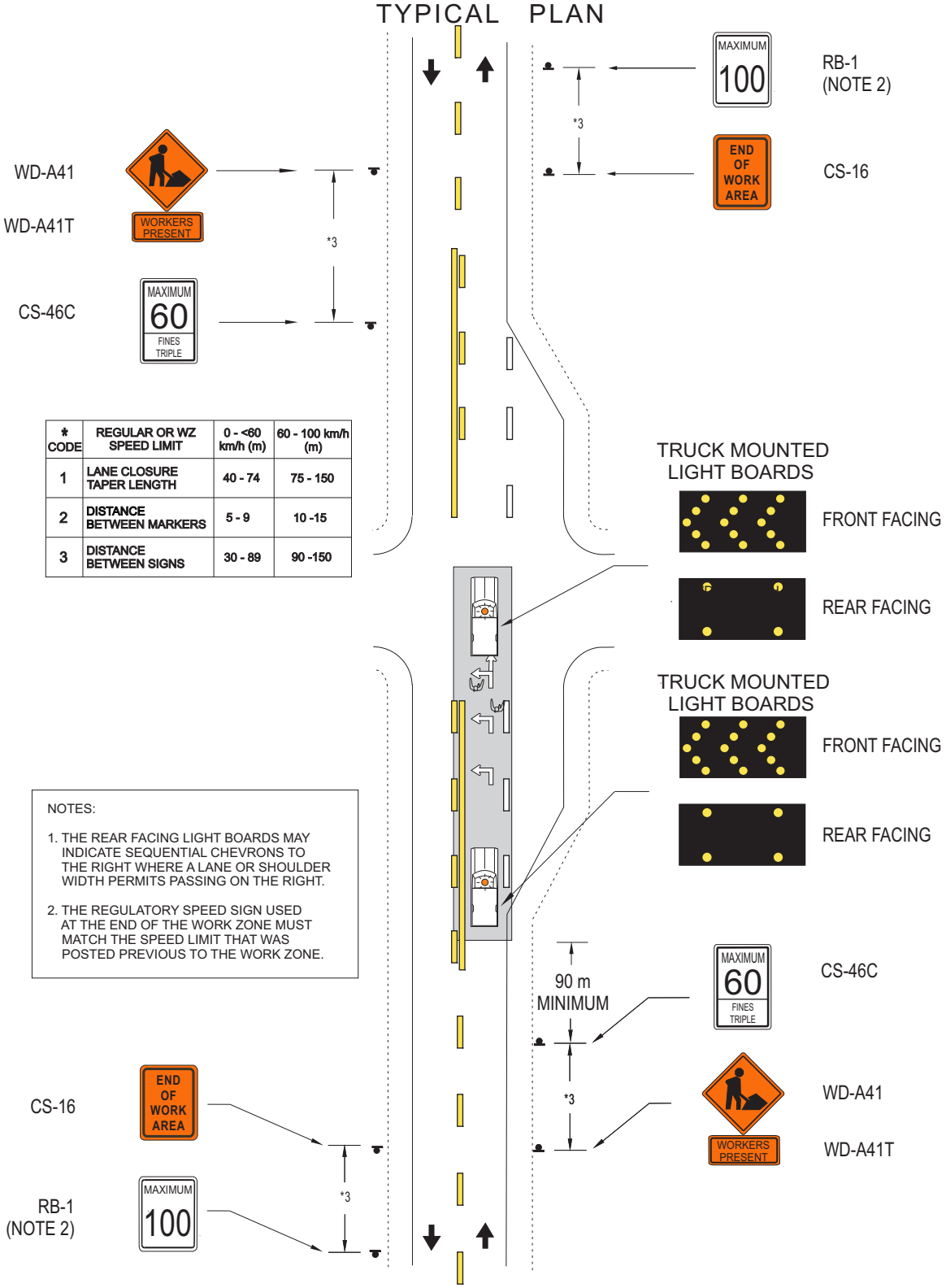
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING

TYPICAL PLANS

Subject: PAVEMENT SIGNS AT INTERSECTIONS
2 LANE

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

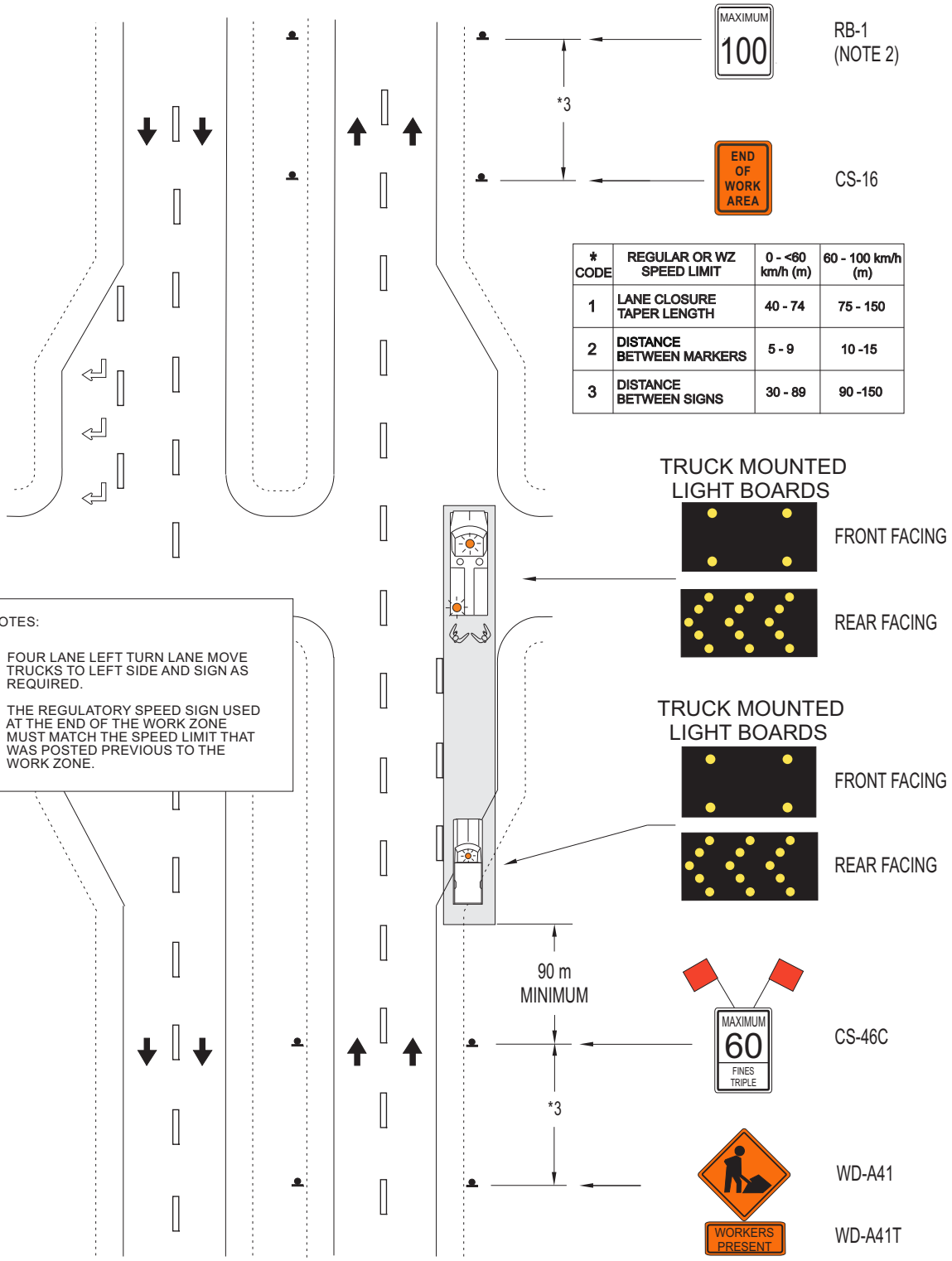
1. THE REAR FACING LIGHT BOARDS MAY INDICATE SEQUENTIAL CHEVRONS TO THE RIGHT WHERE A LANE OR SHOULDER WIDTH PERMITS PASSING ON THE RIGHT.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING
TYPICAL PLANS

Subject: PAVEMENT SIGNS AT INTERSECTIONS
4 LANE

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

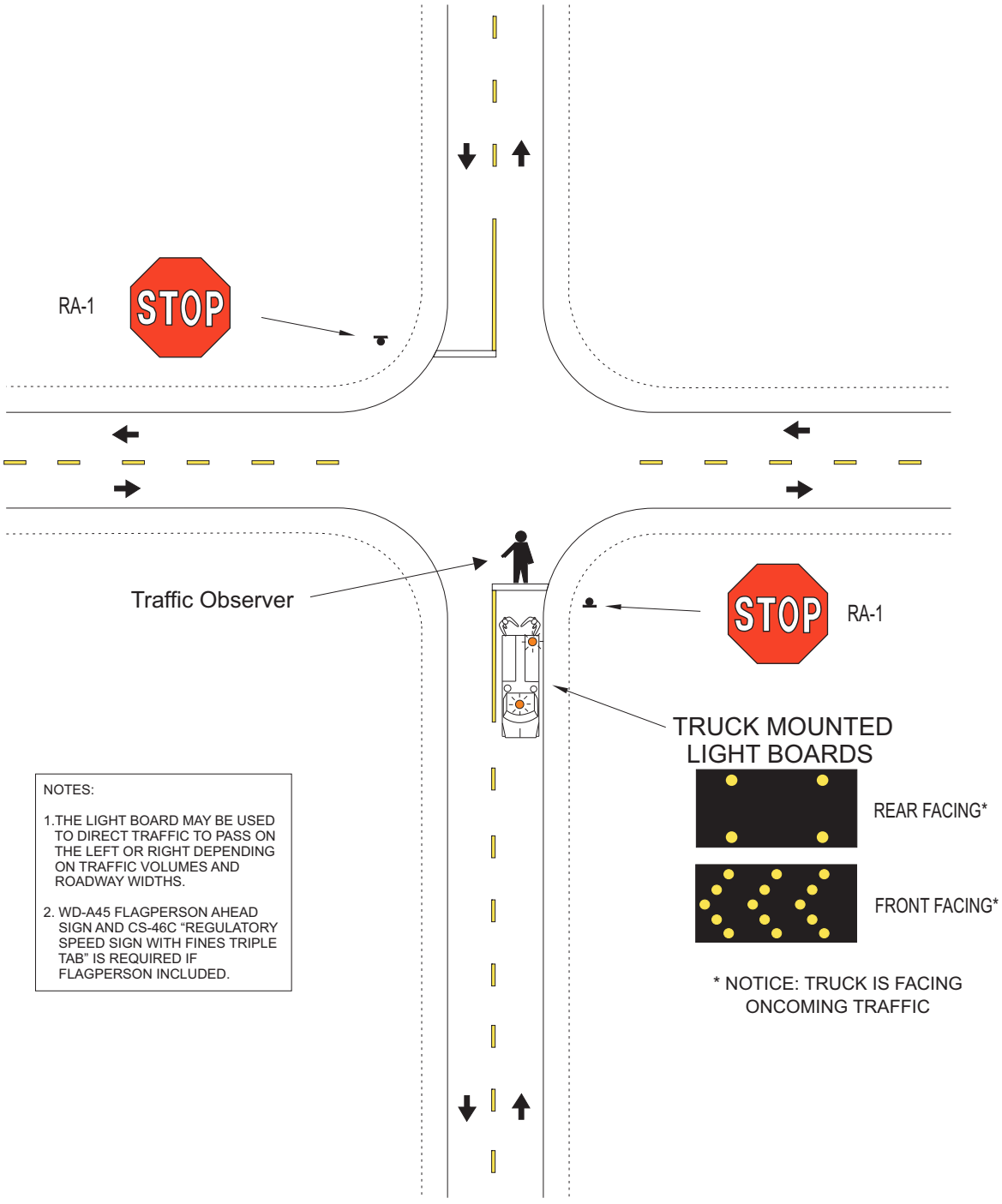
1. FOUR LANE LEFT TURN LANE MOVE TRUCKS TO LEFT SIDE AND SIGN AS REQUIRED.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: PAVEMENT SIGNS - STOP BARS

TYPICAL PLAN



NOTES:

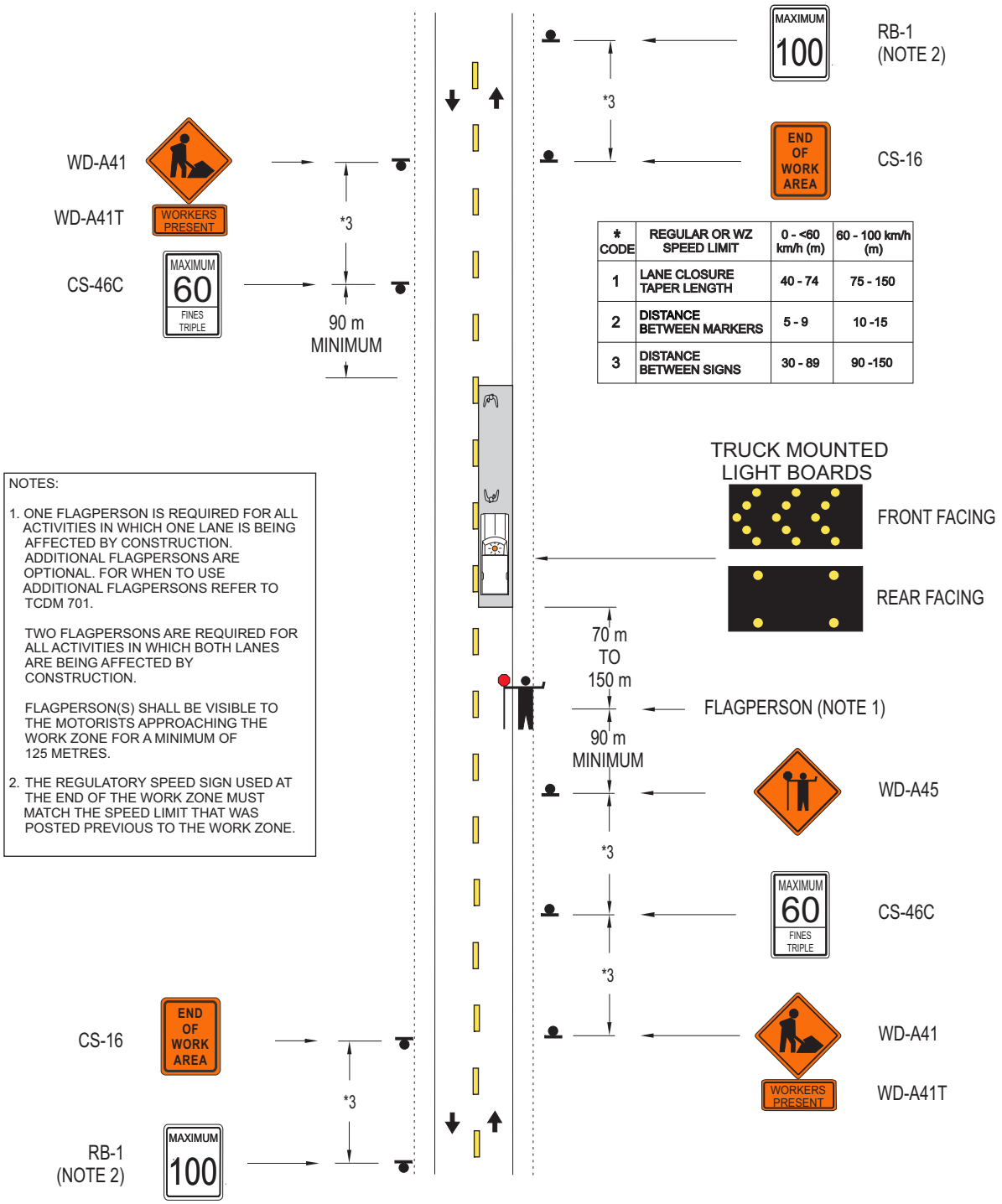
1. THE LIGHT BOARD MAY BE USED TO DIRECT TRAFFIC TO PASS ON THE LEFT OR RIGHT DEPENDING ON TRAFFIC VOLUMES AND ROADWAY WIDTHS.
2. WD-A45 FLAGPERSON AHEAD SIGN AND CS-46C "REGULATORY SPEED SIGN WITH FINES TRIPLE TAB" IS REQUIRED IF FLAGPERSON INCLUDED.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: PAVEMENT SIGNS - RAILROAD CROSSING BARS & CROSSWALKS

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

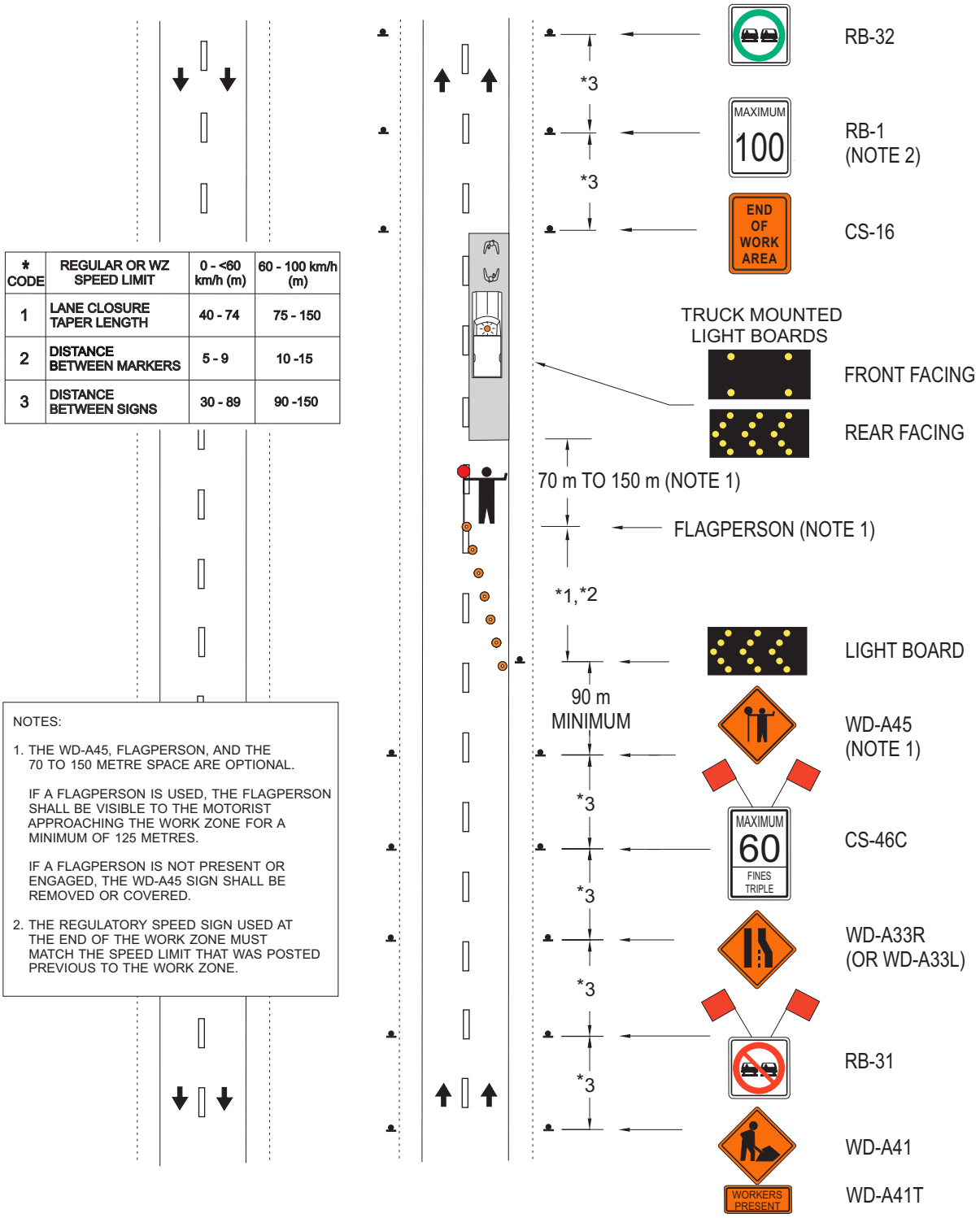
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING
TYPICAL PLANS

Subject: FOUR LANE HIGHWAY
ONE LANE CLOSED

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. THE WD-A45, FLAGPERSON, AND THE 70 TO 150 METRE SPACE ARE OPTIONAL.

   IF A FLAGPERSON IS USED, THE FLAGPERSON SHALL BE VISIBLE TO THE MOTORIST APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

   IF A FLAGPERSON IS NOT PRESENT OR ENGAGED, THE WD-A45 SIGN SHALL BE REMOVED OR COVERED.

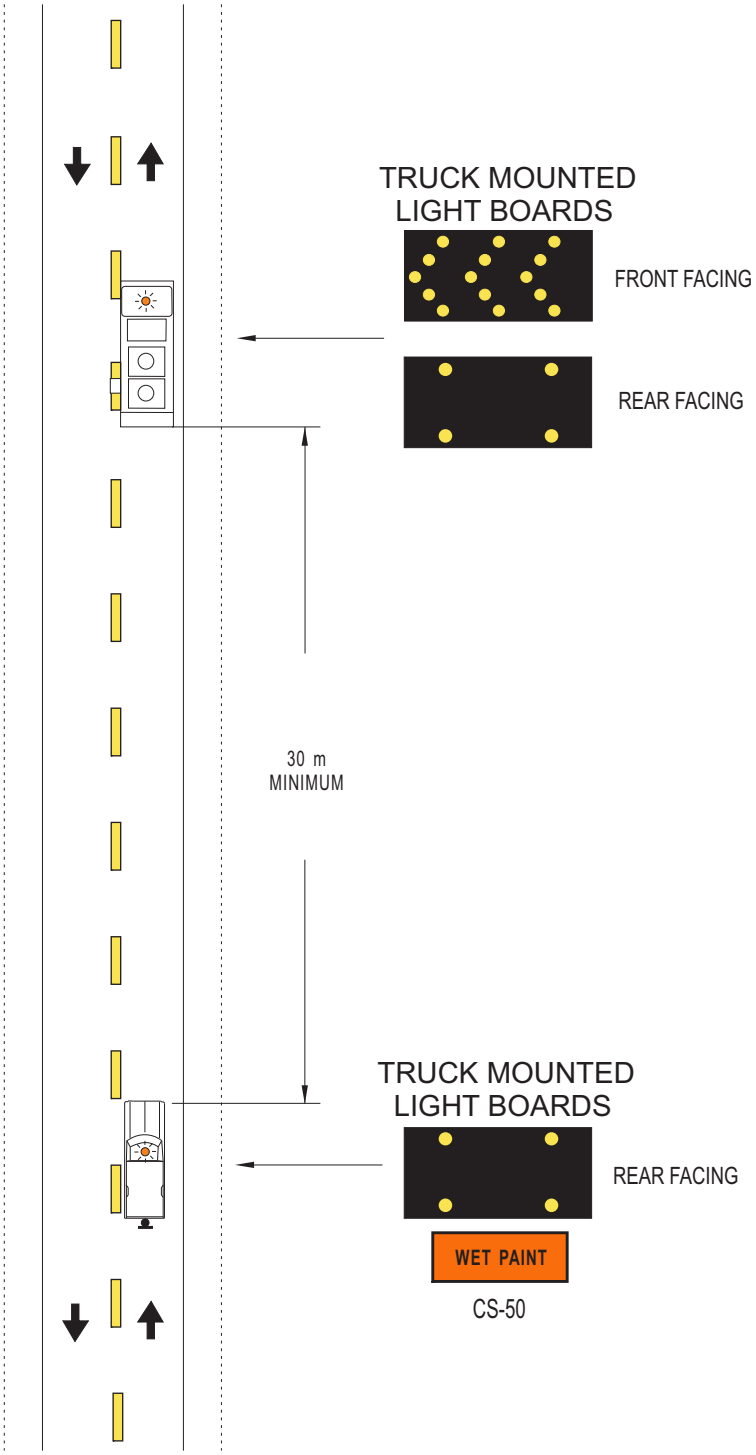
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: STRIPING TWO LANE HIGHWAY

TYPICAL PLAN



NOTE:

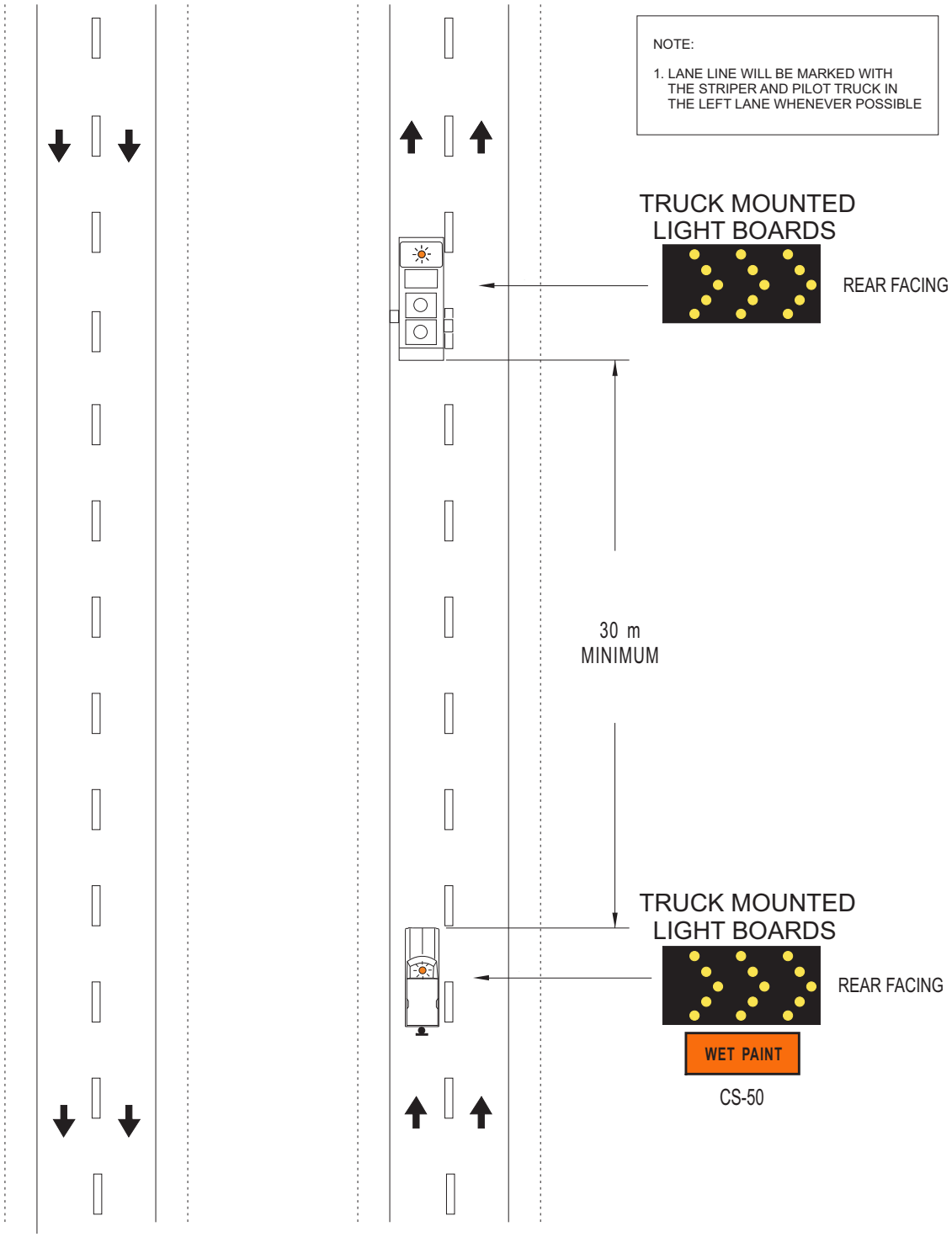
1. THE REAR FACING LIGHT BOARDS MAY INDICATE SEQUENTIAL CHEVRONS TO THE RIGHT WHERE SHOULDER WIDTH PERMITS PASSING ON THE RIGHT.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING
TYPICAL PLANS

Subject: STRIPING FOUR LANE HIGHWAY

TYPICAL PLAN

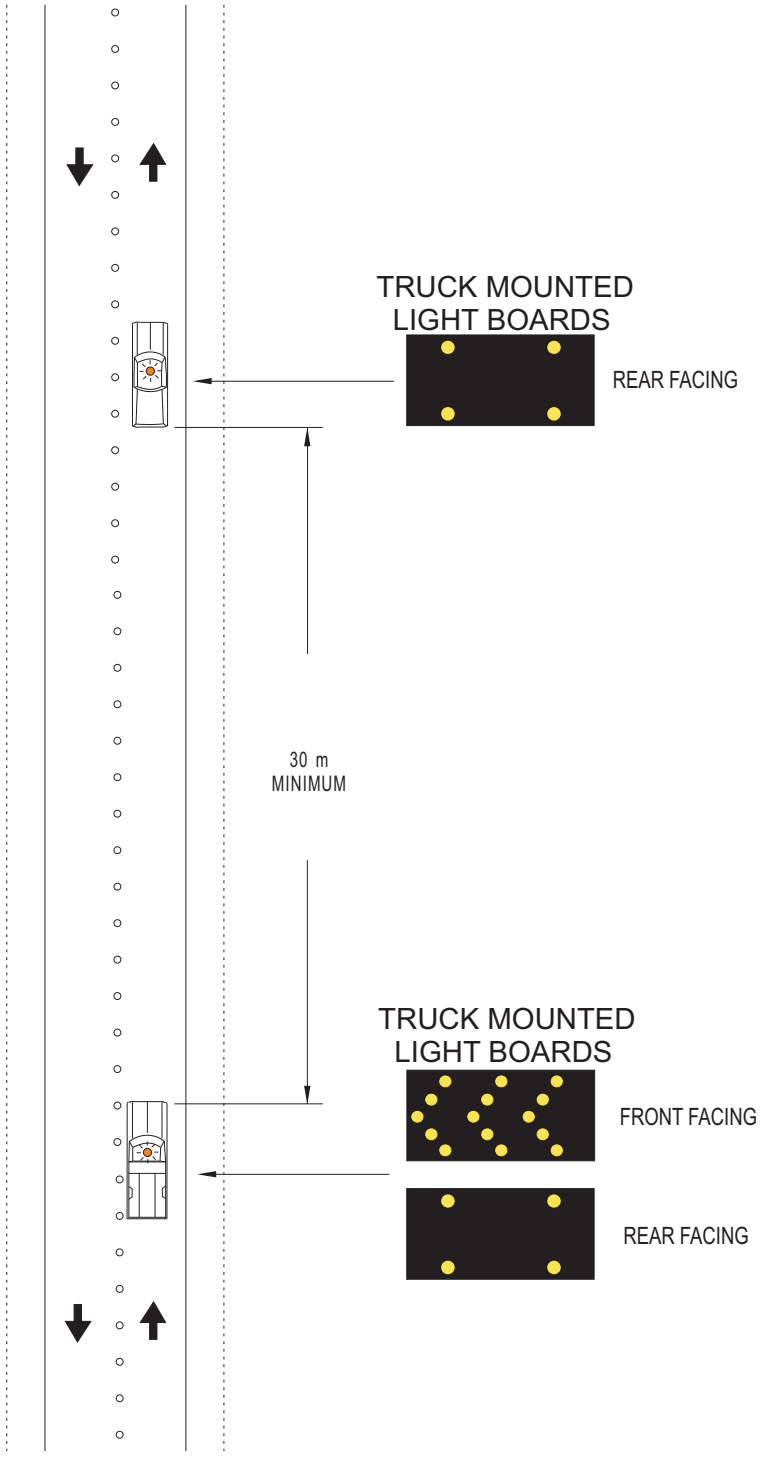


TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: ESTABLISHMENT OF NO PASSING ZONES WITH PILOT VEHICLE

TYPICAL PLAN



NOTE:

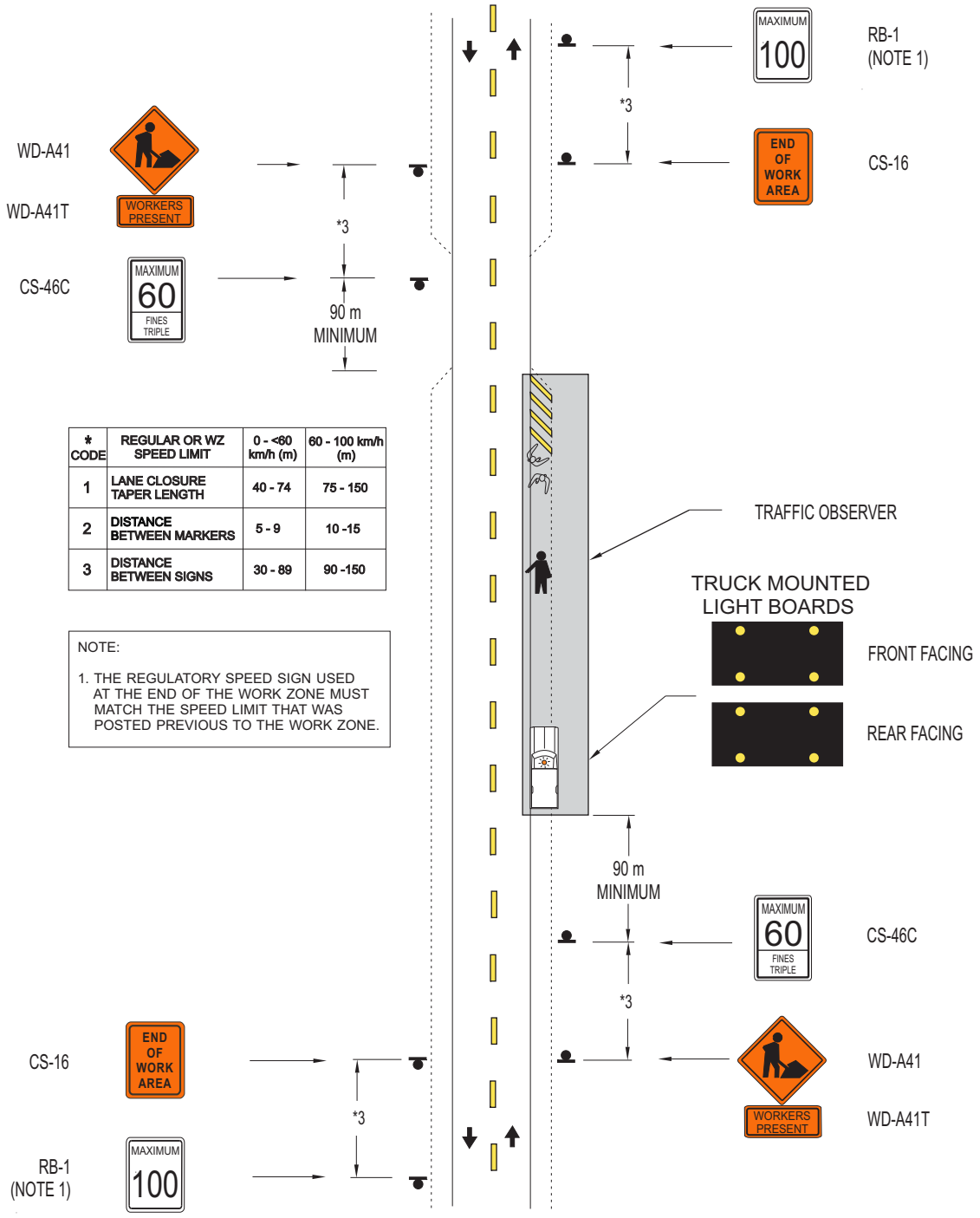
1. THE REAR FACING LIGHT BOARDS MAY INDICATE SEQUENTIAL CHEVRONS TO THE RIGHT WHERE SHOULDER WIDTH PERMITS PASSING ON THE RIGHT.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: PAVEMENT SIGNS - BRIDGE MARKINGS

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

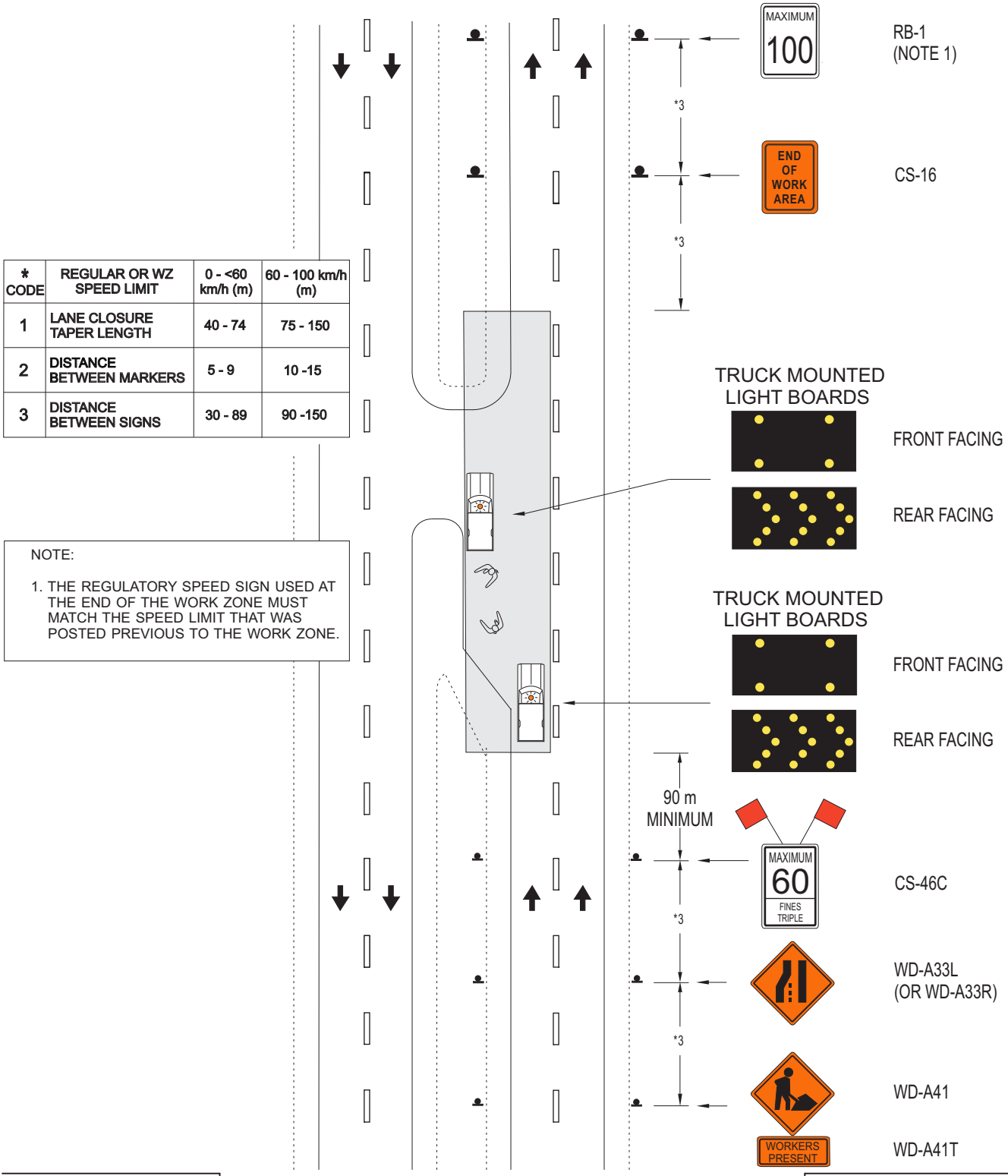
1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: PAVEMENT SIGNS - CURBING

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

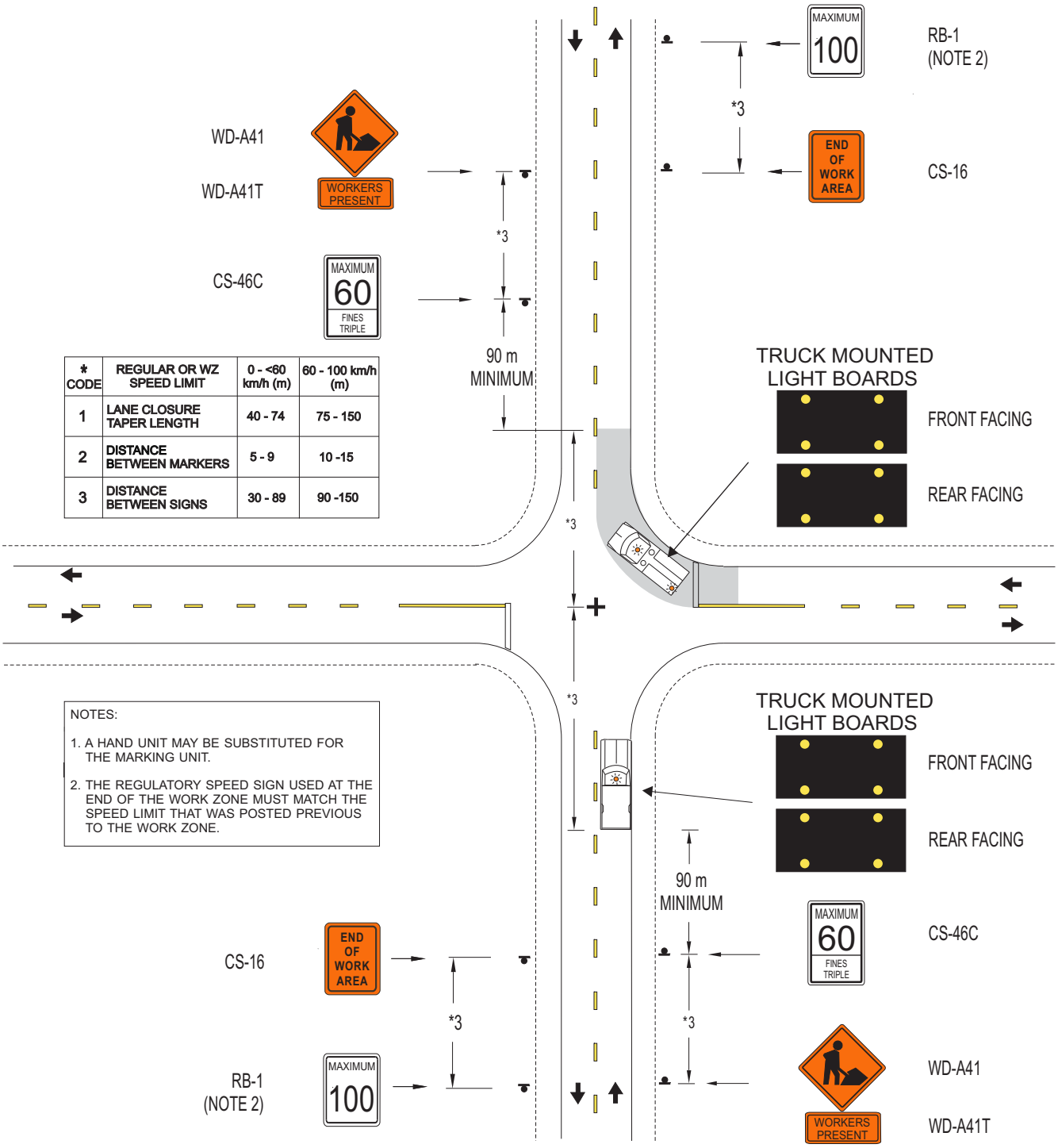
1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: WRAP - 2 LANE

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

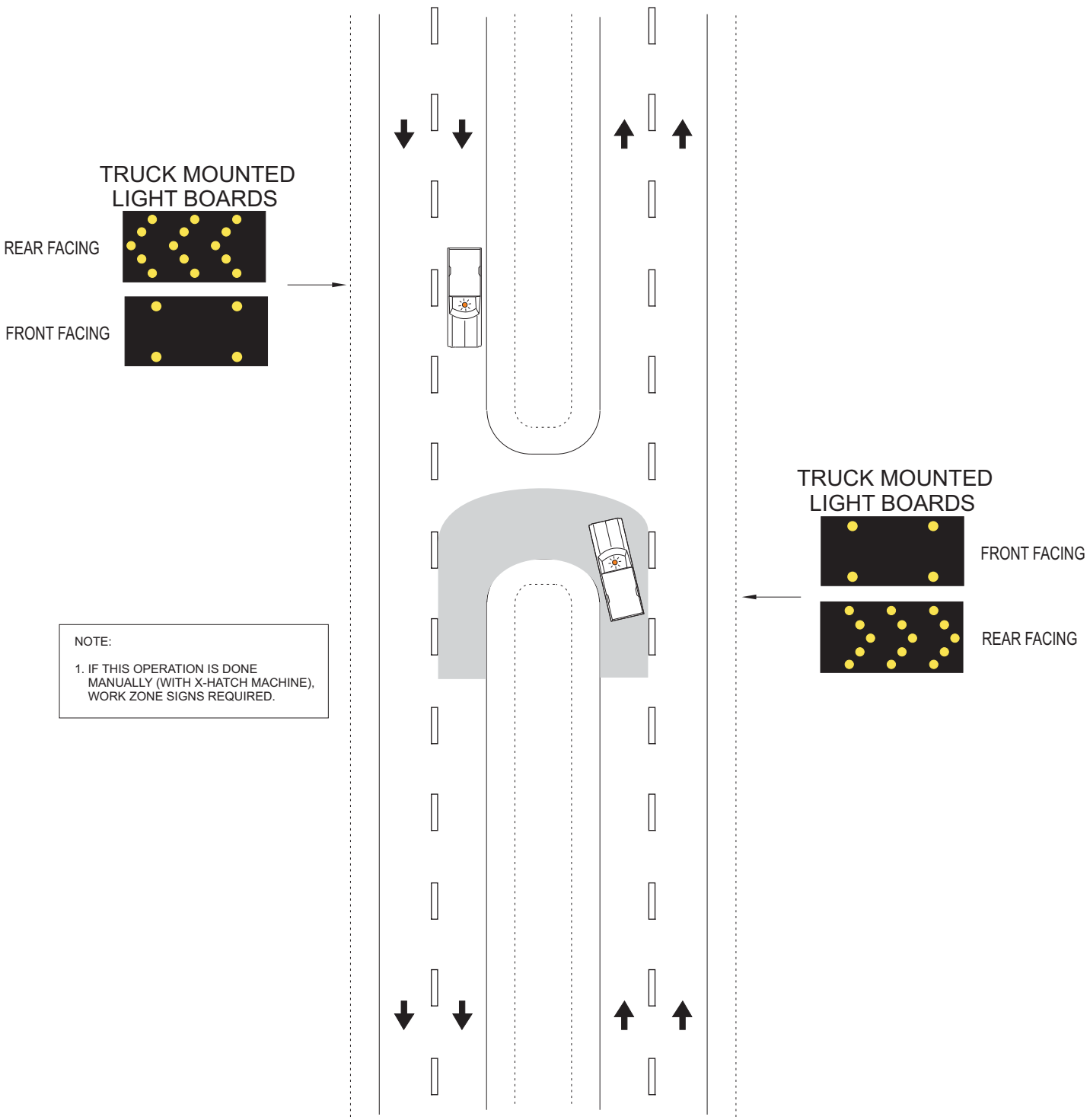
1. A HAND UNIT MAY BE SUBSTITUTED FOR THE MARKING UNIT.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING
TYPICAL PLANS

Subject: WRAPS - 4 LANE HIGHWAY

TYPICAL PLAN



NOTE:

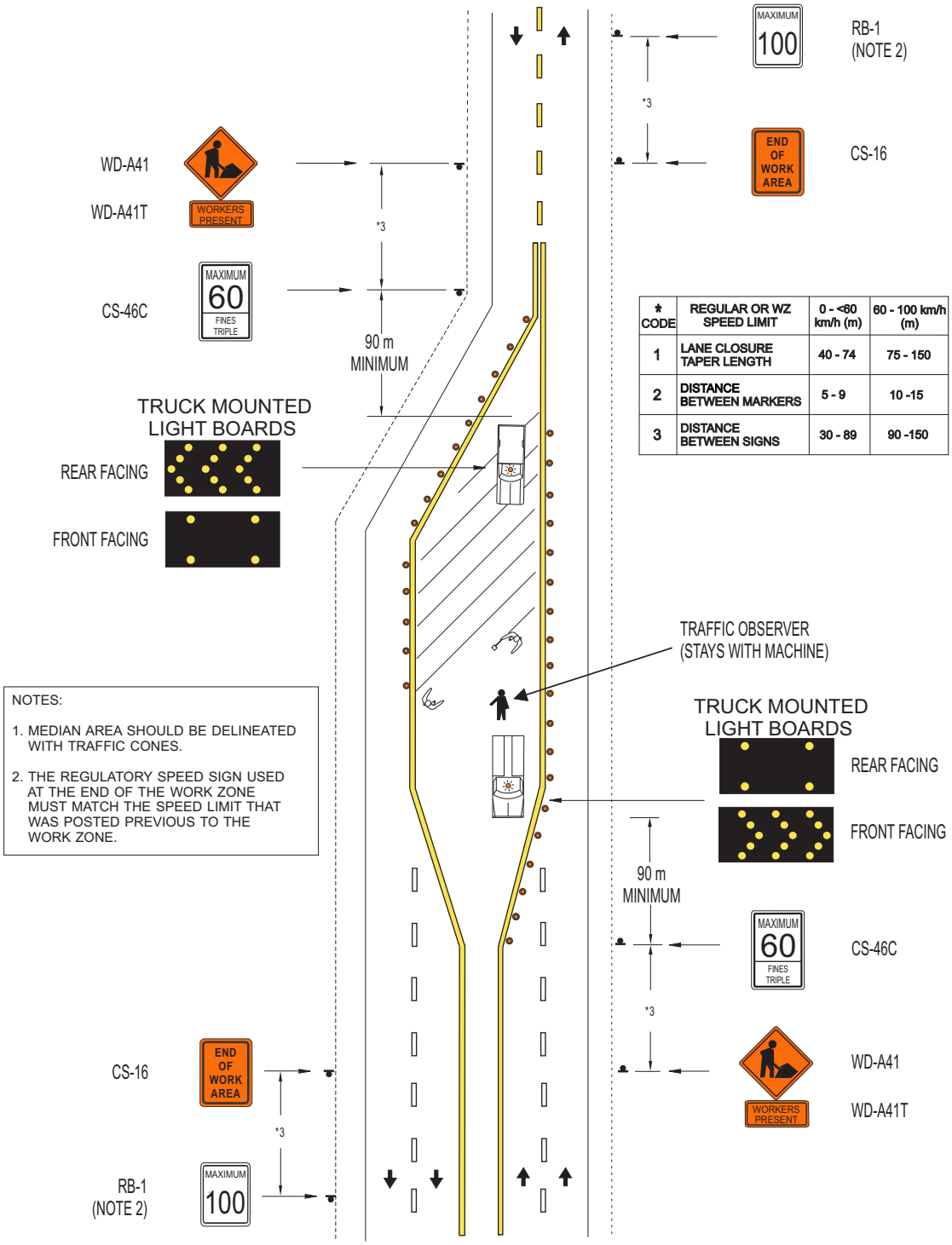
1. IF THIS OPERATION IS DONE MANUALLY (WITH X-HATCH MACHINE), WORK ZONE SIGNS REQUIRED.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PAVEMENT MARKING TYPICAL PLANS

Subject: PAVEMENT SIGNS - PAINTED MEDIANS

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. MEDIAN AREA SHOULD BE DELINEATED WITH TRAFFIC CONES.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

This section contains written guidelines and typical plans for traffic control for Testing Services crews. The guidelines are flexible and should be followed to the extent that is possible to do so for the sake of consistency and uniformity and modified to the extent necessary to achieve optimum traffic control and safety.

While the following plans provide guidelines for the application of work zone signing for Testing Services crews, they are not a substitute for good judgment. These guidelines are directed to the safe and expeditious movement of traffic through work zone and workers safety. Adverse environmental, climactic, highway alignment and topography are conditions that would require enhanced work zone signing.

When work is performed under normal conditions, the degree of risk to motorists and workers is determined by the position of crews and equipment in relation to the road surface, time required performing the task and the traffic volumes.

It is emphasized that these are guidelines for typical situations and that additional or other protection must be provided when unusual complexities and hazards prevail. It is also vital that crewmembers watch out for each other and that at least one member of the crew is always watching the traffic around them.

No.	Description	Testing Activities	Traffic Accommodation Plan		
			2-Lane	4-Lane	Shoulder
Short Duration Work - Activity occurs on or adjacent to a highway, during normal working hours, for up to one day.					
1.	A lane of highway is closed in order to perform the activity. Temporary signs are erected and the work area may be coned off. On two-lane roads, a safety truck parked in the closed lane, equipped with rotating lights or a light board in caution mode, and a flagperson are used to control traffic and protect the workers. Highways with higher traffic volumes or with restricted sight distances use a second flagperson to control traffic from the other direction. On four-lane roads, a safety truck parked in the closed lane, equipped with rotating lights or a light board in arrow mode, and an optional flagperson are used to control traffic and protect the workers.	• bridge deck surveys • walking profile measurements • special concentrated coring • deflection bowl Benkelman Beam • special Benkelman Beam • installing traffic counting equipment • installing thermisters • reading slope indicators on bridges • painting special test sections • geotechnical drilling • truck traffic studies	12-03 or 12-04	12-05	9-03
2.	Activity occurs 2 to 10 m from the edge of the road. Temporary signs are erected. The testing vehicle is either parked on the shoulder or off of the road surface with a rotating light on.	• reading slope indicators on shoulders • soil sampling with the auger drill • traffic counter repairs • geotechnical drilling	9-02	9-02	9-02
Brief Duration Work - Activity occurs on a highway, during normal working hours, for a period of less than 15 minutes at a time.					
3.	The testing activity moves along quickly over an extended length of highway (up to 20 km). The lane is temporarily closed to perform the task, which usually takes less than 15 minutes to complete. On two-lane roads, a safety truck parked in the shoulder, equipped with rotating lights and the applicable signage, and a flagperson are used to control traffic and protect the workers. Highways with higher traffic volumes or with restricted sight distances use a second flagperson to control traffic from the other direction. On four-lane roads, a safety truck parked in the shoulder, equipped with rotating lights and the applicable signage, and an optional flagperson are used to control traffic and protect the workers.	• general coring • soil sampling with the auger drill • subgrade testing • centerline traffic counts	9-02	9-02	9-02
Moving Operations - Activity either occurs for less than a minute at one location or continuously moves along at a slow speed.					
4.	The testing activity proceeds rapidly over an extended length of highway (up to 40 km). The lane is temporarily blocked by the testing vehicle to perform the task, which usually takes less than 15 seconds to complete. A safety truck, with appropriate lights and signage, follows the testing vehicle on the shoulder watching for traffic and provides an early warning for the public and if required, to the workers.	• skeleton Benkelman Beam • concentrated Benkelman Beam	9-02	9-02	9-02

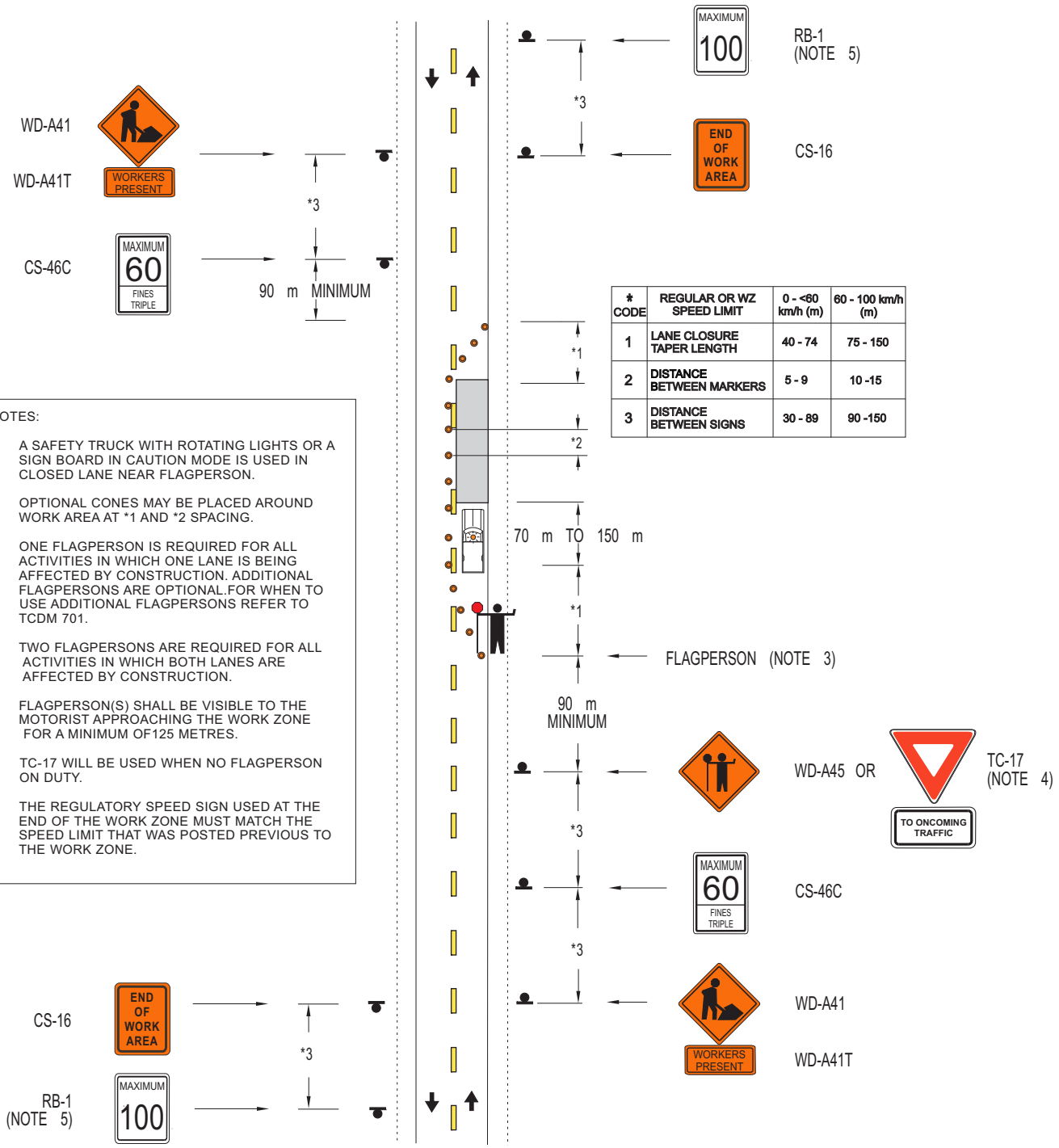
No.	Description	Testing Activities	Traffic Accommodation Plan		
			2-Lane	4-Lane	Shoulder
Other Work - Activity occurs anywhere within the highway right-of-way but does not disrupt traffic flow.					
5.	The testing activity is beyond 10 m from the edge of the road surface. The testing vehicles use rotating lights. This also includes situations where the workers are beyond 10 m but the testing vehicle may be parked on the shoulder.	• traffic counter servicing • data collection box servicing • manual traffic surveys • reading off-road slope indicators • geotechnical drilling • soil sampling with the auger drill	None	None	None
6.	The testing activity continuously moves along the highway at speeds between 50 and 80 kph. The testing vehicles use flashing or rotating lights.	• high-speed profiler • skid resistance testing	None	None	None
7.	The activity involves stopping on the shoulder and having a worker or a vehicle briefly enter the driving lanes for usually less than 15 seconds. The action only occurs when it is safe to do so and there is no oncoming traffic. In heavy traffic, the worker simply waits for a break in the traffic to continue the operation. The testing vehicle uses a rotating light.	• moving equipment on or off the road • placing temporary traffic counters • traffic counter repairs • speed surveys • special section painting • Benkelman Beam pre-marking • road inspections • road-top hazard removal	None	None	None
8.	The activity involves stopping a vehicle on the shoulder for a short period of time to attend to a task within the vehicle. An attempt must be made to use an approach instead of the shoulder whenever possible. The testing vehicle uses four-way flashers as a minimum.	• using mobile communication • road inspections • reviewing information • writing notes	None	None	None

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TESTING SERVICES
TYPICAL PLANS

Subject: SHORT DURATION WORK
TWO LANE HIGHWAY AADT <1000

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. A SAFETY TRUCK WITH ROTATING LIGHTS OR A SIGN BOARD IN CAUTION MODE IS USED IN CLOSED LANE NEAR FLAGPERSON.
2. OPTIONAL CONES MAY BE PLACED AROUND WORK AREA AT *1 AND *2 SPACING.
3. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL.FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORIST APPROACHING THE WORK ZONE FOR A MINIMUM OF125 METRES.
4. TC-17 WILL BE USED WHEN NO FLAGPERSON ON DUTY.
5. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

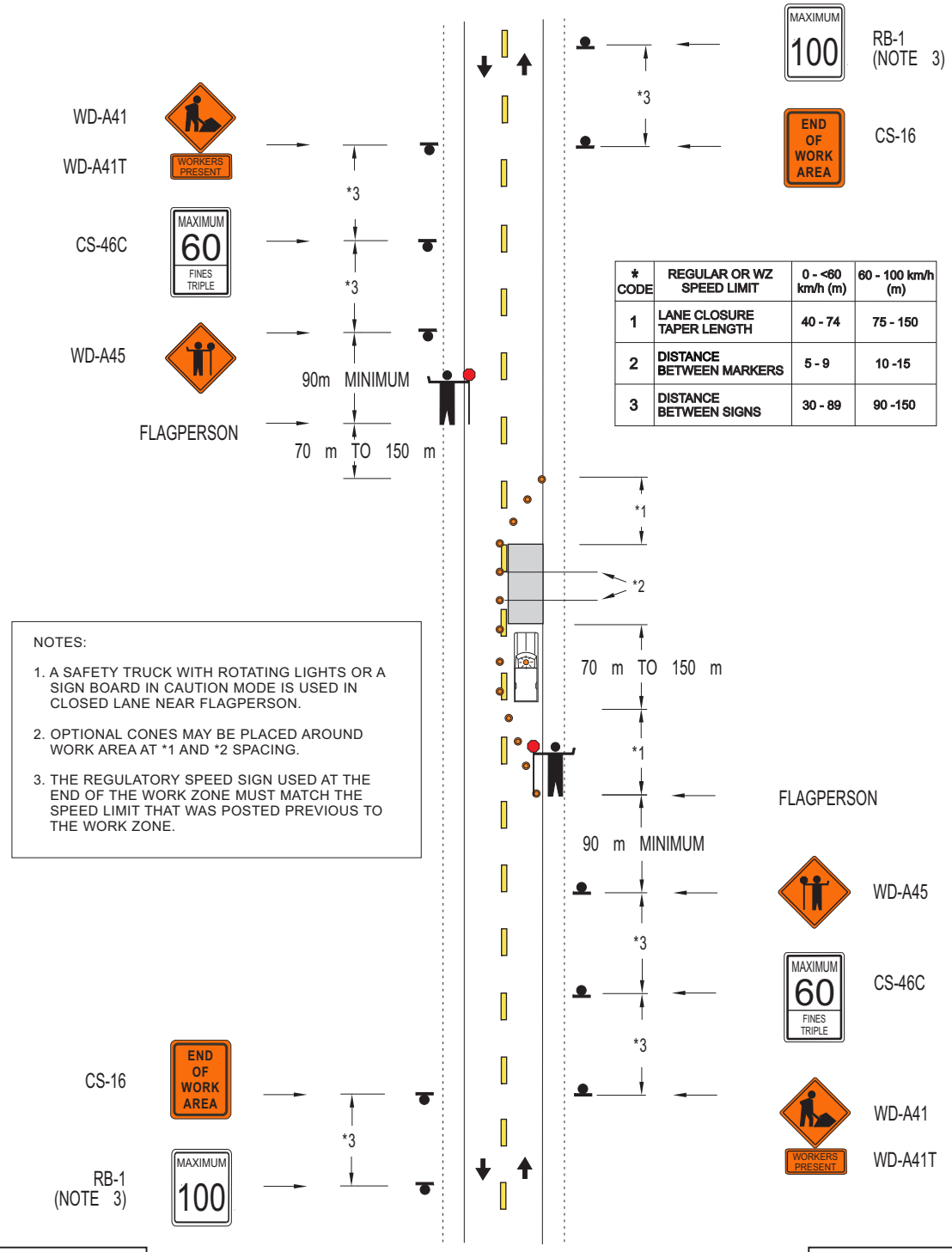
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TESTING SERVICES

TYPICAL PLANS

Subject: SHORT DURATION WORK
TWO LANE HIGHWAY AADT >1000

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

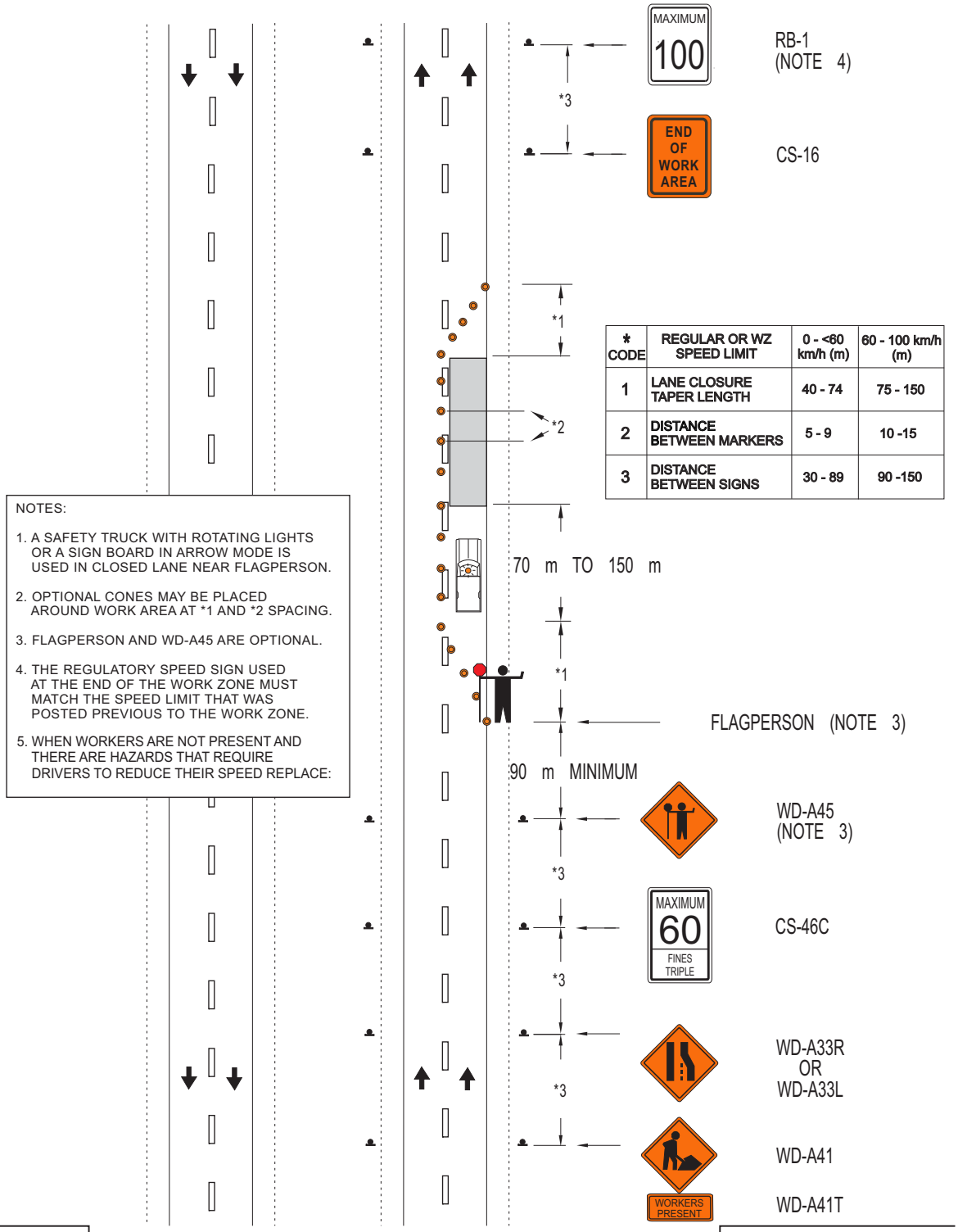
1. A SAFETY TRUCK WITH ROTATING LIGHTS OR A SIGN BOARD IN CAUTION MODE IS USED IN CLOSED LANE NEAR FLAGPERSON.
2. OPTIONAL CONES MAY BE PLACED AROUND WORK AREA AT *1 AND *2 SPACING.
3. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TESTING SERVICES
TYPICAL PLANS

Subject: SHORT DURATION WORK
FOUR LANE HIGHWAY

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
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3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. A SAFETY TRUCK WITH ROTATING LIGHTS OR A SIGN BOARD IN ARROW MODE IS USED IN CLOSED LANE NEAR FLAGPERSON.
2. OPTIONAL CONES MAY BE PLACED AROUND WORK AREA AT *1 AND *2 SPACING.
3. FLAGPERSON AND WD-A45 ARE OPTIONAL.
4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.
5. WHEN WORKERS ARE NOT PRESENT AND THERE ARE HAZARDS THAT REQUIRE DRIVERS TO REDUCE THEIR SPEED REPLACE:

No.	Type of Activity	Description	Traffic Accommodation Plan	Activities
1.	Continuous slow moving activities along road surface (<10 km/h).	This activity continuously moves along the highway at less than 10 km/h. Workers will be present on the road surface. Vehicles shall use an amber flashing light.	13-03 ≤1000/2 lane 13-04 >1000/2 lane 13-05 4 Lane No plan required if work is within a Contractor's work zone.	• establishing PIs and POTs for preliminary surveys and construction surveys • offsetting POTs for preliminary surveys and construction surveys • determining chainage for POTs for preliminary surveys • preliminary cross sectioning • slope staking and second grading. • plugging culverts • final cross-sections • material sampling on the road surface • provision of width stakes on surfacing projects • checking of cross-slopes on surfacing projects • centreline marking on surfacing projects • coring supervision on surfacing projects • density testing • segregation inspections • road inspections on microsurfacing projects
2.	Continuous moving activity on the road surface or within 2 m of the road surface.	This activity continuously moves along the highway. Workers will be present on the surface or within 2 m of the road surface. When workers are required to enter the road surface, the workers wait for a break in traffic to carry out the activity. Vehicles shall use an amber flashing light.	13-03 13-06	• typical cross-sectioning for rehabilitation assessments • obtaining centreline profiles for rehabilitation contracts • running fly levels • obtaining transit and drainage notes during preliminary surveys • running line for surfacing projects • obtaining centreline profiles and typical cross-sections on haul roads

3.	Activity beyond 10 m of the road surface.	The activity is beyond 10 m from shoulder, including all workers and vehicles. Low risk lane entry procedures are used to exit and enter the highway. Vehicles shall use an amber flashing light.	13-03 13-06	• running line for preliminary surveys and grading projects • establishing bench marks
4.	Low risk lane entry.	The activity involves stopping on the shoulder and having a worker briefly enter the driving lanes for usually less than 1 minute. The action only occurs when there is no oncoming traffic. In heavy traffic, the worker waits for a break in the traffic to continue the operation. This activity also includes parking on the shoulder to access work beyond 10 m from the road surface. The vehicle shall use an amber flashing light.	No plan required.	• legal pin location • road inspections • haul road inspections • locating project limits for sealing contracts and microsurfacing contracts • road-top hazard removal
5.	Activity on the road surface but within the Contractor's work zone.	This activity takes place within the highway right of way but is entirely within the Contractor's work zone. Vehicles shall use an amber flashing light.	No plan required.	• slope staking, plugging culverts and second grades on projects not open to the public • materials sampling and density testing • second grading • on road checking • time keeping • quality control • road testing on sealing contracts • materials sampling on sealing contracts • Contractor communications • communications with the public, landowners and local government officials
6.	Stopping on shoulder.	The activity involves stopping a vehicle on the shoulder for a short period of time to attend to a task within the vehicle. An attempt must be made to use an approach instead of the shoulder whenever possible. The vehicle uses four-way flashers as a minimum.	No plan required.	• using mobile communication • reviewing information • others

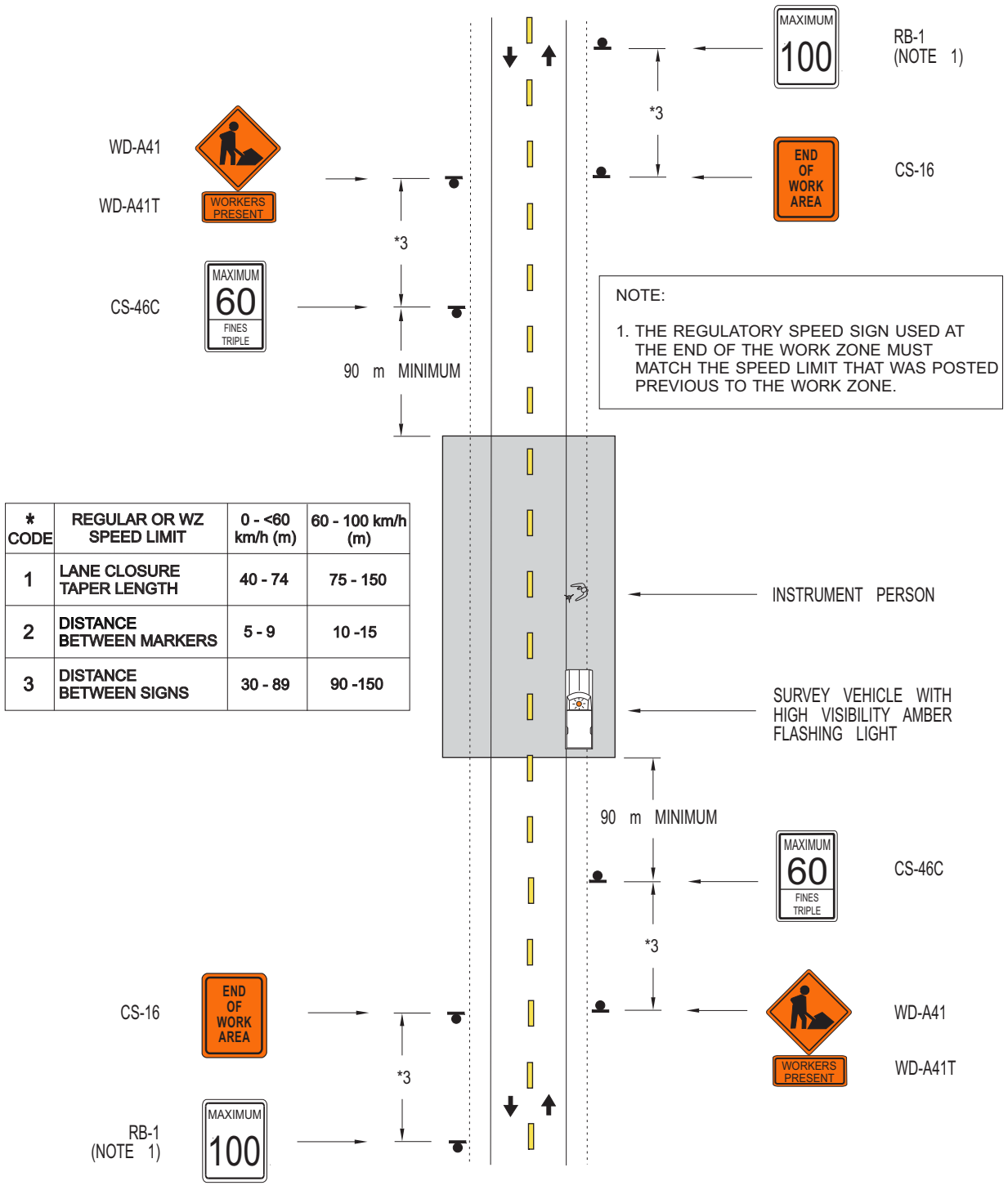
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: ENGINEERING SERVICES

TYPICAL PLAN

Subject: SURVEYING TWO LANE HIGHWAY AADT <1000

TYPICAL PLAN



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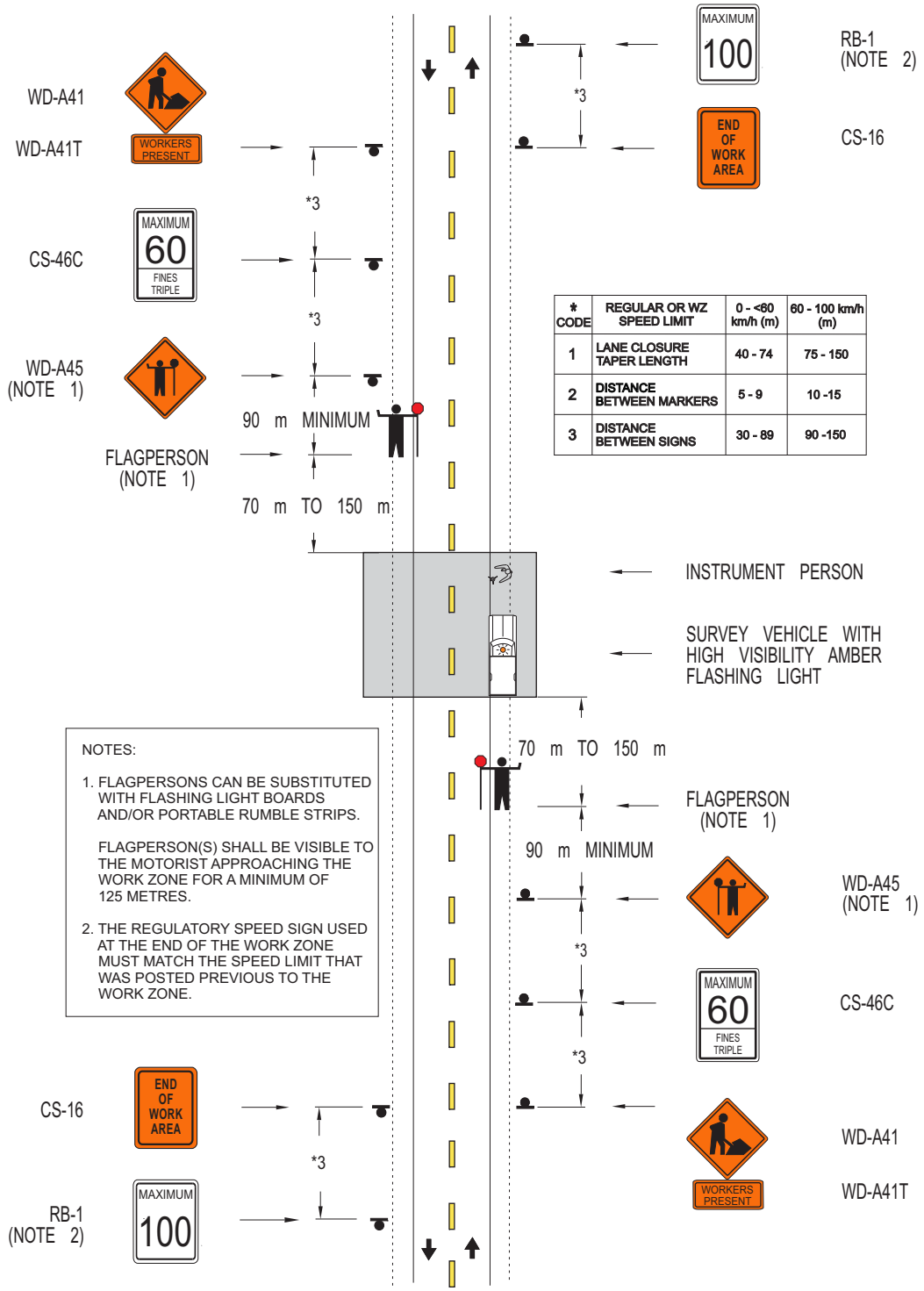
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: ENGINEERING SERVICES

TYPICAL PLANS

Subject: SURVEYING TWO LANE HIGHWAY AADT >1000

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
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NOTES:

1. FLAGPERSONS CAN BE SUBSTITUTED WITH FLASHING LIGHT BOARDS AND/OR PORTABLE RUMBLE STRIPS.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORIST APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

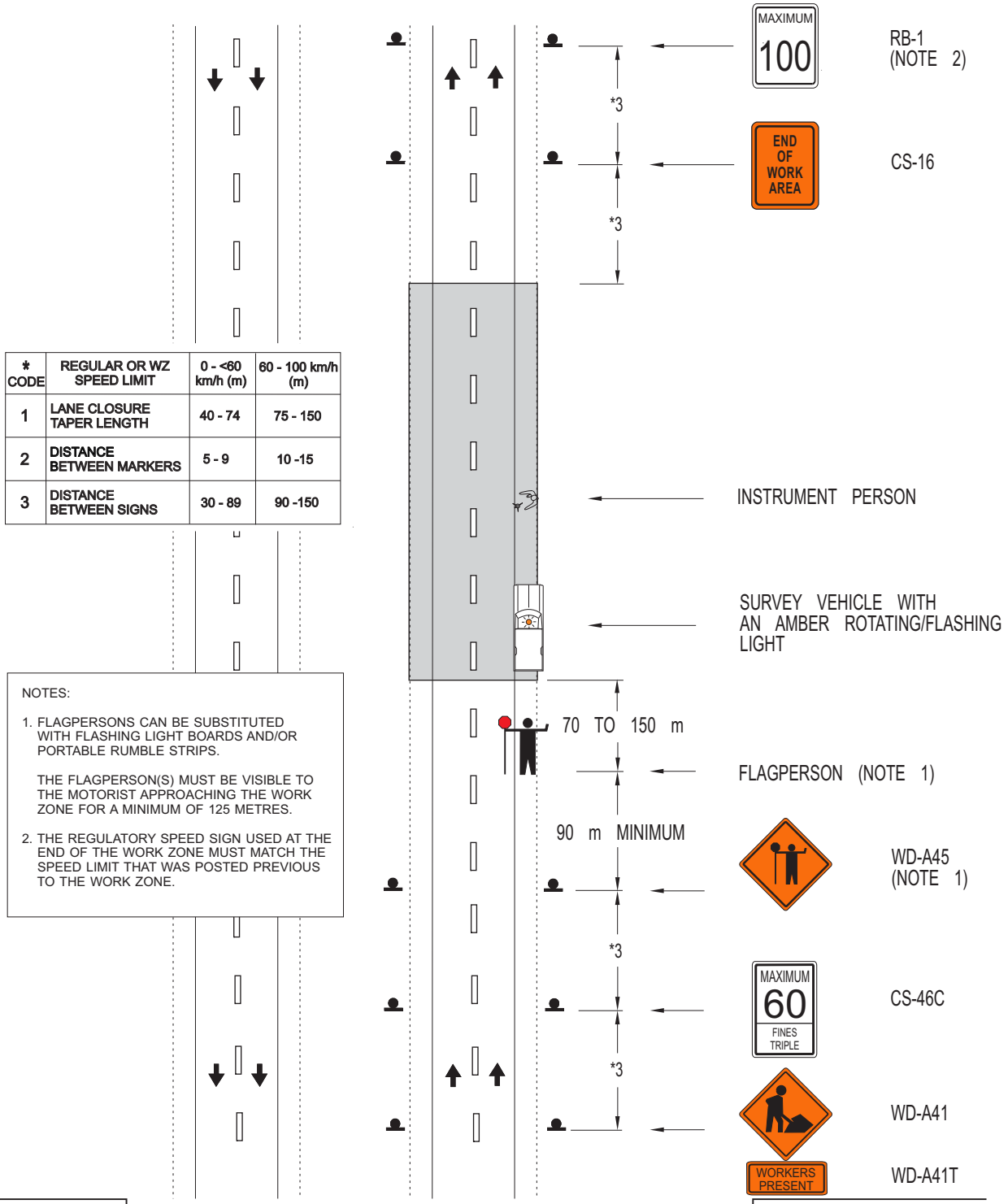
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: ENGINEERING SERVICES

TYPICAL PLANS

Subject: SURVEYING FOUR LANE HIGHWAYS

TYPICAL PLAN



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NOTES:

1. FLAGPERSONS CAN BE SUBSTITUTED WITH FLASHING LIGHT BOARDS AND/OR PORTABLE RUMBLE STRIPS.

   THE FLAGPERSON(S) MUST BE VISIBLE TO THE MOTORIST APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

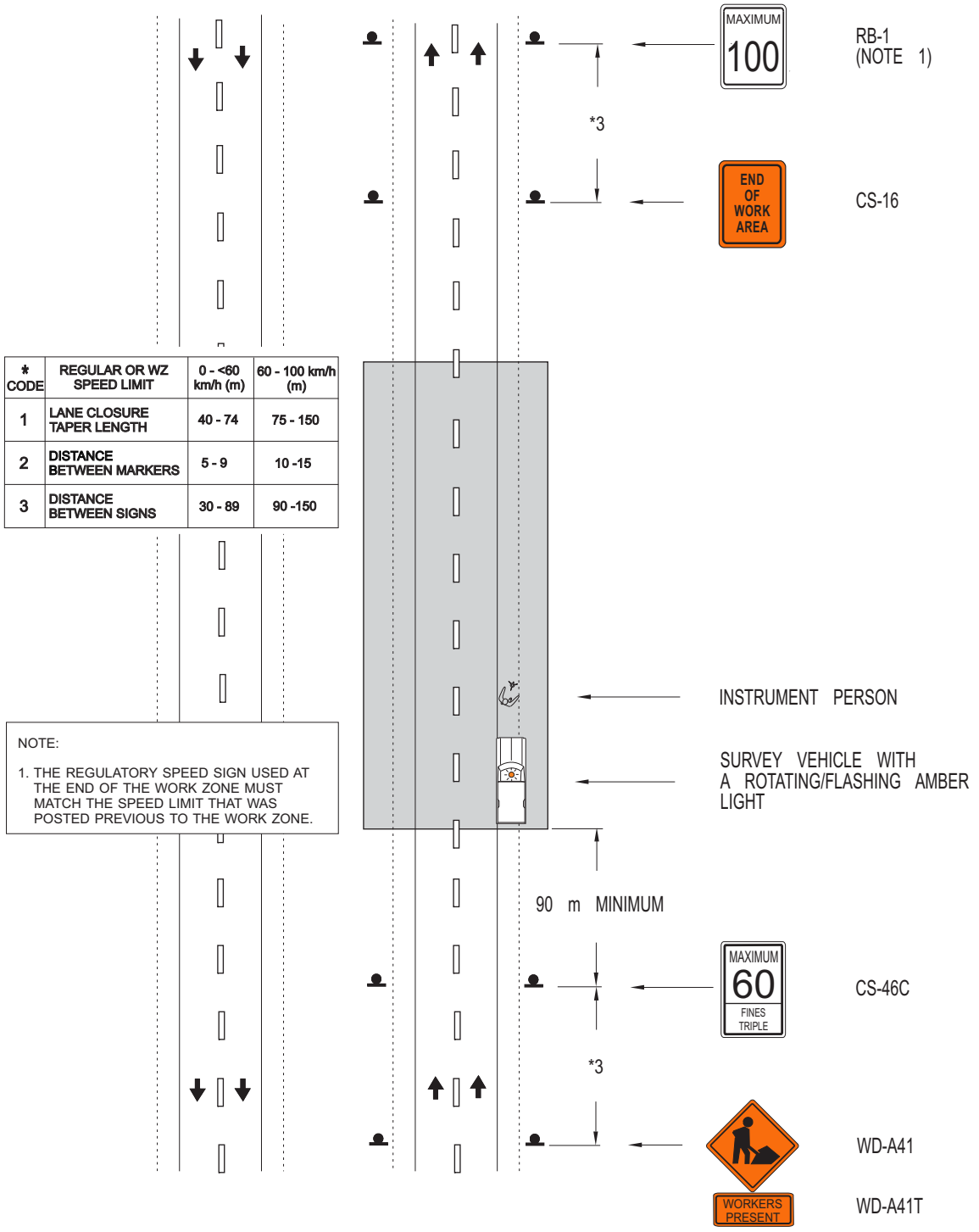
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: ENGINEERING SERVICES

TYPICAL PLANS

Subject: SURVEYING FOUR LANE HIGHWAYS CONTINOUS MOVING

TYPICAL PLAN



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NOTE:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

Note: A critical examination should be made of each project to determine if flagging and additional signing is necessary and if so, what is the minimum level that can be used to commensurate with job and safety needs.

Emergency Measures

Activity#	Activity Name	Description	Location	2 Lane	4 Lane	Comments
Unscheduled Stops						
	Traffic Control Flagging		Road	Rotary Lights	Rotary Lights	- As required with the equipment available
	Road Closure		Road	Rotary Lights	Rotary Lights	- As required with the equipment available
	Removal of Debris/Roadkill		Road	Rotary Lights	Rotary Lights	- As required with the equipment available
	Road Detour		Road	Rotary Lights	Rotary Lights	- As required with the equipment available
	Equipment Breakdown		Road	Safety Reflector	Safety Reflector	- As required with the equipment available
	Use of Handheld Communication Devices		Road			- Pull over on shoulder when having to take attention off the road
Planned Emergencies						
	Road Closures due to fires		Road	9-09	9-09	- Follow Policy and add "Smoke Area" sign
	Road Closures due to floods					
	Completely closed		Road	9-09	9-09	
	Detour		Road	10-11-01 10-11-02	10-11-01 10-11-02	
	Road Closures Due to Weather		Road			- Media alert, notify RCMP, notify hotline mechanical sign at major centre to indicate "road closed"
	Temporary Airstrip		Road	9-05-02	9-05-02	

Routine Surface Repair Activities (MiPP)

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
3120	Spot Seal	The application of liquid asphalt and graded aggregate on surfaced roads to prevent moisture from entering the subgrade and to prevent further deterioration of the asphalt mat	Road	10-03-01 or 10-03-02 or 10-07	10-05-02	
			Overnight	10-03-01 or 10-03-02 or 10-07	10-05-01	- Leave arrow board and delineators up overnight if seal can't be swept the same day it is applied (4 lane only)
	Strip Seal	Application of asphalt and graded aggregate to granular and asphalt concrete surfaced roads in wheel ruts to prevent moisture from accumulating in rutted areas as well as prevent further deterioration. Single or multiple wheel path seals	Road	10-03-01 or 10-03-02 or 10-07	10-05-01	
			Overnight	10-03-01 or 10-03-02 or 10-07	10-05-01	- Leave arrow board and delineators up overnight if seal can't be swept the same day it is applied (4 lane only)
3130	Deep Patch	Repair of failed areas by excavating into the sub-grade by mechanical means	Road	10-03-01 or 10-03-02	10-05-01	- Use cones to direct traffic around the hole and equipment
3140	Machine Mix Patching	The process of spreading asphalt mix with a motor grader or other mechanical means to repair failed area, wheel ruts, depressions, bumps, etc	Road	10-03-01 or 10-03-02	10-05-02	
			Overnight	10-08	10-08	- If a windrow is left overnight
3150	Crack Sealing	The sealing of cracks on a pavement with liquid asphalt or with liquid asphalt and sand	Road	14-05	9-06 or 10-05-02	
3160	Gravel Blading	The reshaping of the road surface and spreading of aggregate on gravel surfaced highways by blading with a motor grader. Includes the pulling of shoulders on gravel roads				
	Spot		Road	Rotary Lights	Rotary Lights	
	Single		Road	Rotary Lights	Rotary Lights	- When windrow is > 4 cm in height a cone is placed at the start of the windrow - Max length of section is 10 km

	Tandem		Road	Rotary Lights	Rotary Lights	
3170	Minor Spot Regravel	Minor spot regraveling of gravel surfaces	Road	Rotary Lights		- If load is dumped improperly, take necessary precautions to ensure public safety
	Spot Gravel	Major spot regravel of areas less than a complete segment	Road	9-04-02		
3180	Dust Treatment	The application of calcium chloride, lignosulfinate, asphalt to a gravel surface road	Road	Rotary Lights		- Lead truck with rotary lights, - Radio communication - Semi and lead vehicles travel in centre of the road - 10 km section - Vehicles travel at 10 km/h
3190	Hand Patching	Hand repair of small pot holes or depressions using cold mix, hot mix or base and compacting				
	Fast Moving (short duration)	Hand patching which is expected to take less than 15 minutes in a 3 km section.	Road	Rotary Lights	Rotary Lights	- **Add an extra person to act as traffic observer/spotter**
	Extensive Patching	Hand patching which is expected to take greater than 15 minutes in a 3 km section.	Road	9-05-01	9-06 or 10-05-02	
3200	Minor Sandvik Blading	Minor recycling of bituminous mix generally carried out to improve ride or rutting. This activity is intended for use on short sections where deformed or rutted material exists.	Road	14-05 10-03-01 or 10-03-02	10-05-02	
	Pavement Planning	Removal or recycle of bituminous surface material, generally carried out to improve ride or rutting. Not associated with Mepp and Hepp projects	Road	10-04-02	10-05-02	
3210	Shoulder Work	Any activity outside the shoulder line including sealing, hand patching, deep patching, graveling, flushing, blading composite shoulders, etc. Includes any type of work on approaches	Shoulder	- **Use the same sign plan as the surface activity uses**		
3220	Thermopatching / Transverse Crack Machine	The leveling of surface depressions with sand sulphur-asphalt mix or micro - surfacing materials	Road	14-03-01 9-11	14-03-02	

3260	Convert TMS to Gravel	The process of converting an asphalt surface to a gravel surface. Includes spot regravel and blading or, blading failures on sections of road awaiting resurfacing, spot overlay, or thick patch	Road	10-03-01 or 10-03-02		- Construction signing for the conversion of TMS to gravel
			Overnight	10-08		- Used when windrow is left overnight
	Regular	Routine gravel blading for purposes of maintaining road surface for safe travel	Road	9-04-02		- Routine maintenance to maintain gravel surface
3280	Spot Improvement	Spot overlays using a paver for AC pavements. Larger scale strengthening layers generally covered with a seal coat on granular or TMS surfaces (strengthening)	Road	10-03-01 or 10-03-02	10-05-02	
			Overnight	10-08	10-08	- Used when windrow is left overnight

Light Surface Repair Activities (MaPP)

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
3370	Full Seal	Full seal of driving lanes for entire segment with the application of liquid asphalt and aggregate to all surface roads to prevent moisture from entering the subgrade and to prevent deterioration of the asphalt surface	Road	10-03-01 or 10-03-02	10-05-02	
			Overnight			- Leave arrow board and cones up overnight if seal can't be swept the same day it is applied (4 lane only)

Medium Surface Repair Activities (MaPP)

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
3530	Micro Surfacing	The filling of depressions usually ruts, using contractor and specialized materials	Road	10-04-02	10-05-02	
3540	Regravel	Major regravel covering a complete segment of a gravel surface highway	Road	9-04-02		- If load is dumped improperly, take necessary precautions to ensure public safety
3550	Subgrade Stabilization	Use of clay, slit or gravel materials to stabilize sandy subgrades or cover rocky road surfaces on gravel highways	Road	10-03-01 or 10-03-02		- Yield to oncoming traffic on windrow side
			Overnight	10-08		- Used when windrow is left overnight
5360	Sandvic Blading (full segment)	Removal or recycle of bituminous surface material, generally carried out to improve ride or rutting	Road	14-05	10-05-02	- Less than a day
			Overnight	10-03-01 or 10-03-02	10-05-02	- Greater than a day

Heavy Surface Repair Activities (HePP)

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
3610	Structural Heavy Preservation	AC Major resurfacing (N20 design). Gran Structural / TMS Structural	Road	10-03-01 or 10-03-02	10-05-02	
			Overnight	10-08	10-08	- Used when windrow is left overnight
	Beginning and end of job site			10-02	10-02	- Used if size of job fits criteria set out in the plan
	Non-Structural Heavy Preservation	Preservation Overlay could be a combination of any strengthening methods that provide a design life less than 15 years. ie: Cold in place or sub-grade strengthening or spot improvement 100% or TMS gravel reversion on a full segment	Road	10-03-01 or 10-03-02	10-05-02	
			Road	10-08	10-08	- Used when windrow is left overnight
	Beginning and end of job site			10-02	10-05-02	- Used if size of job fits criteria set out in the plan

Winter Maintenance Activities

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
3910	Snow Removal	The removal of snow, snowpack and slush from the road surface by mechanical means. Includes sanding while plowing	Road	Rotary Lights	Rotary Lights	
3920	Ice Control	Spreading of sand or chemical for the treatment of pavement frost, ice or snowpack on driving lanes	Road	Rotary Lights	Rotary Lights	

Mowing Activities

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	Mowing	Cutting vegetation under 25mm in diameter to a height less than 100mm.				
	Hand Cutting		Shoulder	9-02	9-02	- Use rotary lights - WD-A41 and CS-46C may be mounted on back of vehicle
			Ditch	9-02	9-02	- Use rotary lights - WD-A41 and CS-46C may be mounted on back of vehicle
			ROW	9-02	9-02	- Use rotary lights

	Moving Operation		Shoulder	Rotary Light	Rotary Light	
			Ditch	Rotary Light	Rotary Light	
			ROW	Rotary Light	Rotary Light	
	Mowing Vehicle parked on Road		Shoulder	Rotary Light	Rotary Light	- Cones are placed around any piece of equipment left on road surface unattended
	Mowing Vehicle driving on Road			Rotary Light	Rotary Light	- "Slow Moving Vehicle" sign on back of mowing equipment
4130	Brushing	The control of vegetation greater than 25mm by mechanical means.				
	Mechanical - Hydro-Axing		ROW	9-02	9-02 or 10-05-02	
	Mechanical - Robo Cutter		Shoulder	9-02	9-02 or 10-05-02	- Safety vehicle needed to follow grader traveling on the road
	Hand Cutting	The control of vegetation greater than 25mm by hand	Ditch	9-02	9-02 or 10-05-02	- Use rotary lights
			Shoulder	9-03	9-03 or 10-05-02	- Use rotary lights
			ROW	9-02	9-02 or 10-05-02	- Use rotary lights
4140	Chem. Vegetation Control	The control of brush and noxious weeds using chemical treatment	ROW	9-02	9-02 or 10-05-02	

Ditch Maintenance Activities

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	Litter Pickup	Removal of litter from highway rights of way		9-02	9-02	
4220	Adopt a Highway			9-02	9-02	
	Volunteer Groups			9-02	9-02	

4230	Beaver Control	Cleaning debris from the culverts used by beavers to plug off the flow of water through the culvert. The activity also includes time spent removing beaver dams and/or time spent eradicating beaver from the site.				
	Backhoe Used		Shoulder	9-04-02	9-06 or 10-05-02	
	Explosives Used		Shoulder	9-04-02	9-06 or 10-05-02	- Traffic Control signalers mandatory while blasting

4240	Fence Repair	Repair or replace fences. Includes all types of fences and security barriers	ROW	9-02	9-02 or 10-05-02	- Only for work in the median
4250	Culvert Maintenance	Steaming, cleaning, repairing and replacing culverts, Cleaning subdrains	Shoulder	9-02	9-02 or 10-05-02	
	Seeding Right of Way		ROW	Rotary Light	Rotary Light	

Sweeping

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	After sealing and other maintenance activities		Road	10-03-01 or 10-03-02	10-05-02	- Add road sweeper ahead
	Cleanup			Rotary Lights	Rotary Lights	- Safety Vehicle must be present for all sweeping, complete with arrow board and "Road Sweeper Ahead" sign
	Dust Control			Rotary Light	Rotary Light	- Water is recommended in addition to a sweeping operation to reduce the dust and increase the visibility

Bridges

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	Inspections			Rotary Light	Rotary Light	
	Cleaning/Minor Repair			9-05-02	10-05-02	- Addition of "Bridge Repairs Ahead Be Prepared to Stop"(CS-47), work is to take a day or more
	Hazard Markers			Rotary Light	Rotary Light	

Road Rating

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	AC & Granular					
	Gauging			9-04-02 9-05-01 9-05-02	10-05-02	- At least one person be must added to act as traffic control
	Everything Else			Rotary Lights	Rotary Lights	- Measurements done from the truck
	TMS					
	Rutting Measurement			Rotary Lights		- The recorder acts as a traffic control person
	Without Rutting Measurement			Rotary Lights		- Measurements done from the truck
	Gravel			Rotary Lights		- Measurements done from the truck

Traffic Guidance

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	Sign Inspections			Rotary Light	Rotary Light	
	Sign Repair					- See Traffic Guidance Section
	Pavement Marking					- See Traffic Guidance Section
	Guardrail Preservation					- See Traffic Guidance Section

Other Activities

Activity #	Activity Name	Description	Location	2 Lane	4 Lane	Comments
	Measuring Clearances			9-02	9-02 or 10-05-02	
	Railway Crossing			9-05-01	9-06 or 10-05-02	- If road not closed
				9-05-02		- If work on both sides of the road
	Surveying					- See Engineering Services Branch

NOTES:

Any operation in which equipment or work zone is crossing the centre line, 2 flagpersons are mandatory. For equipment that only crosses over the centre line when turning around, only one flag person is required. When turning equipment around the operators attention should be on the traffic.

In cases where extended work zones are used, refer to Typical Plan 9-11.

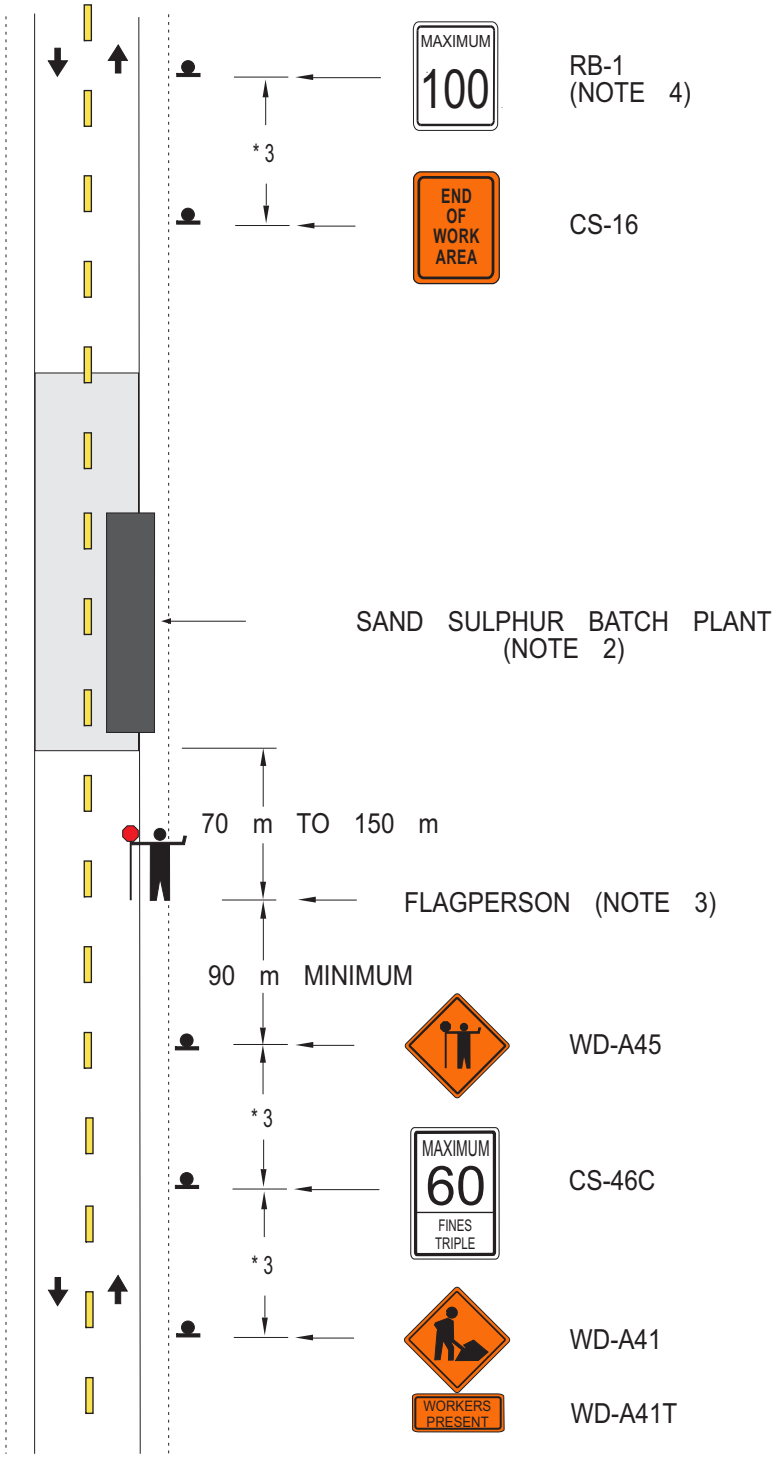
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PRESERVATION

TYPICAL PLANS

Subject: THERMOPATCH
2 LANE HIGHWAY
MOVING OPERATION

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE SAND SULPHUR BATCH PLANT STRADDLING THE SHOULDER
3. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.
4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

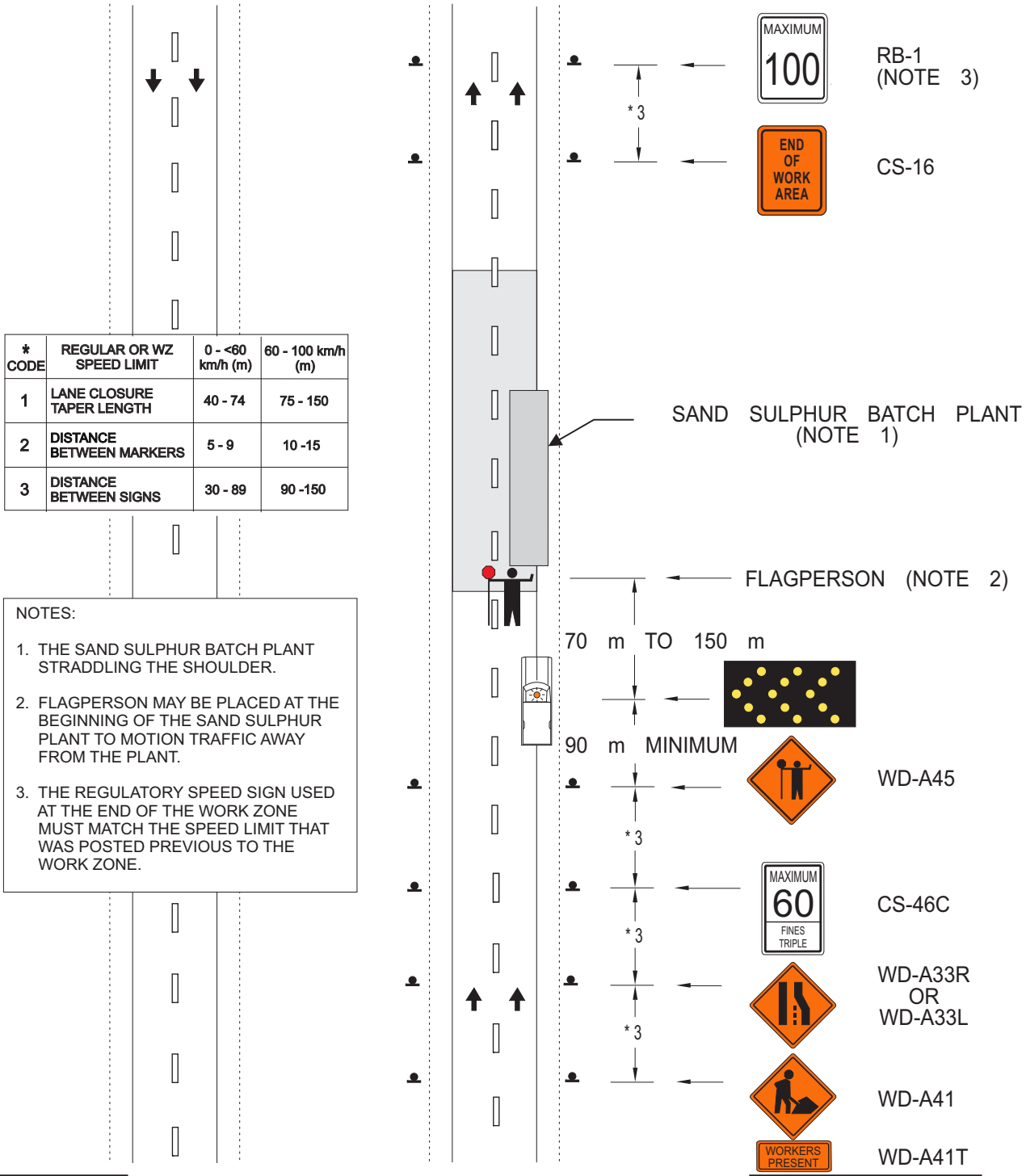
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PRESERVATION

TYPICAL PLANS

Subject: THERMOPATCH
FOUR LANE HIGHWAY
MOVING OPERATION

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. THE SAND SULPHUR BATCH PLANT STRADDLING THE SHOULDER.
2. FLAGPERSON MAY BE PLACED AT THE BEGINNING OF THE SAND SULPHUR PLANT TO MOTION TRAFFIC AWAY FROM THE PLANT.
3. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

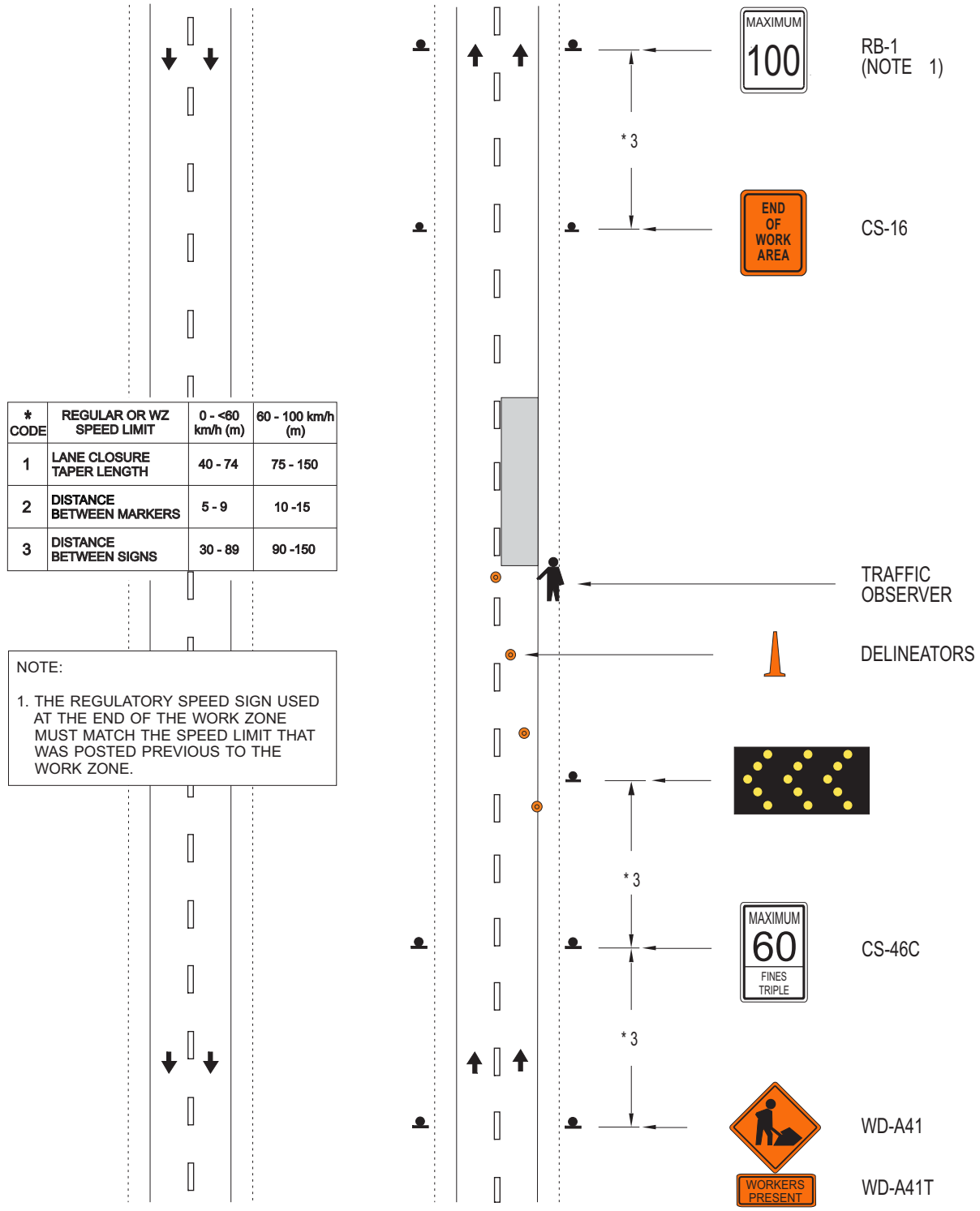
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PRESERVATION

TYPICAL PLANS

Subject: GAUGING ROAD RUTTING ON AC FOUR LANE HIGHWAY

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

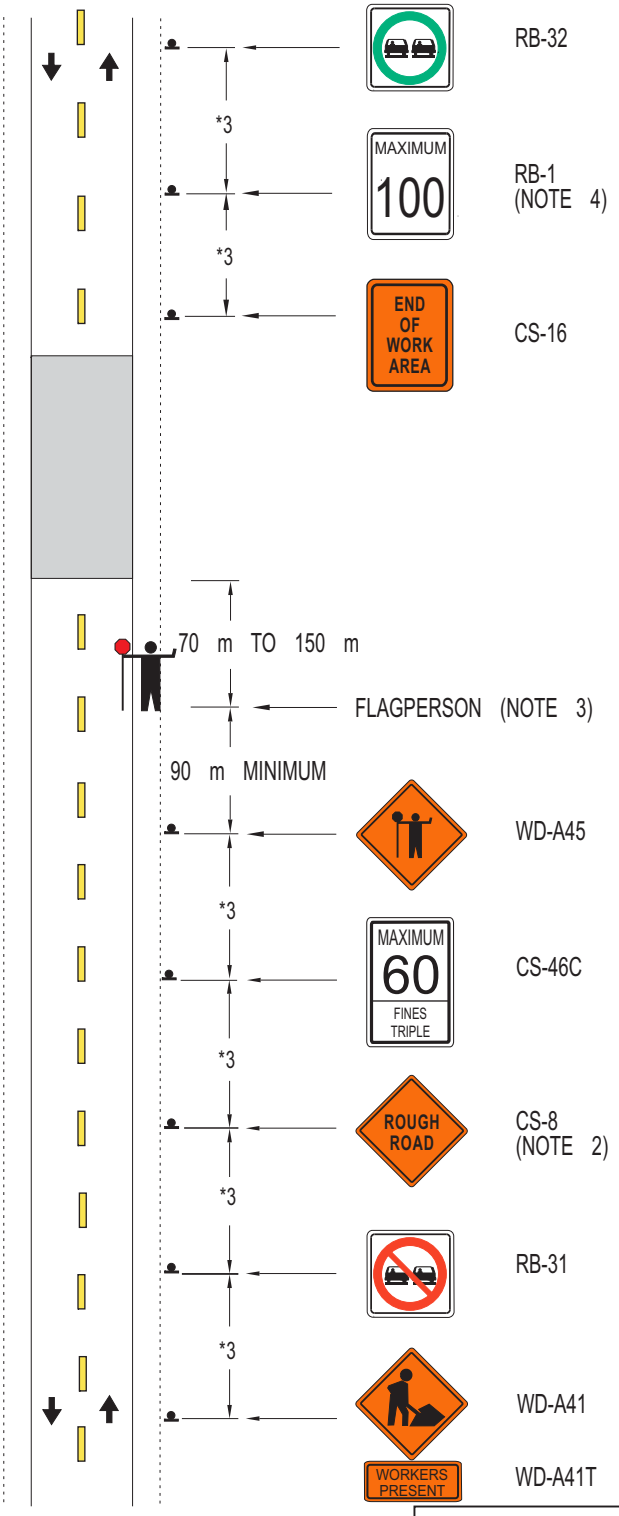
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: PRESERVATION
TYPICAL PLANS

Subject: TWO LANE HIGHWAY
LANE(S) UNDER REPAIR

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150



NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.

2. THE FOLLOWING SIGNS MAY BE USED IN PLACE OF THE ROUGH ROAD SIGN:

   FRESH OIL CS-7
   LOOSE GRAVEL CS-9
   LOOSE STONES CS-28
   PAVEMENT ENDS WD-A25

3. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO USE FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

No	Activity Type	Traffic Control	Comments
1.a	Bridge Inspection	9-04-02	All bridge inspections not including deck inspections.
b.	Deck Inspection Emergency	Rotating/Flashing Amber Light On Unit	For checking emergency situations (not planned) less than 15 minutes duration.
c.	Deck Inspection ADT < 1000	9-04-02	
d.	Deck Inspection One Lane ADT ≥ 1000	9-05-01	
e.	Deck Inspection Two Lanes ADT ≥ 1000	9-05-02	
2.	Patching Holes	9-04-02, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
3.	Driving Piles	9-04-2, 9-05-01, 9-06, 10-04-01, 15-03-01, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
	With Detour	10-04-01,15-03-01; 15-03-02, 15-03-05	• 10-04-01 - add Bridge Repair Ahead sign (CS-30). • 15-03-01, 15-03-02 - add Bridge Repairs Ahead, Be Prepared to Stop (CS-47).
	Without Detour	10-11-01, 10-11-02, 15-03-01, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
4.	Replace bridge rails Install with detour	9-04-02, 9-05-01, 9-06 10-11-01, 10-11-02, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
5.	Replace Guard rails Cable	9-04-01, 9-05-01, 9-06	
	Box Beam	9-04-01, 9-05-01, 9-06	
	W-Beam	9-04-01, 9-05-01, 9-06	
	Install Guard Rails	9-04-01, 9-05-01, 9-06, 10-11-01, 10-11-02, 15-03-01, 10-12-02	
6.	Cap replacement - timber pier bent	9-04-01, 9-05-01, 9-06, 10-05-01, 10-04-01, 15-03-01, 15-03-02	Add Bridge Repair Ahead sign (CS-30).
7.	Cap Installation	15-03-05	
	Timber	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
	Steel	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
	Precast Concrete	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-05	Add Bridge Repair Ahead sign (CS-30).

No	Activity Type	Traffic Control	Comments
8.	Concrete deck repair	15-03-01, 15-03-02, 15-03-04, 15-03-05	
	Surface preparation	10-04-01, 10-05-01, 15-03-01, 15-03-02, 15-03-04, 15-03-05	Option to add lights and rumble strips.
	Curbs	10-04-01, 10-05-01 15-03-01, 15-03-02, 15-03-04, 15-03-05	Options to add lights and rumble strips.
	Replacement/precast	10-04-01, 10-05-01, 15-03-01, 15-03-02, 15-03-04, 15-03-05	• Options to add lights and rumble strips. • A barrier or a guard to the area, option as over and above the minimum standards outlined in the Work Zone manual. • New bridge and can only do one lane at a time (hole in the area) or anytime precast units taken off and left open. • Concrete barriers limit the work area to daylight hours. • If going to be left over night, concrete or standard bridge rail around the work hole.
	Replacement/concrete	10-04-01, 10-05-01, 15-03-01, 15-03-02, 15-03-04, 15-03-05	Option to add lights and rumble strips.
9.	Precast deck installation	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-05	
10.	Concrete Pier repair	15-03-04, 15-03-05	
	With lane closed	9-04-01, 9-04-02, 9-05-01, 9-05-02, 9-06, 15-03-04, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
	No lane closed	10-04-01, 10-05-01, 15-03-04, 15-03-05	Add Bridge Repair Ahead sign (CS-30).
11.	Timber Deck Repair		
	Running Planks	9-04-01, 9-04-02, 9-05-01, 9-05-02, 9-06,	Add Bridge Repair Ahead sign (CS-30).
	Replacement	9-04-02, 9-05-02, 10-11-02, 10-10	Add Bridge Repair Ahead sign (CS-30).
	Re-nail	9-04-01, 9-04-02, 9-05-01, 9-05-02, 9-06,	Add Bridge Repair Ahead sign (CS-30).
12.	Stringers (timber)		
	Add	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).

No	Activity Type	Traffic Control	Comments
13.	Place Rip-Rap	15-03-03	
	Over wings & carry underneath	9-04-01, 9-05-01, 9-06, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	Dump through the floor & carry	9-04-01, 9-05-01, 9-06, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	Place Gabions	9-04-01, 9-05-01, 9-06, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	With construction	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-03	
14	Repair planking	15-03-02, 15-03-03	
	Replace knee brace	9-04-1, 9-05-1, 9-06, 15-03-02, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	Replace sway brace	9-04-1, 9-05-1, 9-06, 15-03-02, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	Replace backing planks	9-04-01, 9-05-01, 9-06, 10-04-01, 10-05-01, 15-03-02, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
15.	Install planking	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-03	
16.	Level Bridge	15-03-03	
	Raise Up	9-04-01, 9-05-01, 9-06, 10-04-01, 10-05-01, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
	Lowering	9-04-01, 9-05-01, 9-06, 10-04-01, 10-05-01 15-03-03	Add Bridge Repair Ahead sign (CS-30).
17.	Place upstream ice protection	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
	Install ice protection	10-11-01, 10-11-02, 15-03-01, 15-03-02	Add Bridge Repair Ahead sign (CS-30).
18.	Install struts	9-04-1, 9-05-1, 9-06, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
19.	Install stub-piles	9-04-01, 9-05-01, 9-06, 15-03-03	Add Bridge Repair Ahead sign (CS-30).
20.	Install pile tiles	9-04-1, 9-05-1, 9-06, 10-04-1, 10-05-1, 10-11-01, 10-11-02, 15-03-01, 15-03-02	Add Bridge Repair Ahead sign (CS-30).
21.	Install anchor rods	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
	Construction	10-11-01, 10-11-02, 15-03-01, 15-03-02	
22.	Install T-Sections b/w precast	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
23.	Replace/repair connectors	9-04-01, 9-05-01, 9-06, 15-03-01, 15-03-05	
	Install connectors	10-11-01, 10-11-02, 15-03-01, 15-03-02, 15-03-05	

No	Activity Type	Traffic Control	Comments
24	Replace expansion joints	10-04-01, 10-05-01, 15-03-01, 15-03-02	
25.	Strip seal replacement	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
26.	Remove pavement	9-04-01, 9-05-01, 9-06	
27.	Water Proofing	10-11-01, 10-11-02, 15-03-01, 15-03-02	
28.	Painting		
	Structural steel	9-04-01, 9-05-01, 9-06 15-03-01, 15-03-02	Add Bridge Repair Ahead sign (CS-30).
	Timber rails	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
	With construction	10-11-01, 10-11-02, 15-03-01, 15-03-02	
29.	Washing bridges	9-04-01, 9-05-01, 9-06	Add Bridge Repair Ahead sign (CS-30).
30.	Girders	9-04-01, 9-05-01, 9-06 10-04-01, 10-05-01	Add Bridge Repair Ahead sign (CS-30).
31.	Ferry Towers		
	Repairing	Lanes not affected	
	Construction	Lanes not affected	
32.	Overhead sign structures		
	Repair	9-04-01, 9-05-01, 9-05-02, 9-06	
	Construction	9-04-01, 9-05-01, 9-05-02, 9-06	

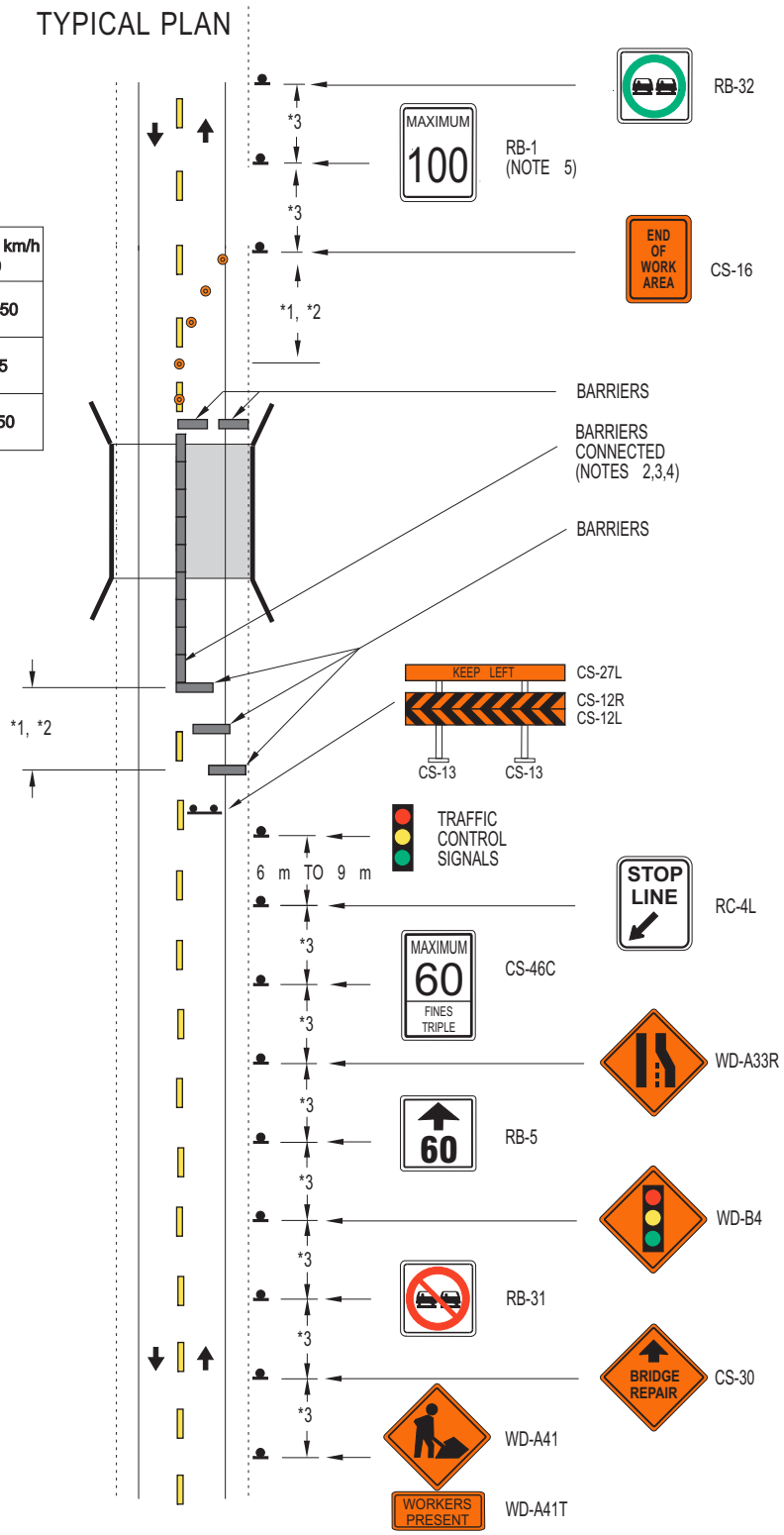
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: BRIDGES

TYPICAL PLANS

Subject: TWO LANE HIGHWAY
ONE LANE CLOSED
LONG DURATION

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES EXCEPT WD-A33R ARE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. INTERLOCKING CONCRETE BARRICADES WILL BE USED TO ENSURE TRAFFIC ` REMAINS OUT OF THE WORK AREA.
3. CONCRETE BARRIERS MAY BE REPLACED WITH WATER/SAND FILLED BARRIERS.
4. FOR HIGHWAYS WITH AADT < 400, CONCRETE BARRIERS MAY BE SUBSTITUTED BY CONES.
5. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

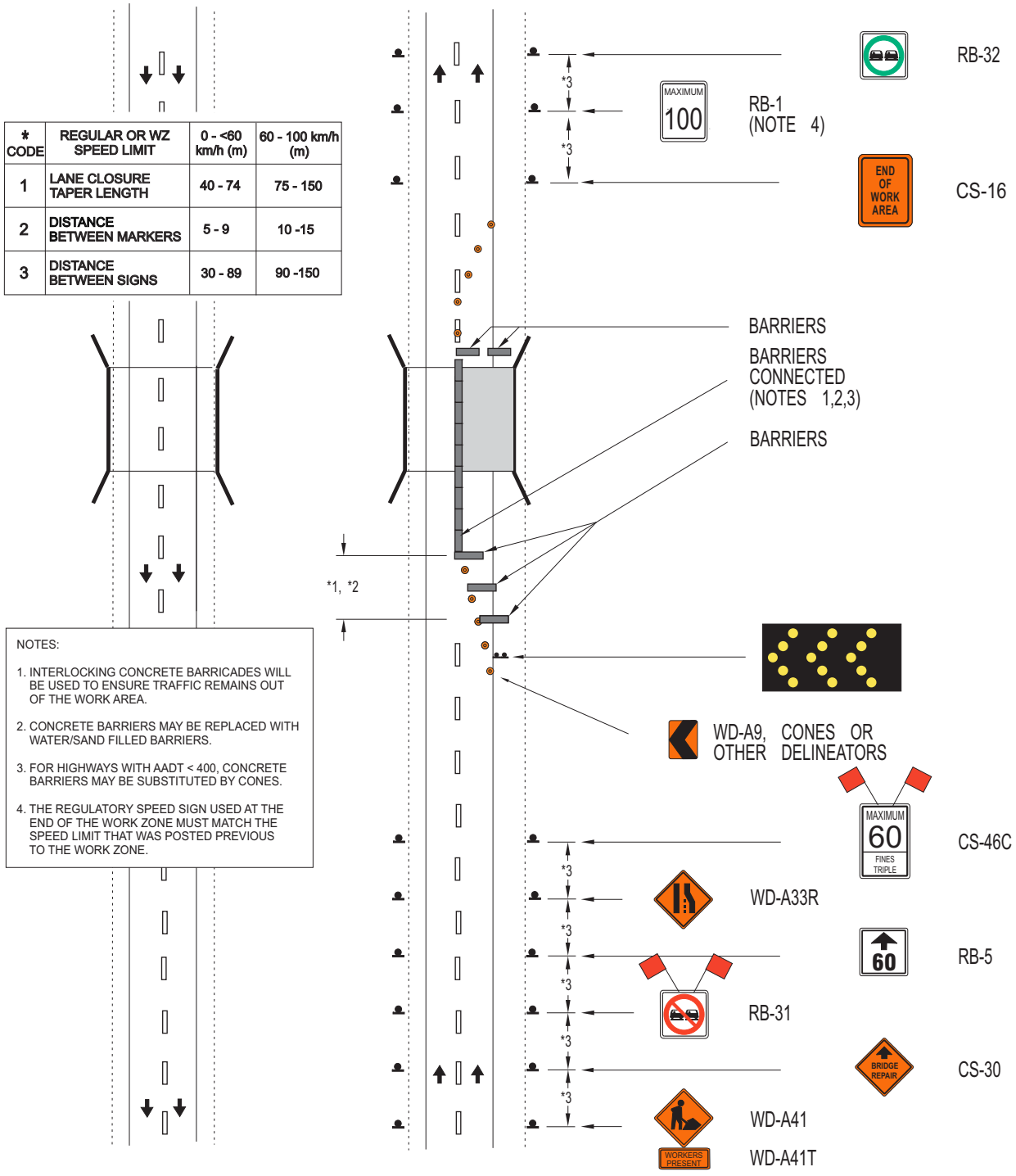
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: BRIDGES

TYPICAL PLANS

Subject: FOUR LANE HIGHWAY ONE LANE CLOSED LONG DURATION

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. INTERLOCKING CONCRETE BARRICADES WILL BE USED TO ENSURE TRAFFIC REMAINS OUT OF THE WORK AREA.
2. CONCRETE BARRIERS MAY BE REPLACED WITH WATER/SAND FILLED BARRIERS.
3. FOR HIGHWAYS WITH AADT < 400, CONCRETE BARRIERS MAY BE SUBSTITUTED BY CONES.
4. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

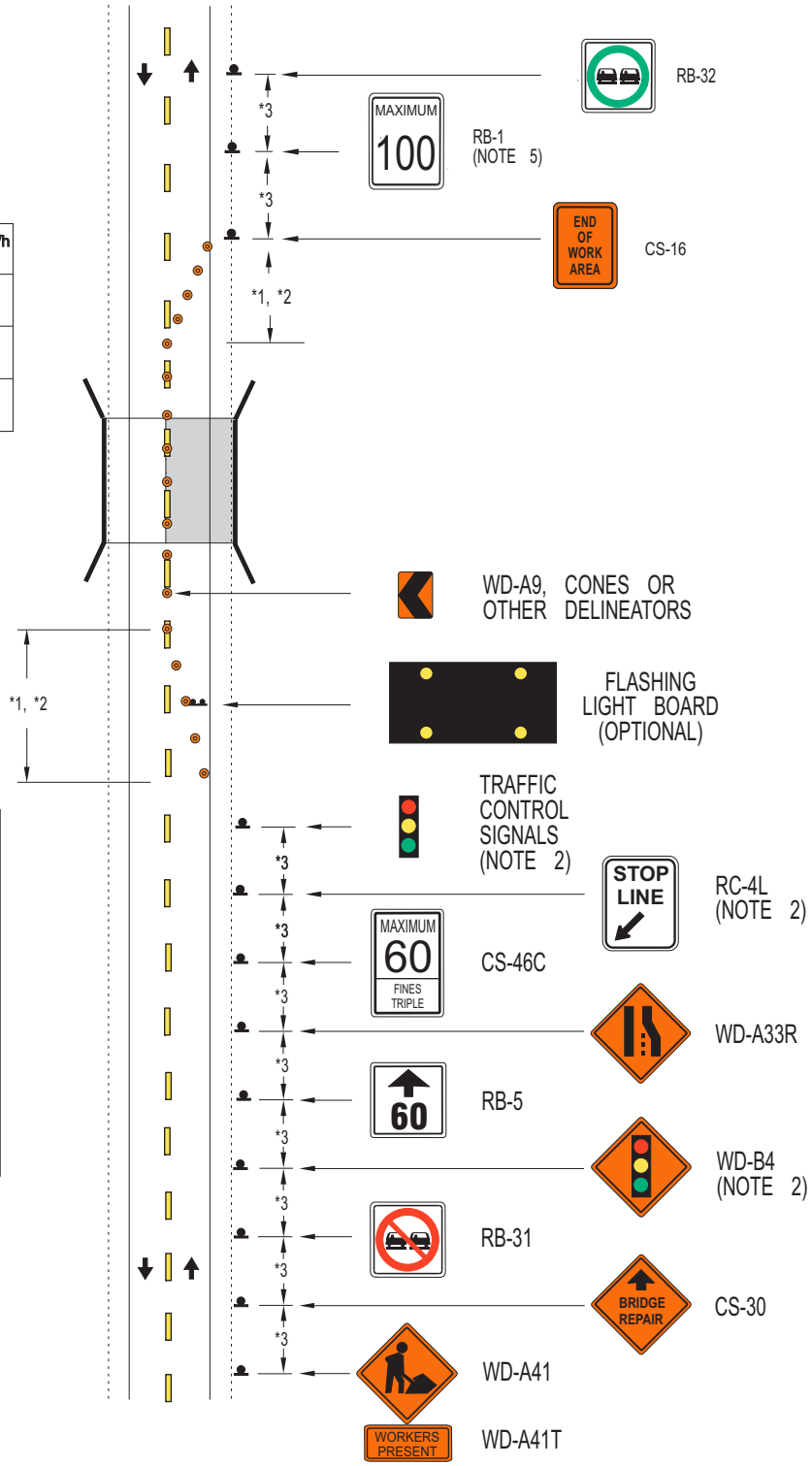
Section: BRIDGES

TYPICAL PLANS

Subject: TWO LANE HIGHWAY ONE LANE CLOSED SHORT DURATION

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150



NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES EXCEPT WD-A33R ARE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE TRAFFIC CONTROL SIGNAL MAY BE SUBSTITUTED WITH EITHER A FLAGPERSON OR THE TC-17 WHEN REQUIRED.

   IF A FLAGPERSON IS USED, THE WD-B4 SHALL REMOVED AND THE RC-4L SHALL BE SUBSTITUTED WITH THE WD-A45.
3. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MUST THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

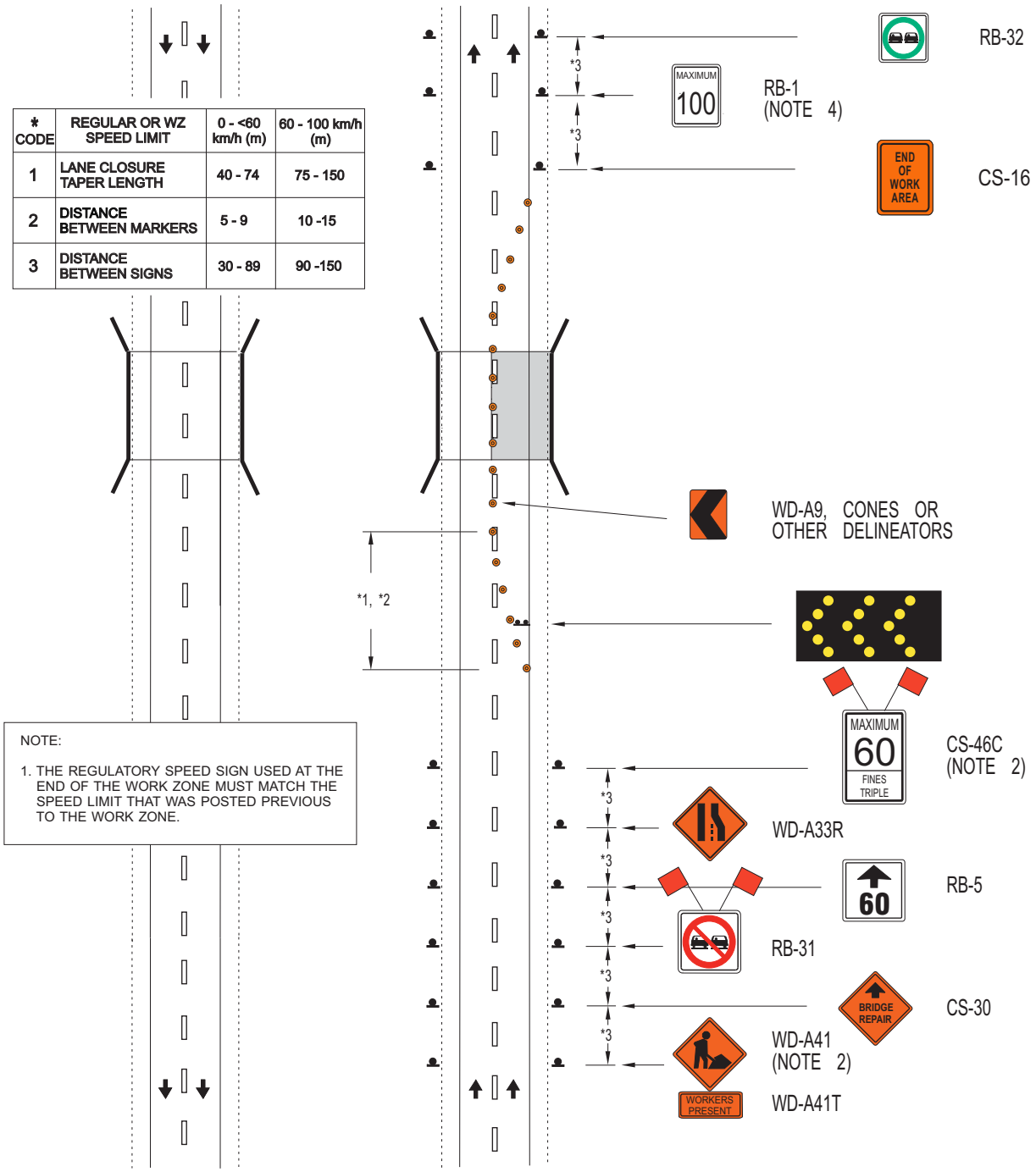
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: BRIDGES

TYPICAL PLANS

Subject: FOUR LANE HIGHWAY
ONE LANE CLOSED
SHORT DURATION

TYPICAL PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

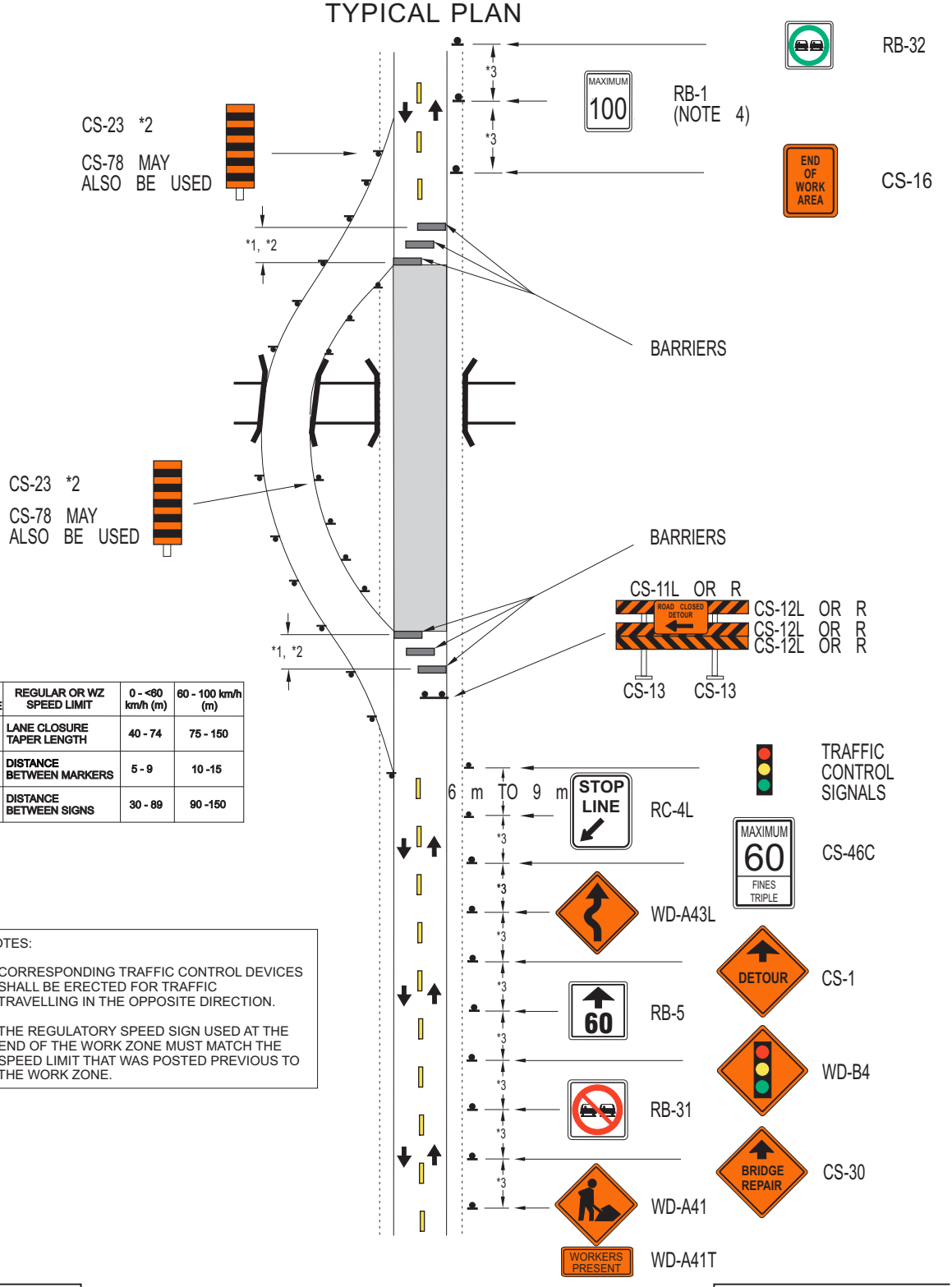
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: BRIDGES

TYPICAL PLANS

Subject: BRIDGE CLOSED
USE DETOUR ONE LANE
WITH TRAFFIC LIGHTS

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES SHALL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

This section contains written guidelines and typical plans for traffic control for sign crews. The guidelines are flexible and should be followed to the extent that is possible to do so for the sake of consistency and uniformity and modified to the extent necessary to achieve optimum traffic control and safety.

While the following guidelines provide for the application of work zone signing for the sign crews, they are not a substitute for good judgement. These guidelines are directed to the safe and expeditious movement of traffic through work zone and workers safety. Adverse environmental, climactic, highway alignment and topography are conditions that would require enhanced work zone signing.

When work is performed under normal conditions, the degree of risk to motorists and workers is determined by the position of the unit in relation to the road surface, time required to perform the task and the AADT.

It is emphasized that these are guidelines for typical situations and that additional or other protection must be provided when unusual complexities and hazards prevail.

Workzone Traffic Accommodation Signing for Provincial Sign Crews

Installation Time	4 lane Location of Unit			2 Lane > 1000 AADT Location of Unit			2 Lane < 1000 AADT Location of Unit		
	Ditch	Shoulder	Road Surface	Ditch	Shoulder	Road Surface	Ditch	Shoulder	Road Surface
<10 Minutes	16-03	16-04	16-07	16-03	16-04	16-05	16-03	16-04	16-05
>10 Minutes	16-03	16-06	16-07	16-03	16-06	16-08	16-03	16-04	16-08
Steel (I-beam)	16-03	9-06	9-06	16-03	9-05-01	9-05-01	16-03	9-05-01	9-05-01
Overhead Structures	16-03	9-06	9-06	16-03	9-05-01	9-05-01	16-03	9-05-01	9-05-01
Guardrail	16-03	9-06	9-06	16-03	9-05-01	9-05-01	16-03	9-05-01	9-05-01

Ditch: Unit is setup entirely off of the road surface.
Shoulder: Setup unit must be completely off the driving lane, including the outriggers
Road Surface: Unit is setup either wholly or partially in driving lane.

Arrowboard and cones can not be used to direct traffic into oncoming traffic

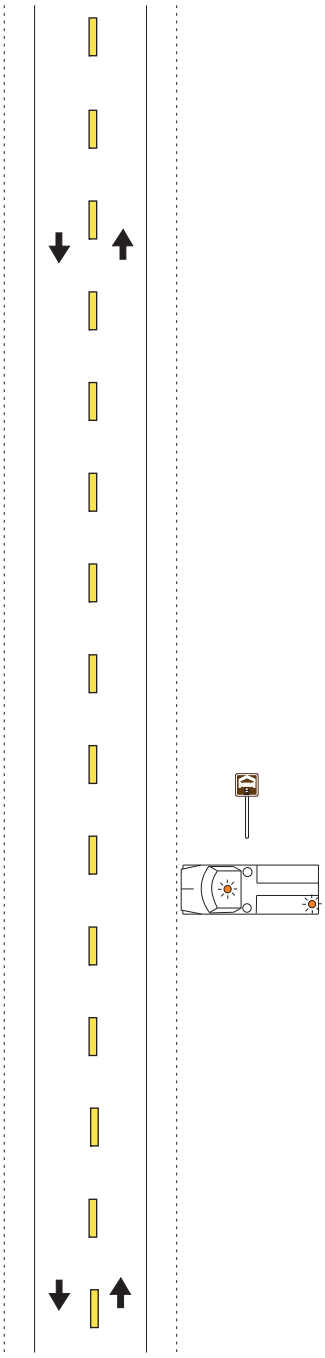
TYPICAL PLAN

Location of Unit - Ditch

Installation	Highway Classification		
<10 Minutes	4 Lane	2 Lane >1000 AADT	2 Lane <1000 AADT
>10 Minutes	4 Lane	2 Lane >1000 AADT	2 Lane <1000 AADT
Steel (I-Beam)	4 Lane	2 Lane >1000 AADT	2 Lane <1000 AADT

Amber rotating/flashing lights

Setup unit entirely off of the road surface



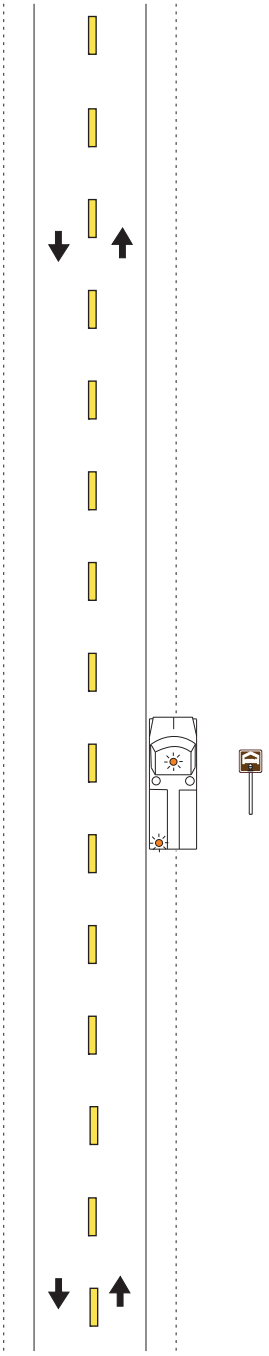
TYPICAL PLAN

Location of Unit - Shoulder

Installation	Highway Classification		
<10 Minutes	4 Lane	2 Lane >1000 AADT	2 Lane <1000 AADT
>10 Minutes	See TCDM 16-06	See TCDM 16-06	2 Lane <1000 AADT

Amber rotating/flashing lights

Setup unit completely off of the driving lanes, including the outriggers



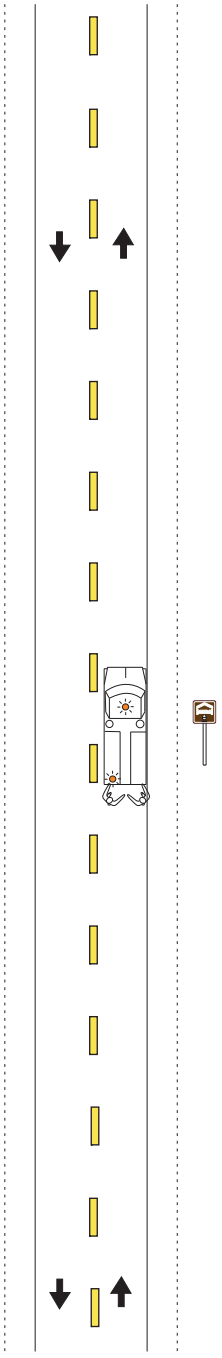
TYPICAL PLAN

Location of Unit - Road Surface

Installation	Highway Classification	
<10 Minutes	2 Lane >1000 AADT	2 Lane <1000 AADT

Amber rotating/flashing lights

Unit is setup wholly or partially in the driving lane

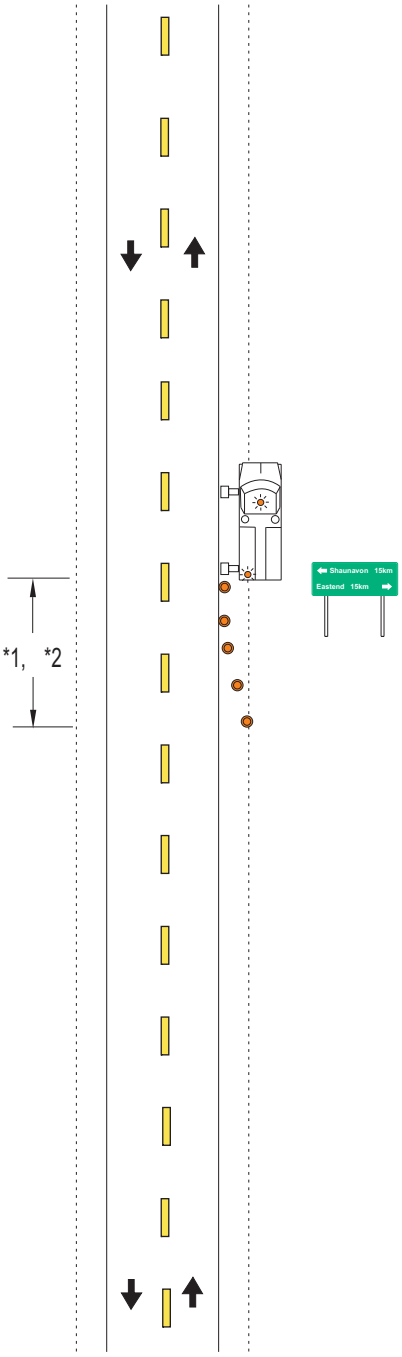


TYPICAL PLAN

Location of Unit - Shoulder

Installation	Highway Classification		
>10 Minutes	4 Lane	2 Lane >1000 AADT	2 Lane <1000 AADT

# CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150



Amber rotating/flashing lights, either cones and/or unit mounted light board

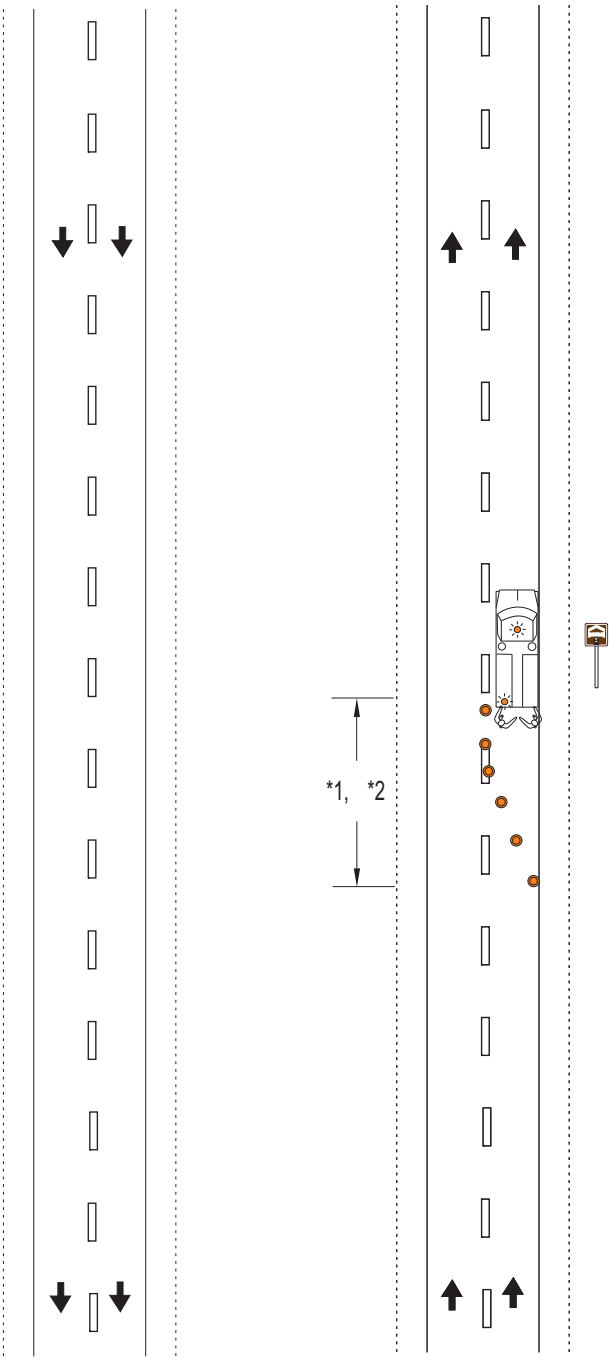
Setup unit completely off of the driving lanes, including the outriggers

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TRAFFIC GUIDANCE TYPICAL PLANS

Subject: ROAD SURFACE - FOUR LANE HIGHWAY

TYPICAL PLAN



Location of Unit - Road Surface

Installation	Highway Classification
<10 Minutes	4 Lane
>10 Minutes	4 Lane

Amber rotating/flashing lights, either cones and/or unit mounted light board

Unit is setup wholly or partially in the driving lane

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

TYPICAL PLAN

Location of Unit - Road Surface

Installation	Highway Classification
<10 Minutes	4 Lane
>10 Minutes	4 Lane

Amber rotating/flashing lights, either cones and/or unit mounted light board

Unit is setup wholly or partially in the driving lane

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
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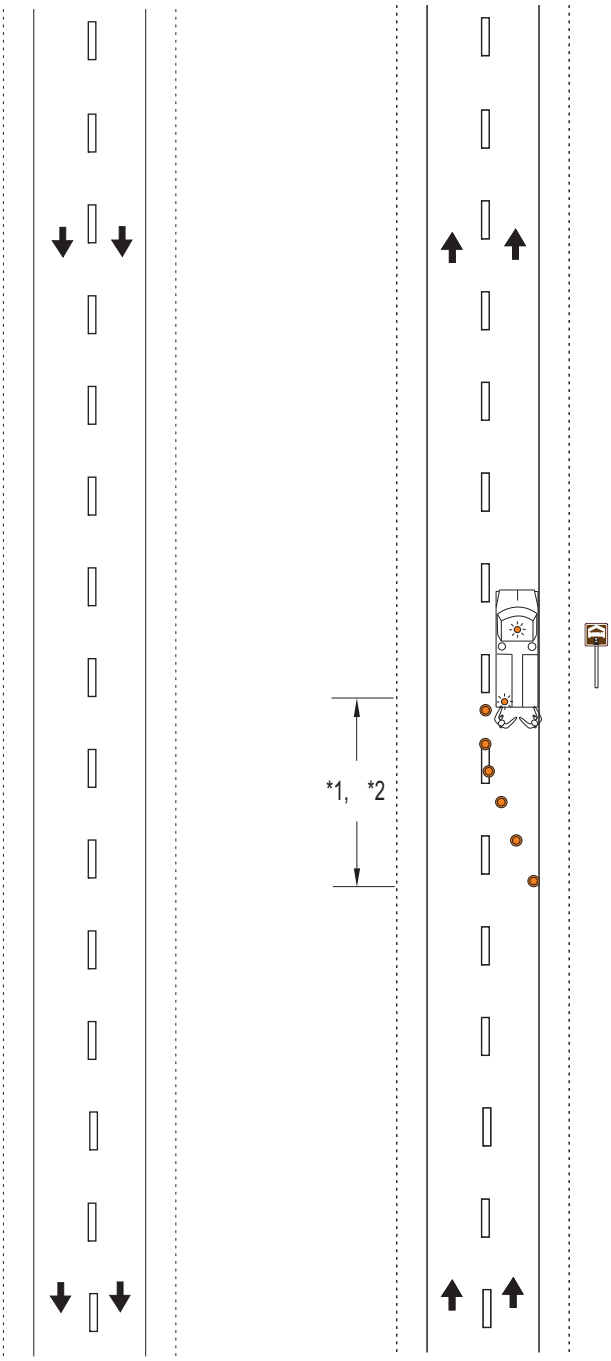


TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: TRAFFIC GUIDANCE TYPICAL PLANS

Subject: ROAD SURFACE

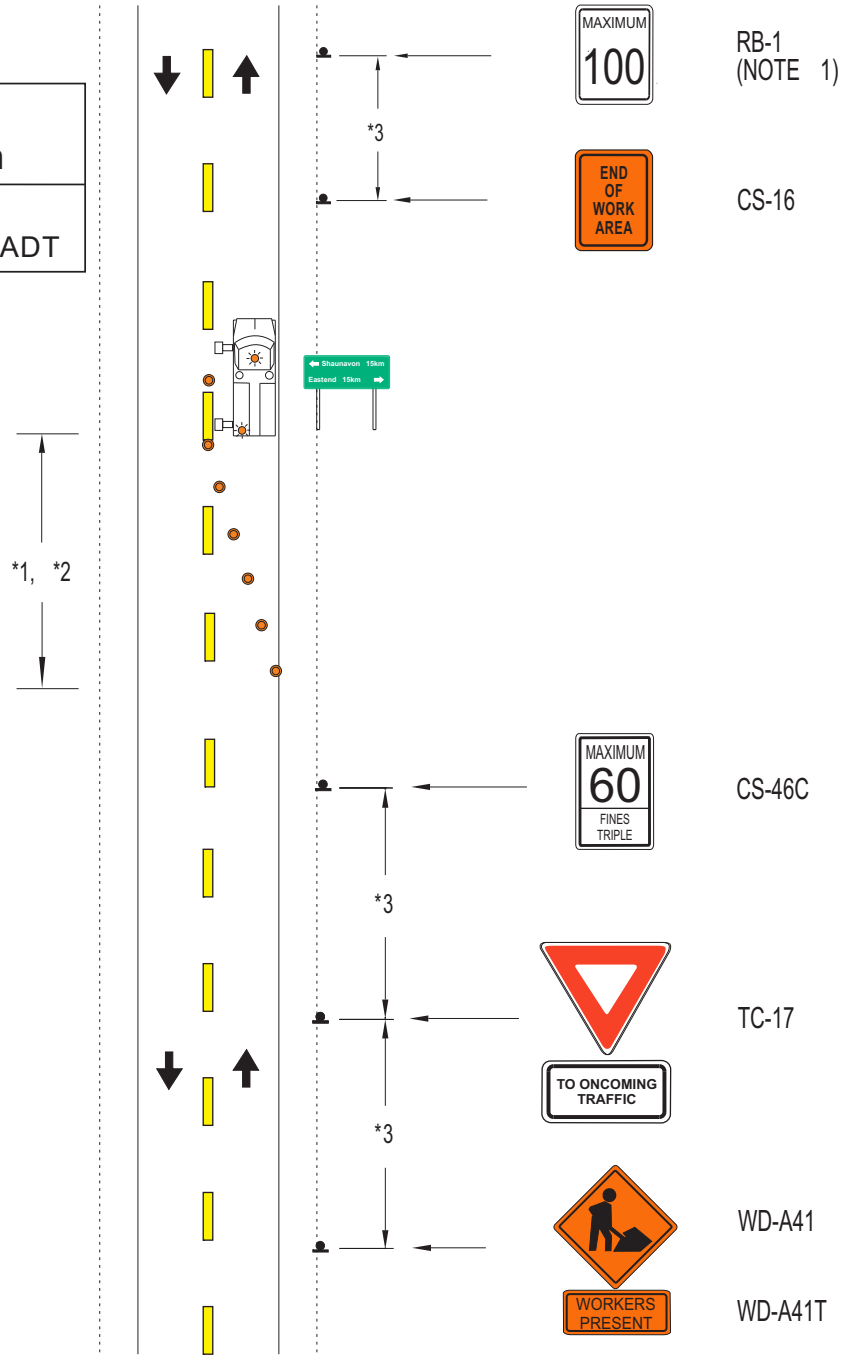
TYPICAL PLAN

Location of Unit - Road Surface

Installation	Highway Classification	
>10 Minutes	2 Lane >1000 AADT	2 Lane <1000 AADT

AMBER ROTATING/FLASHING LIGHTS, EITHER CONES AND/OR UNIT MOUNTED LIGHT BOARD

UNIT IS SETUP WHOLLY OR PARTIALLY IN THE DRIVING LANE



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

The Typical Plans located in Sections 9-00 to 16-00 of this manual are intended to show manual holders the minimum traffic control that is required for that specific type of activity or work.

The Example Project Plan in Section 18-00 is designed to demonstrate a project that is more complex in nature or may require additional traffic control. The Example Project Plan also shows the areas that make up a work zone.

Considerable thought should be put into reviewing sign plans during the sign planning design stage, as well as periodically after the signs have been installed, in order to ensure that all aspects of traffic control are covered.

TCDM 18-02 - Example Detailed Long-Duration Project Plan

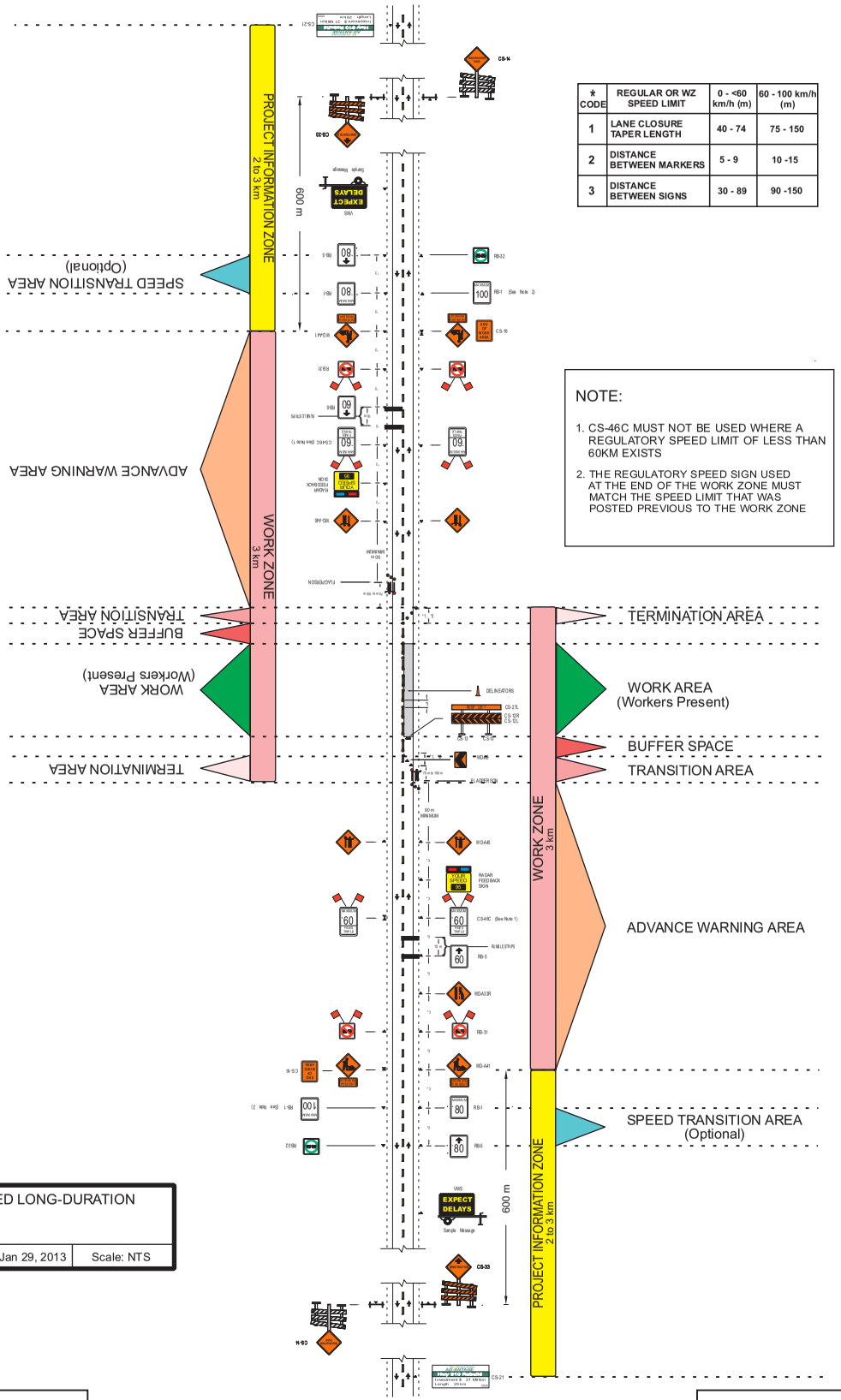
The set up of this site shows the use of multiple devices and transition speeds. It would normally be on a long duration construction or maintenance work area on a 1A or 1B Highway as identified in the Preservation Highways Hierarchy or as specified in a contract. A contractor may wish to consider the use of extra devices and transition speeds at other project locations to supplement their traffic accommodation plan.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: EXAMPLE PROJECT PLANS

Subject: EXAMPLE DETAILED LONG-DURATION PROJECT PLAN

EXAMPLE PROJECT PLAN



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1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

1. CS-46C MUST NOT BE USED WHERE A REGULATORY SPEED LIMIT OF LESS THAN 60KM EXISTS
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE

PLAN OF A DETAILED LONG-DURATION PROJECT.

Drafted by TSB	Date: Jan 29, 2013	Scale: NTS

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: INTRODUCTION

DEFINITION

Short duration work includes any daytime maintenance activity, construction project, utility work, preliminary survey work, pavement marking or other miscellaneous highway activity planned for one day or less.

TEMPORARY HIGHWAY CLOSURE

Closure of a highway to motorists may become necessary due to a sudden hazardous or abnormal condition. Conditions which could result in a temporary highway closure include, but are not limited to, the following:

1. limited visibility;

2. obstructions on the roadway;

3. dangerous surface conditions; and

4. combinations of the above.

• Limited Visibility

Closure due to limited visibility as a result of weather conditions such as winter blizzards, dust storms or fog. Smoke from forest fires or other burning may also cause limited visibility, necessitating temporary closure of the highway.

• Obstructions

Closure due to obstructions when any lane of the roadway are blocked because of a traffic accident, snowdrifts, bridge or culvert washouts.

• Surface Conditions

Closure due to surface conditions made in the extreme case where safety of the motorist would be endangered. Hazardous surface conditions may be extremely slippery surface conditions caused by ice, excessive asphalt or by a dangerous goods spill.

• Traffic Accommodation Plan

A typical Traffic Accommodation Plan for temporary highway closure is shown in TCDM 9-09.

• Detour

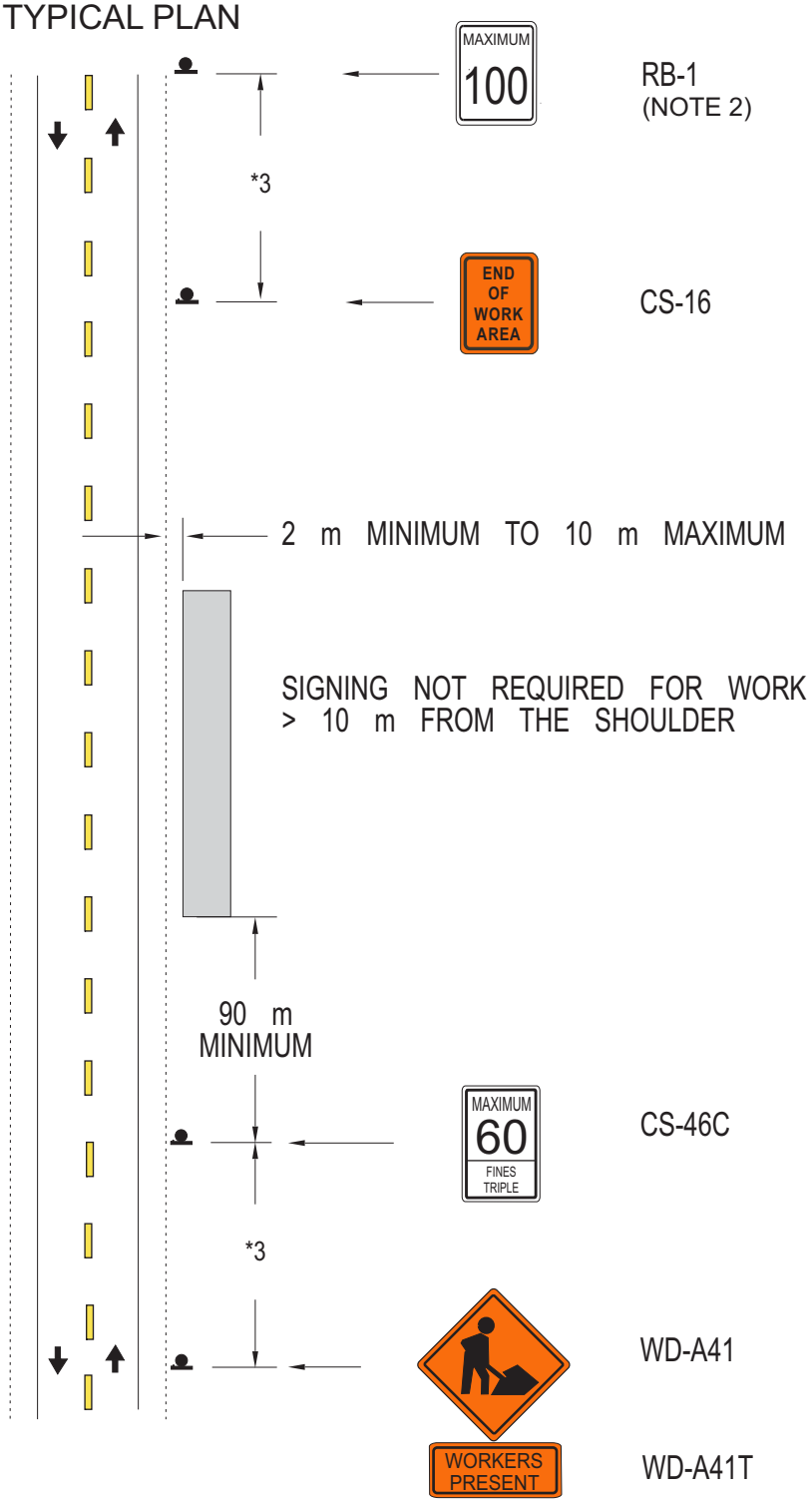
A temporary highway closure may require a detour or an alternate highway route around the affected area.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: WORK ADJACENT TO ROADWAY

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

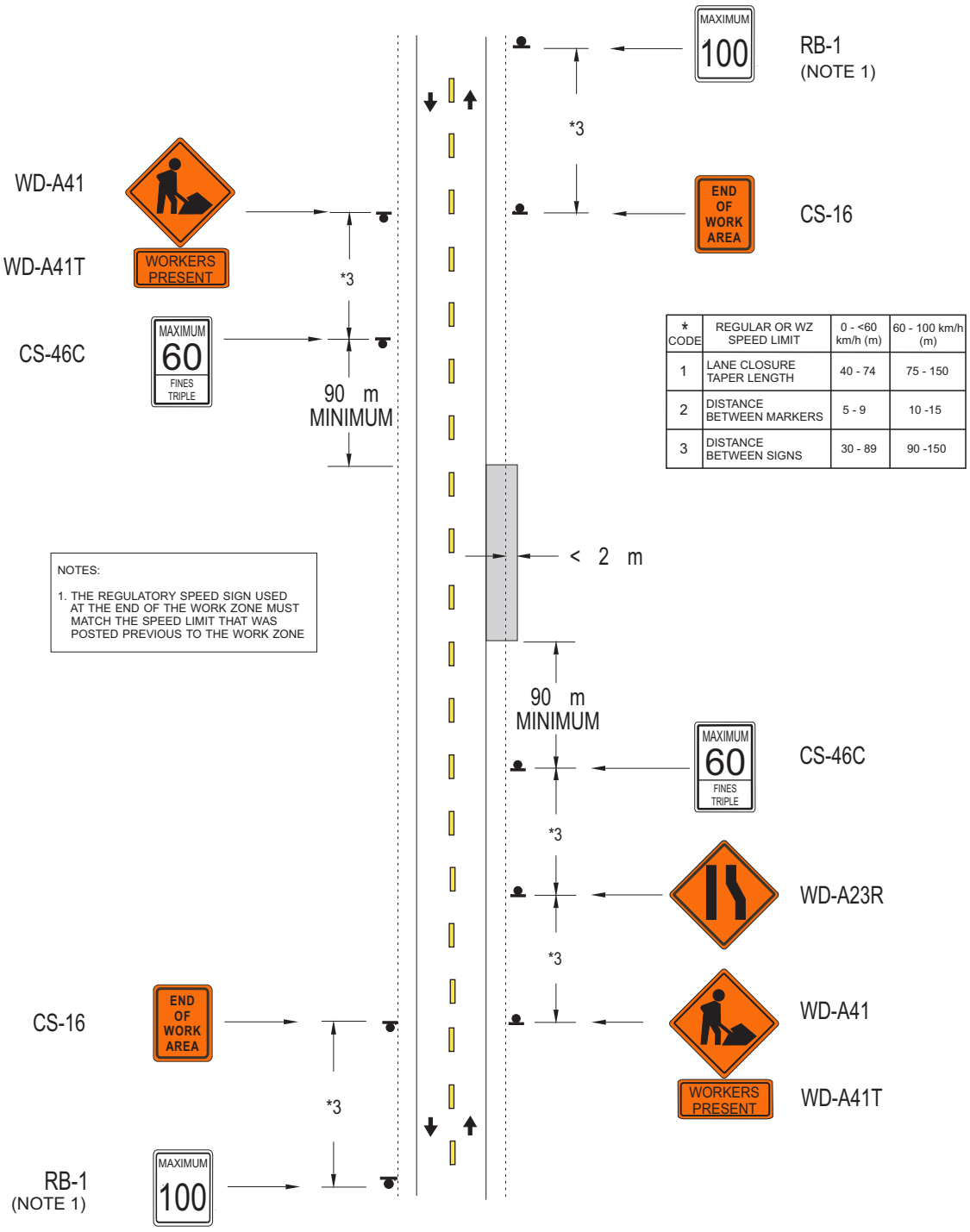
1. TWO LANE HIGHWAYS: CORRESPONDING TRAFFIC CONTROL DEVICES MAY BE REQUIRED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLAN

Subject: WORK ON SHOULDER OF ROADWAY

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

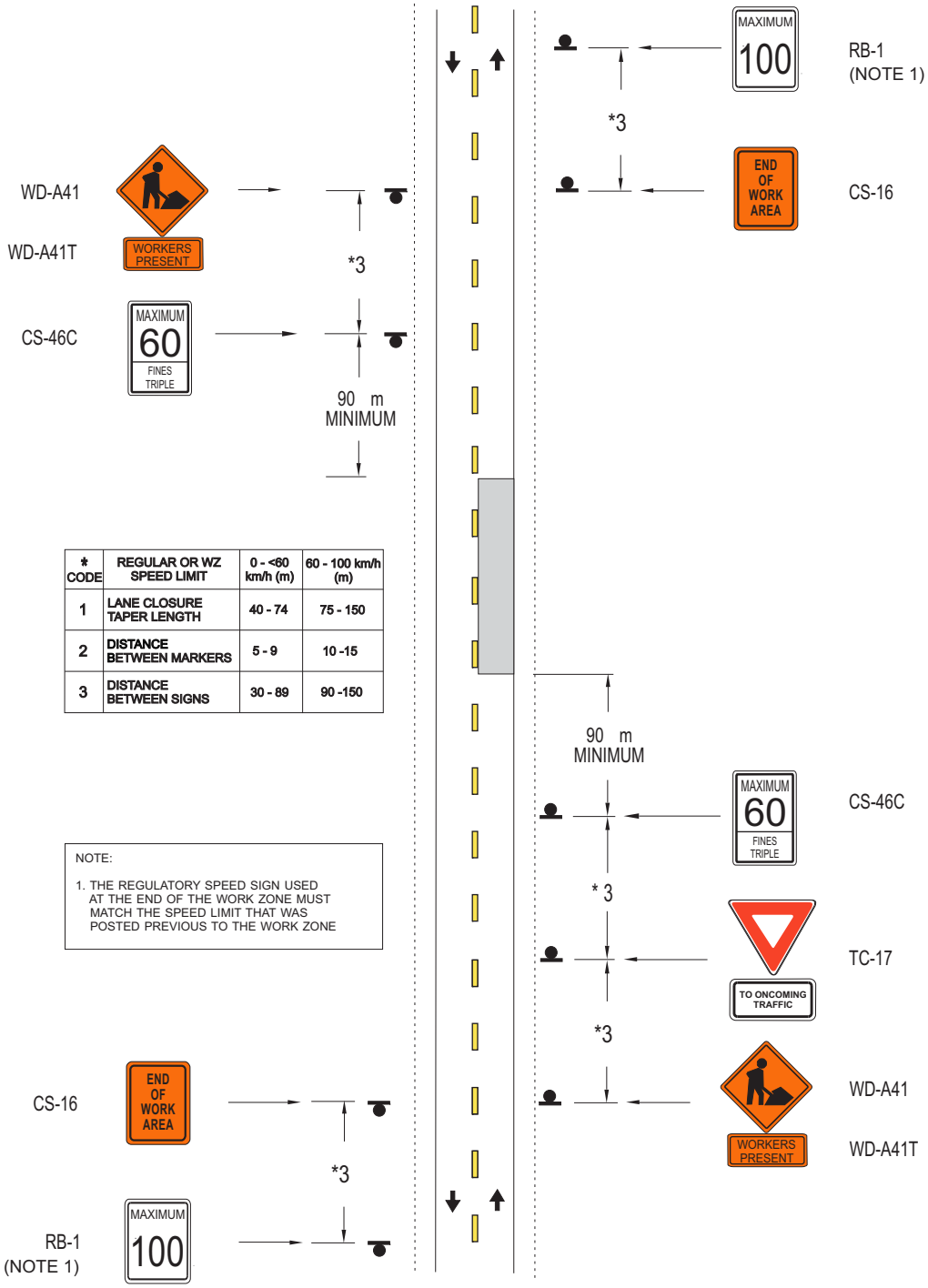
1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: TWO LANE HIGHWAY ONE LANE CLOSED AADT≤ 1000

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTE:

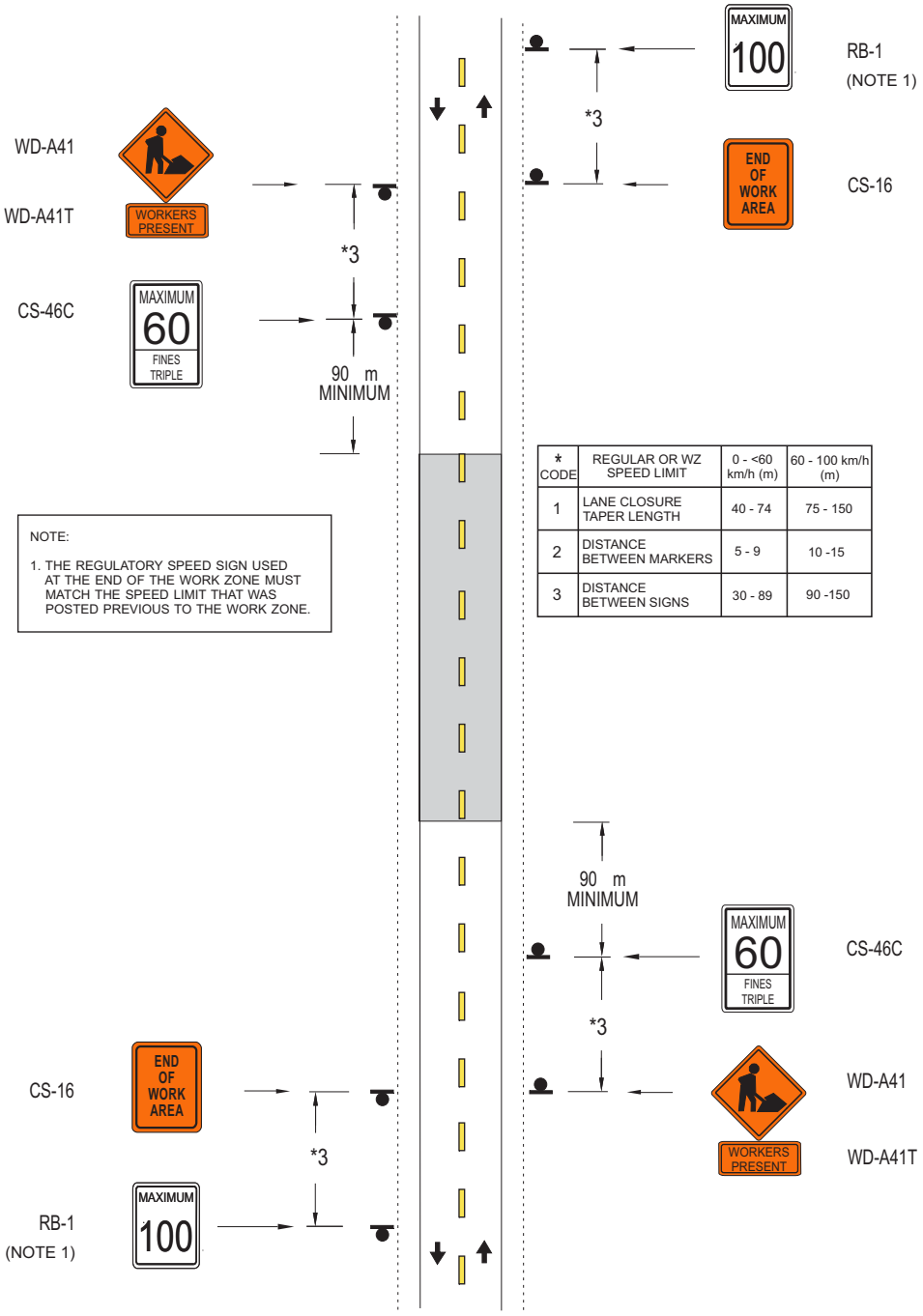
1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLAN

Subject: TWO LANE HIGHWAY BOTH LANES UNDER REPAIR AADT <1000

TYPICAL PLAN



NOTE:

1. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

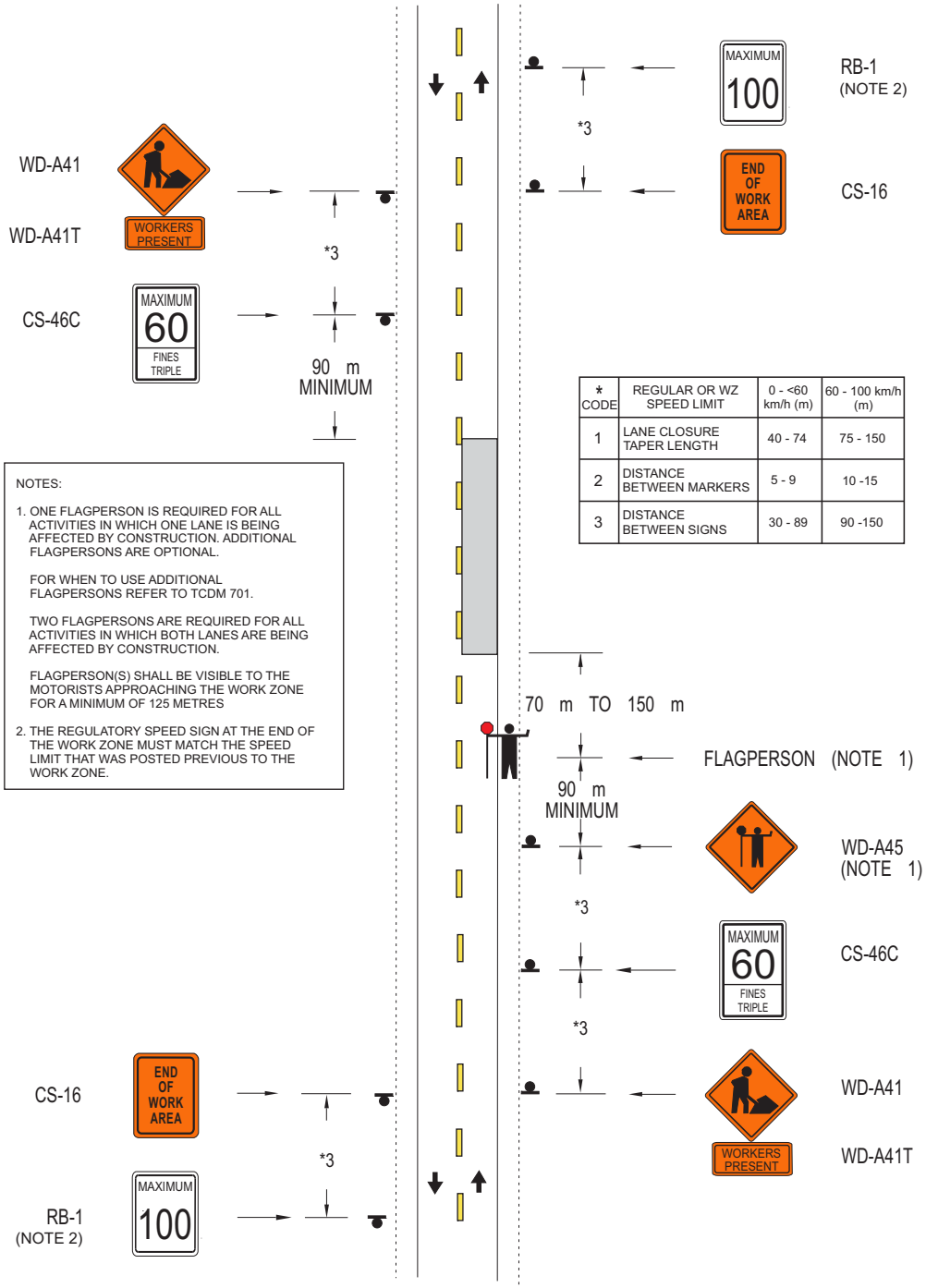
* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: TWO LANE HIGHWAY ONE LANE CLOSED AADT > 1000

TYPICAL PLAN



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL.

   FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES

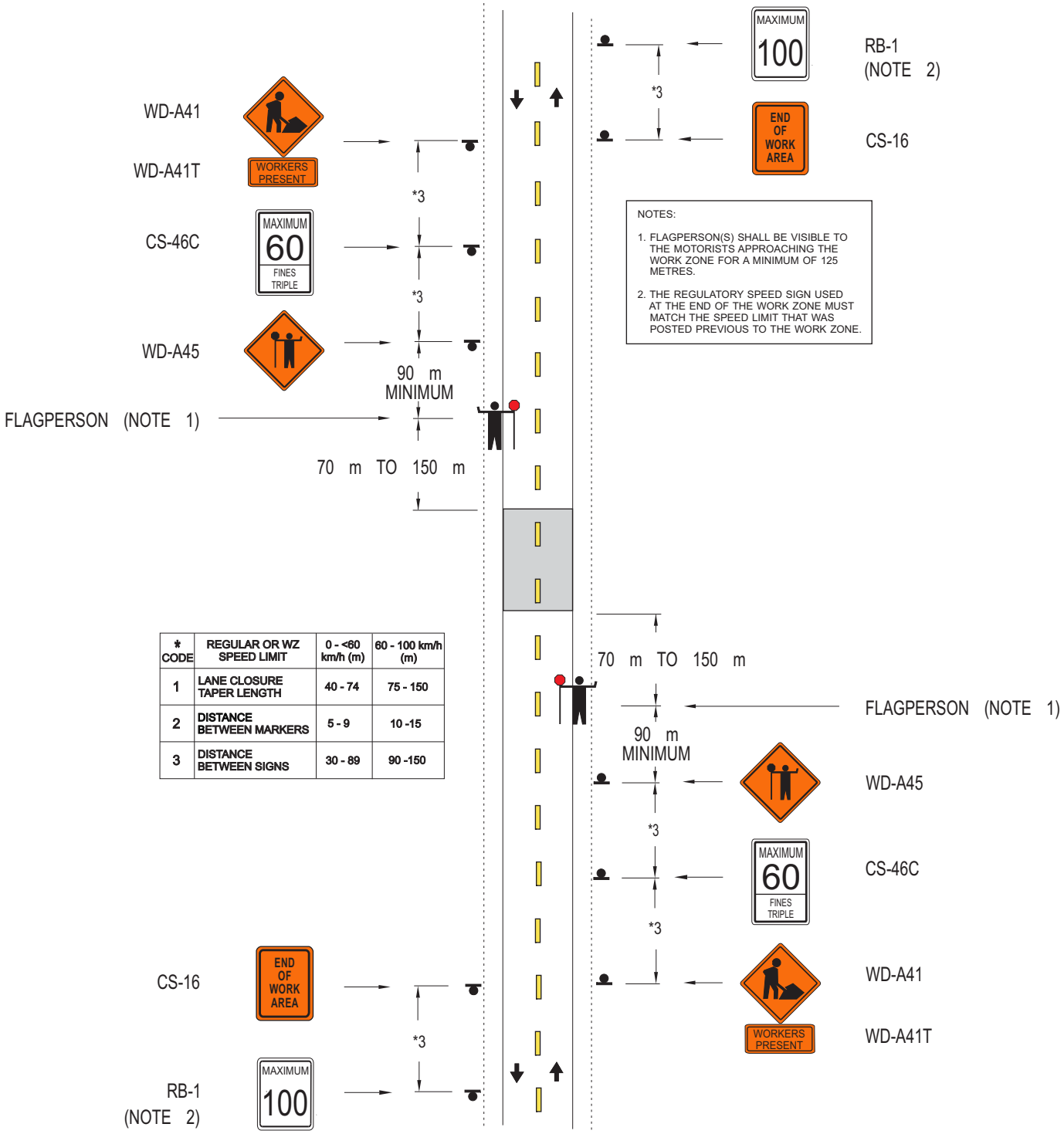
2. THE REGULATORY SPEED SIGN AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: TWO LANE HIGHWAY BOTH LANES UNDER REPAIR AADT > 1000

TYPICAL PLAN



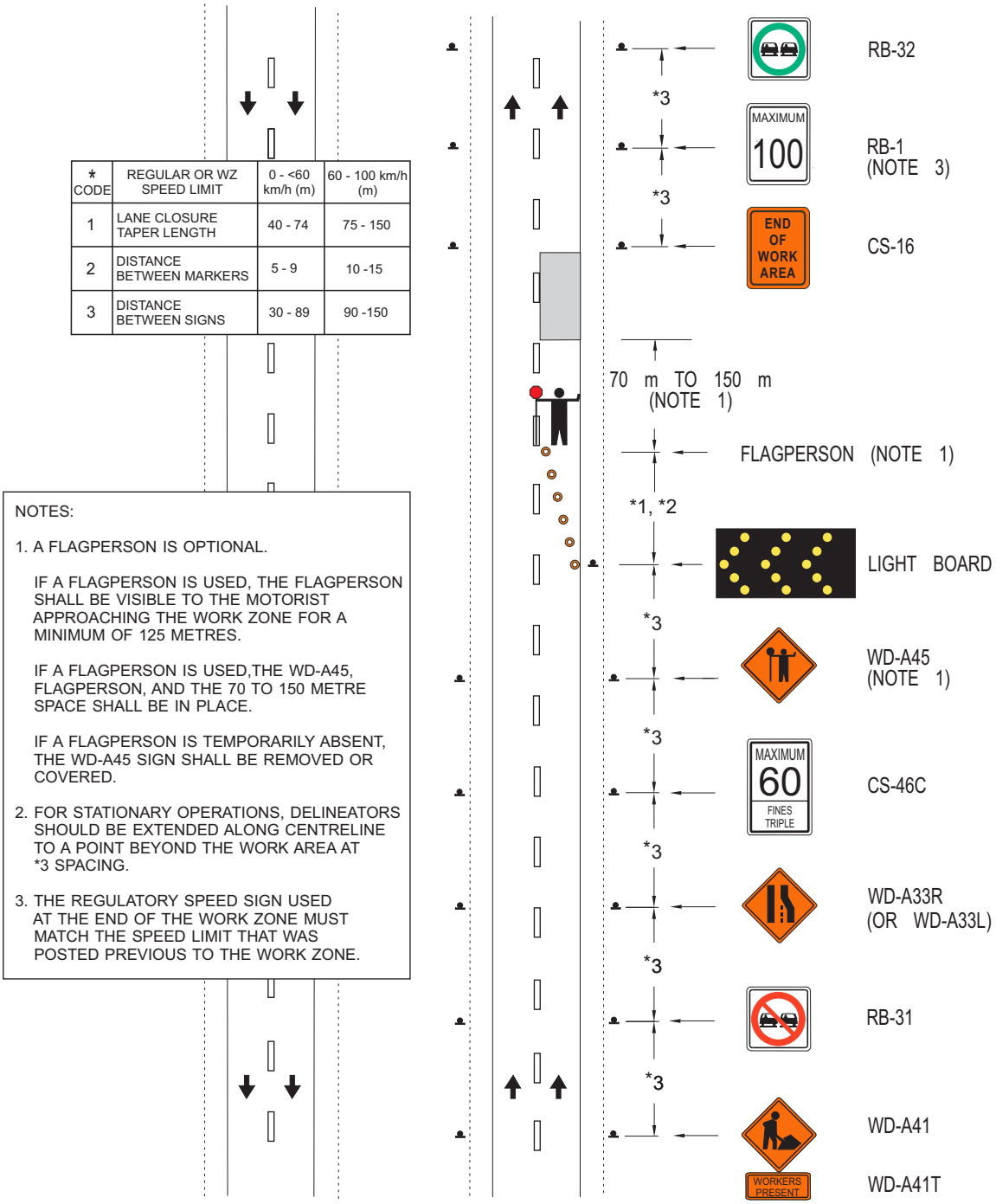
* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: FOUR LANE HIGHWAY ONE LANE CLOSED

TYPICAL PLAN
MOVING OPERATION
(STATIONARY OPERATION NOTE 2)



* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. A FLAGPERSON IS OPTIONAL.

   IF A FLAGPERSON IS USED, THE FLAGPERSON SHALL BE VISIBLE TO THE MOTORIST APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

   IF A FLAGPERSON IS USED,THE WD-A45, FLAGPERSON, AND THE 70 TO 150 METRE SPACE SHALL BE IN PLACE.

   IF A FLAGPERSON IS TEMPORARILY ABSENT, THE WD-A45 SIGN SHALL BE REMOVED OR COVERED.

2. FOR STATIONARY OPERATIONS, DELINEATORS SHOULD BE EXTENDED ALONG CENTRELINE TO A POINT BEYOND THE WORK AREA AT *3 SPACING.

3. THE REGULATORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.

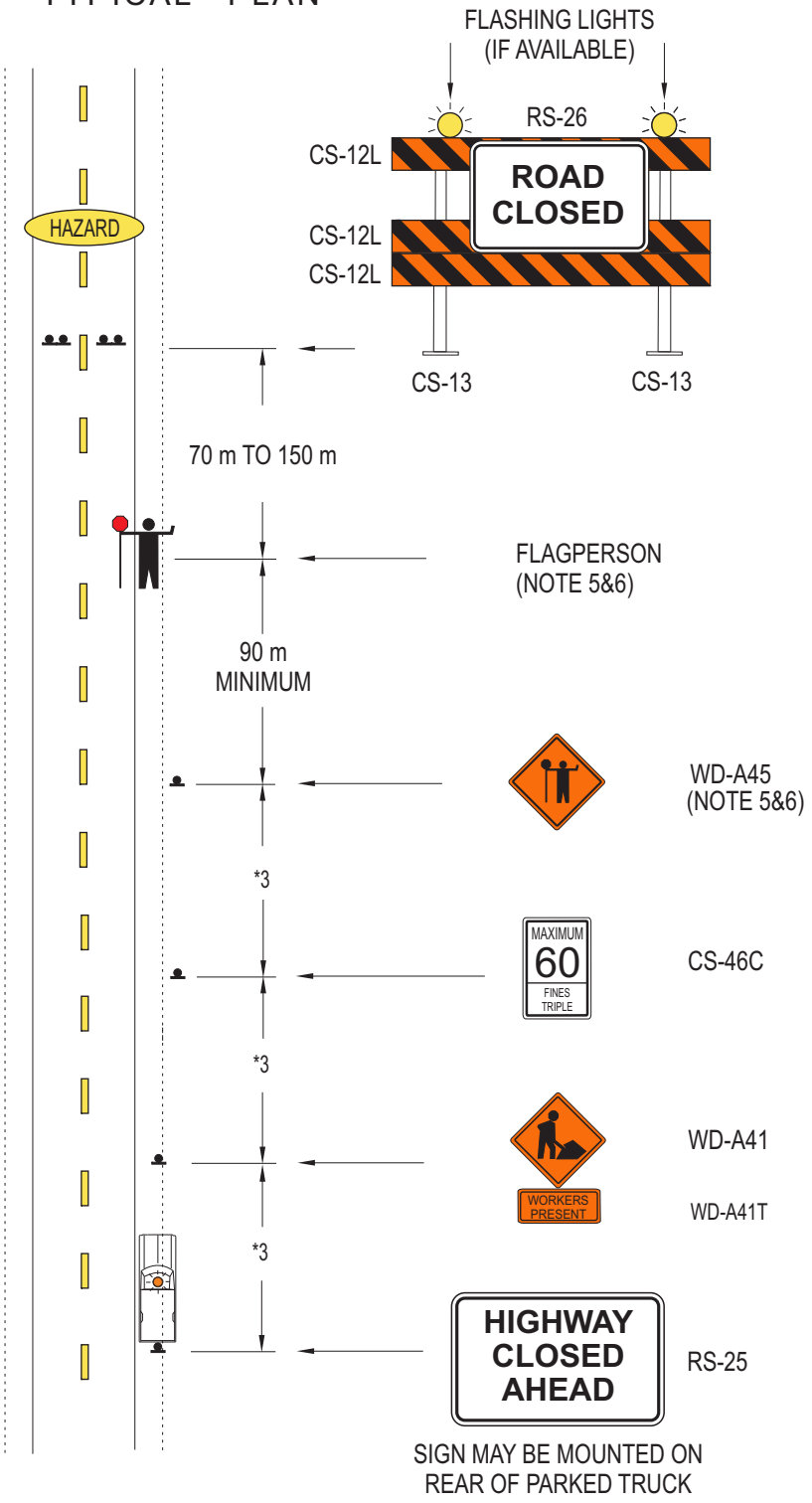
TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: TEMPORARY HIGHWAY CLOSURE

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150



NOTES:

1. DEPENDENT UPON THE CONDITIONS TRAFFIC CONTROL DEVICES MAY OR MAY NOT BE SET UP FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. ERECT ONLY A SINGLE BARRICADE WHEN TRAFFIC CONTROL DEVICES ARE NOT REQUIRED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
3. SIGNING USED TO ADVISE OF A CLOSURE FARTHER DOWN THE HIGHWAY WILL ONLY USE A SINGLE BARRICADE OR IN ITS PLACE AN INFORMATION SIGN.
4. ERECT BARRICADE OR SIGN ON RIGHT SHOULDER.
5. IF INFORMATION SIGN (RS-25) IS USED, FLAGPERSONS, WD-A45 SIGN AND CS-46C SIGN MAY NOT BE REQUIRED.
6. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS BEING AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.

TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLAN

Subject: TEMPORARY HIGHWAY CONDITION

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. a) TWO LANE HIGHWAYS:
   CORRESPONDING TRAFFIC CONTROL DEVICES MAY BE REQUIRED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.

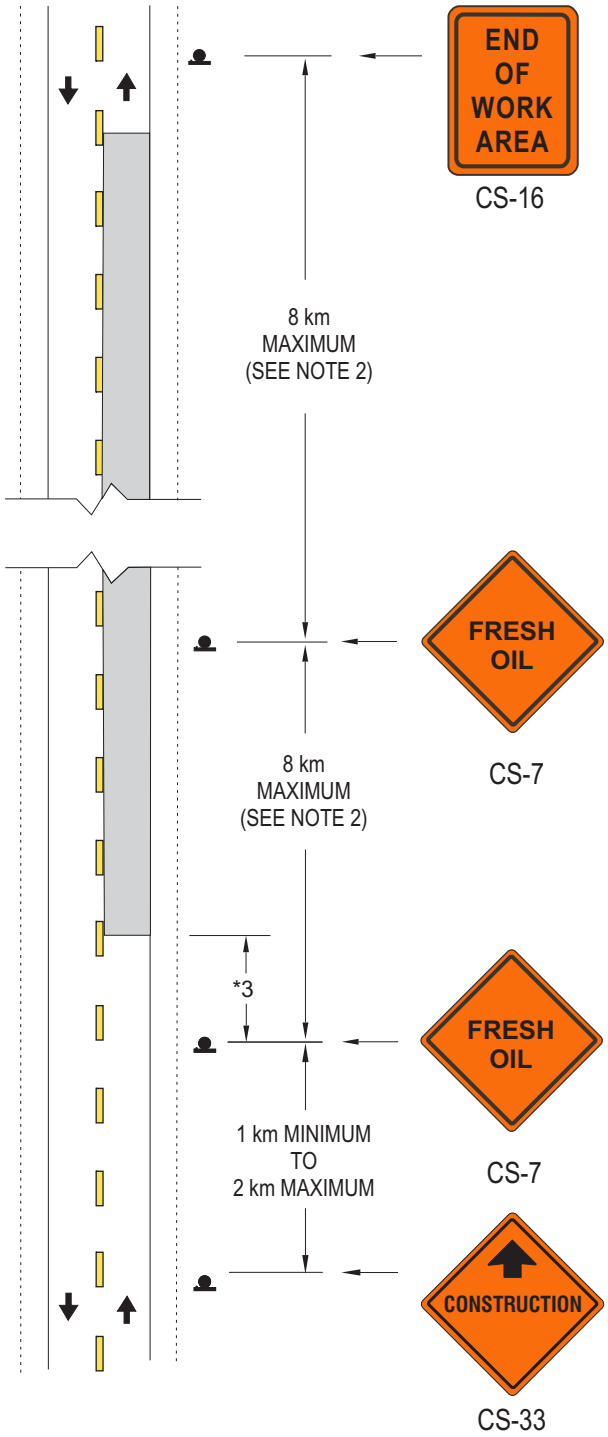
   b) FOUR LANE HIGHWAY:
   CORRESPONDING TRAFFIC CONTROL DEVICES MAY BE REQUIRED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.

2. MAXIMUM DISTANCE BETWEEN SIGNS OR SERIES OF SIGNS IS 8 km.

3. MAXIMUM LENGTH OF SECTION WITH NO TEMPORARY SURFACE CONDITIONS ALLOWED WITHIN A SIGNING ZONE IS 2 km. SECTIONS GREATER THAN 2 km NECESSITATE THE START OF A NEW SIGNING ZONE.

4. DEPENDANT ON THE CONDITION OF SURFACE; SIGNS WHICH MAY BE USED ARE:

FRESH OIL	CS-7
ROUGH ROAD	CS-8
LOOSE GRAVEL	CS-9
LOOSE STONES	CS-28



TRAFFIC CONTROL DEVICES MANUAL FOR WORK ZONES

Section: SHORT DURATION WORK TYPICAL PLANS

Subject: EXTENDED WORK AREAS IN WORK ZONES

TYPICAL PLAN

* CODE	REGULAR OR WZ SPEED LIMIT	0 - <60 km/h (m)	60 - 100 km/h (m)
1	LANE CLOSURE TAPER LENGTH	40 - 74	75 - 150
2	DISTANCE BETWEEN MARKERS	5 - 9	10 -15
3	DISTANCE BETWEEN SIGNS	30 - 89	90 -150

NOTES:

1. CORRESPONDING TRAFFIC CONTROL DEVICES WILL BE ERECTED FOR TRAFFIC TRAVELLING IN THE OPPOSITE DIRECTION.
2. THE WD-A41, WD-A41T & CS-46C SIGNS ARE INSTALLED EVERY 3 KM ALONG WITH WD-A45 & WD-A46 SIGNS WHEN APPLICABLE.
3. COVER/REMOVE WD-A41, WD-A41T, CS-46C1, AND WD-A45 WHEN WORKERS OR EQUIPMENT ARE NOT PRESENT IN THE 3 KM SECTION.
4. ONE FLAGPERSON IS REQUIRED FOR ALL ACTIVITIES IN WHICH ONE LANE IS AFFECTED BY CONSTRUCTION. ADDITIONAL FLAGPERSONS ARE OPTIONAL. FOR WHEN TO USE ADDITIONAL FLAGPERSONS REFER TO TCDM 701.

   TWO FLAGPERSONS ARE REQUIRED FOR ALL ACTIVITIES IN WHICH BOTH LANES ARE BEING AFFECTED BY CONSTRUCTION.

   FLAGPERSON(S) SHALL BE VISIBLE TO THE MOTORISTS APPROACHING THE WORK ZONE FOR A MINIMUM OF 125 METRES.
5. THE REGULARTORY SPEED SIGN USED AT THE END OF THE WORK ZONE MUST MATCH THE SPEED LIMIT THAT WAS POSTED PREVIOUS TO THE WORK ZONE.