



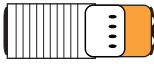





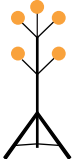


CHAPTER 3

TYPICAL TRAFFIC CONTROL LAYOUTS FOR SHORT DURATION WORK ZONES

LEGEND	
	TUBULAR MARKER – TYPE D
	CONE – TYPE A, B or C
	SIGN
	TRAFFIC CONTROL PERSON (TCP)
	SHADOW, BUFFER or WORK VEHICLE
	(360°) FLASHING YELLOW LIGHT
	WORK AREA
	PORTABLE LANE CONTROL SIGNAL
	BARRICADES and FENCING
	FLASHING ARROW BOARD (FAB)
	HIGH LEVEL WARNING DEVICE (HLWD)

Exception for Emergency and Brief Duration Work

If the work being carried out is of an emergency or brief duration nature, as defined, and is within a speed limit of 60 km/h or less, it may not be practicable to provide the TCPs or advance signing called for in Chapters 3 and 4 of the Traffic Control Manual.

TABLE A

Positioning of devices on conventional roadways for various speed limits.

*	Regulatory speed limit	50 km/h	60 km/h	70 km/h	80 km/h	90-100 km/h
1a	Taper length for lane closure	35 (1:10)	55 (1:15)	75 (1:20)	90 (1:25)	110 (1:30)
1b	Taper length for shoulder work or where TCPs used (min. 3 cones)	5	8	10	12	15
2	Maximum distance between cones or tubular markers for 1a	10	10	10	10	10
3	Minimum tangent distance between tapers	30	60	90	120	150
4	Distance between construction signs	40	60	80	100	150

Dimensions shown are in metres and are minimums except for 2*.

Cones and tubular markers are generally used in daylight but if used at night must be reflectorized. Barricades, flexible drums or temporary delineator posts are generally used during hours of darkness and must be reflectorized.

Dimensions 1b* apply to downstream tapers, shoulder tapers, and to two-way traffic tapers on travelled lanes where traffic is controlled by TCPs, portable lane control signals or temporary traffic signals.

Dimensions 4* represent the minimum advance placement distances for initial signs as well as distances between subsequent signs in multi-sign series.

Figure 3.1.1 Work on Shoulder (Less Than 30 Minutes)

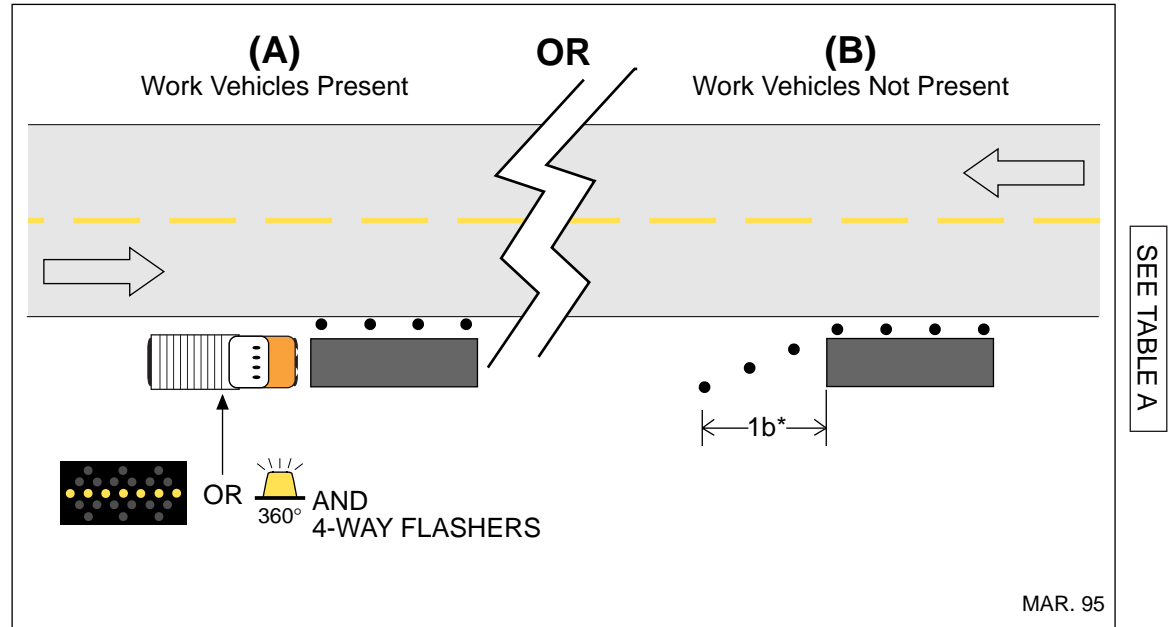
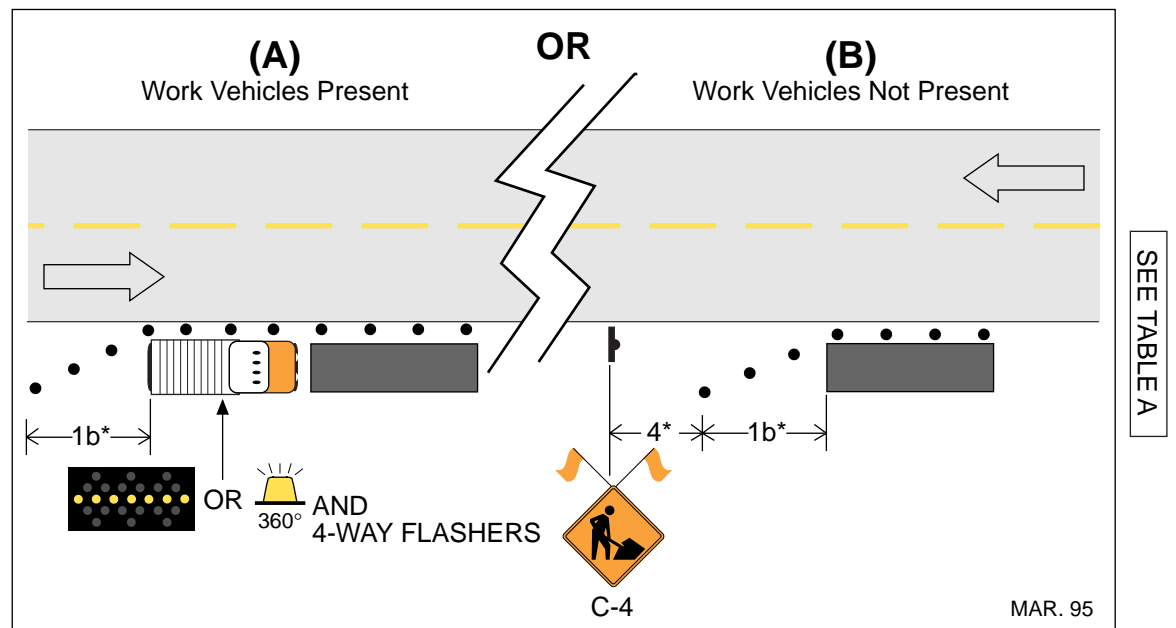
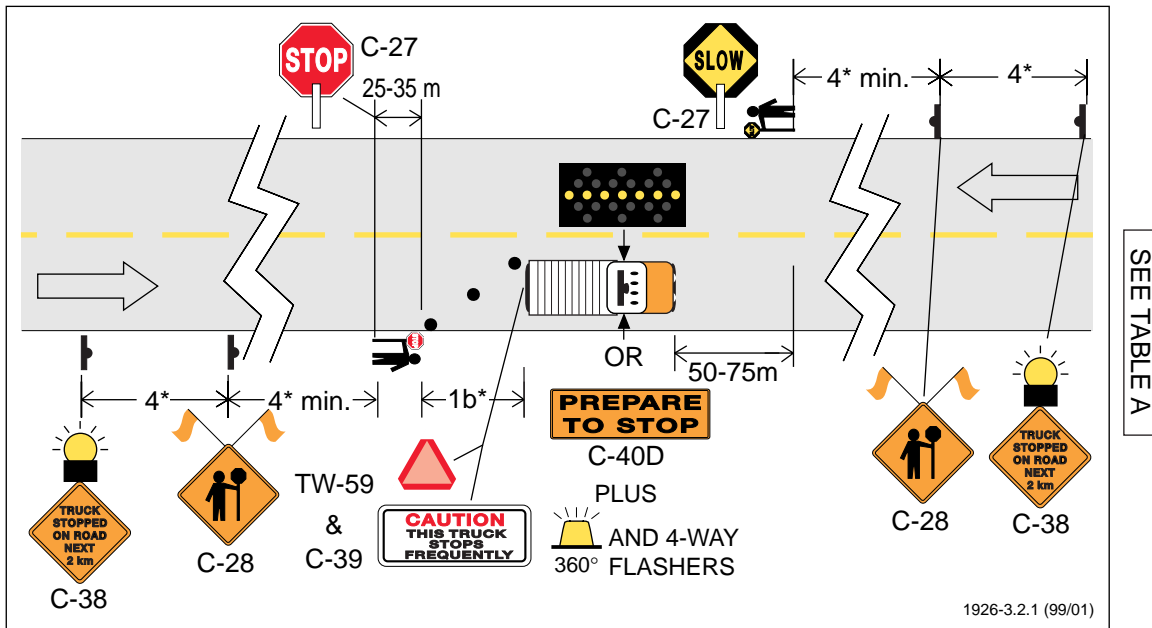


Figure 3.1.2 Work on Shoulder (30 Minutes or Greater)

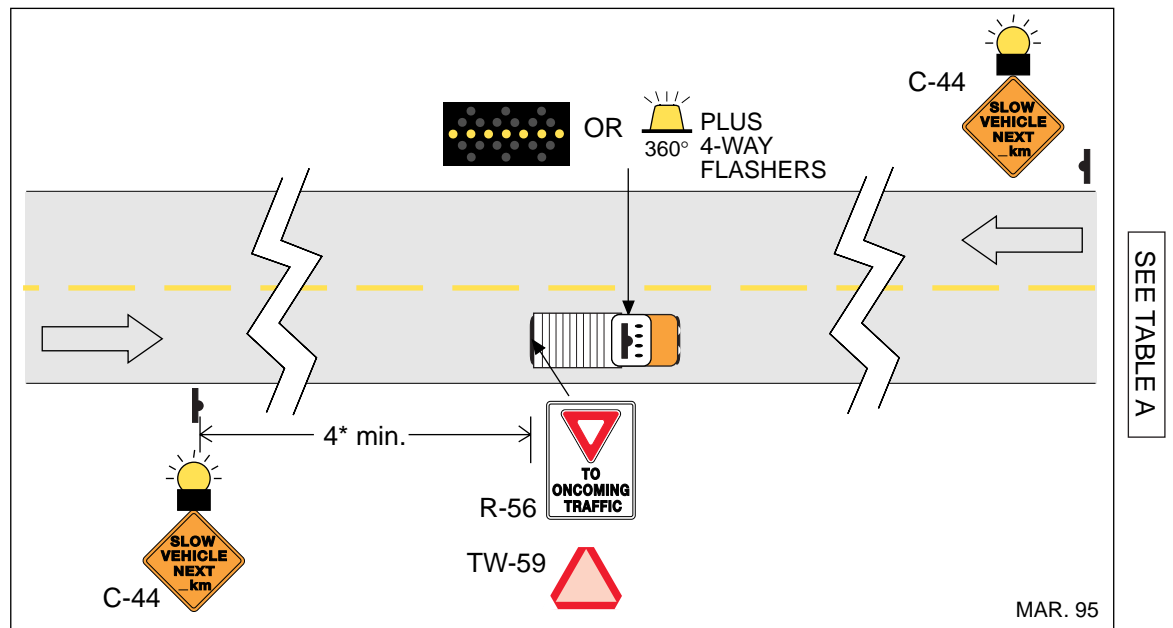


**Figure 3.2.1 Intermittent Moving Work
– Two Lane Two-way Roadway**



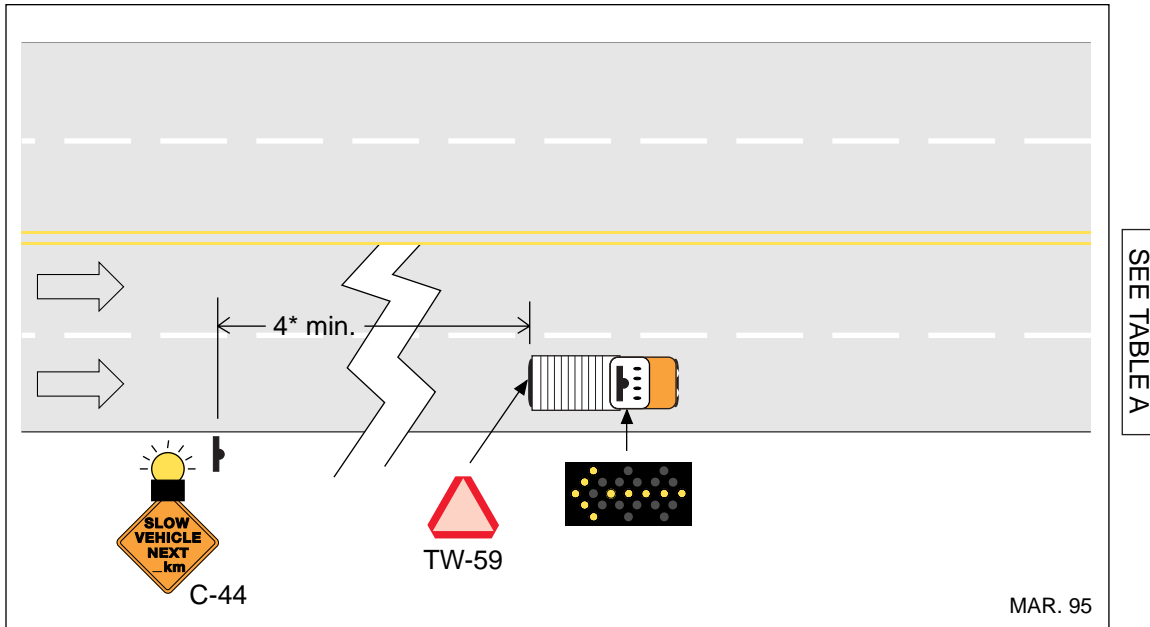
- Typical applications are Benkleman beam testing, reflective road stud installation, temporary patching, crack sealing, etc.
- Distance on C-38 signs should not exceed 2 km.
- A Type B flashing yellow light or flags shall be used with C-38 signs. Addition of a HLWD is optional.
- If speed limit is 60 km/h or less the C-38 sign and its accessories may be omitted.
- A shadow vehicle with a C-45 or other appropriate sign on the rear may be required by the road authority.
- C-39 and TW-59 signs should be removed or covered and the C-40D sign lowered when work vehicles travel at posted speeds.
- C-40D may be omitted from large line-type utility vehicles if it is impractical to mount the sign.

**Figure 3.2.2 Continuously Slow Moving Work
– Two Lane Two-way Roadway**



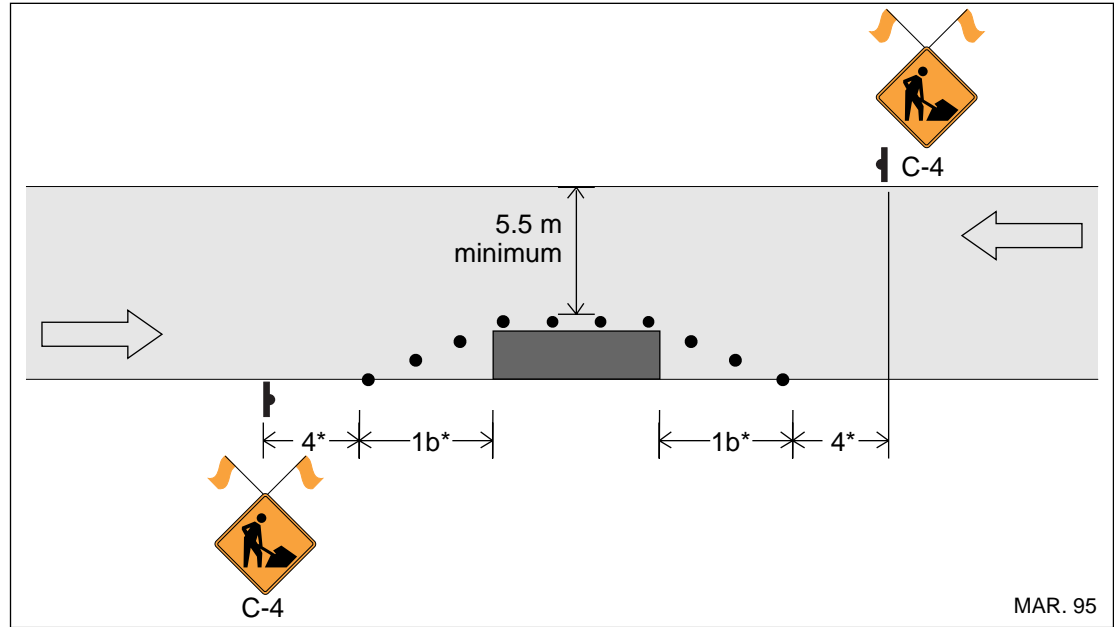
- For pavement striping see Appendix B of the Traffic Control Manual.
- Typical applications are hydroseeding, grading, sweeping and flushing, etc.
- Maximum distance on C-44 signs should not exceed 8 km.
- A Type B flashing yellow light or flags shall be used with C-44 signs. Addition of a HLWD is optional.
- If speed limit is 60 km or less, the C-44 sign and its accessories may be omitted.
- All signs should be removed or covered when work is not underway and work vehicles can travel at posted speeds.
- A shadow vehicle with a C-45 or other appropriate sign on the rear may be required by the road authority.
- R-56 may be omitted from large line-type utility vehicles if it is impractical to mount the sign.

Figure 3.2.3 Continuously Slow Moving Work – Multilane Roadway



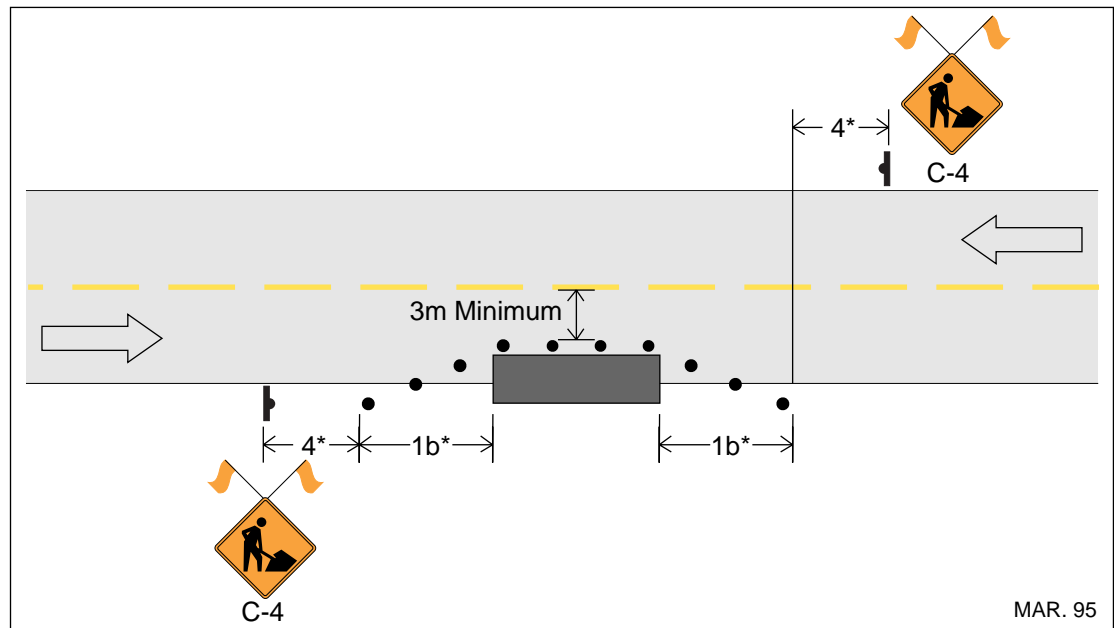
- For pavement striping, see Appendix B of the Traffic Control Manual.
- Typical applications are hydroseeding, grading, flushing and sweeping etc.
- Maximum distance on C-44 sign should not exceed 8 km.
- A Type B flashing yellow light or flags shall be used with the C-44 sign. Addition of a HLWD is optional.
- If speed limit is 60 km or less, the C-44 sign and its accessories may be omitted .
- If speed limit is 60 km/h or less, the FAB can be replaced by a 360° plus 4-way flashers.
- All signs should be covered or removed when work vehicles can proceed at posted speeds.
- A shadow vehicle with a C-45 or other appropriate sign on the rear may be required by the road authority.

Figure 3.3.1 Work on Low Volume Roadway – No Centreline



- FAB (bar mode) or 360° plus 4-way flashers are optional.
- Use lane closure if speed limit is 70 km/h or greater, if sight distance is restricted (ie., dust, curves, etc.) or if there is less than approximately 5.5 m of road width remaining.

Figure 3.3.2 Roadside Work – Encroachment into Travelled Lane



- FAB (bar mode) or 360° plus 4-way flashers are optional.
- Where speeds are 70 km/h or greater a temporary speed zone of 50 km/h may be used in direction of obstructed lane.

Figure 3.3.3 Work in Parking Lane – Urban Area

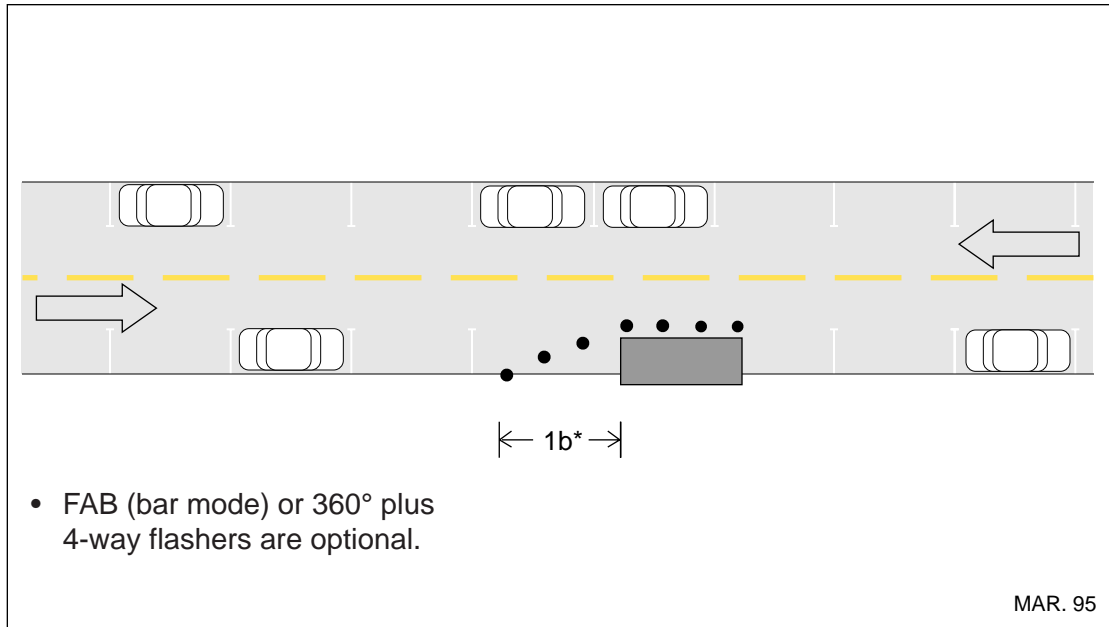
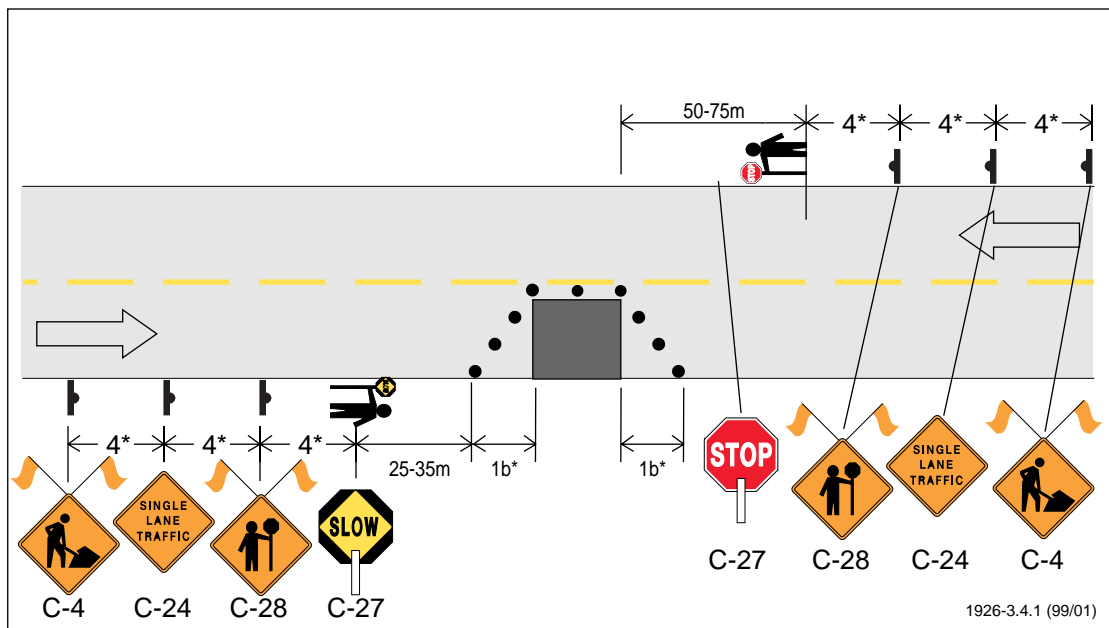


Figure 3.4.1 Lane Closure with TCPs – Two Lane Two-way Roadway



- For a temporary speed zone, place C-1 signs at positions shown for C-24s. Move both C-24 and C-4 signs a further 4* upstream. Place C-23 signs downstream of each TCP.
- If the one lane section is sufficiently short (e.g., a spot obstruction), sight distance is adequate, and traffic volumes are light, it may be possible to omit the TCP for the open lane or possibly even both TCPs, and let traffic flow be self regulating. If the TCP for the open lane is omitted, the corresponding C-28 sign must be omitted. If the TCP for the closed lane is also omitted, the C-28 for that direction must be replaced with an R-56 Yield to Oncoming Traffic. If both TCPs are omitted, a Class 1 barricade must be added on each side of the work zone.

Figure 3.4.2 Lane Closure With Temporary Lane Control Signals – Two Lane Two-way Roadway

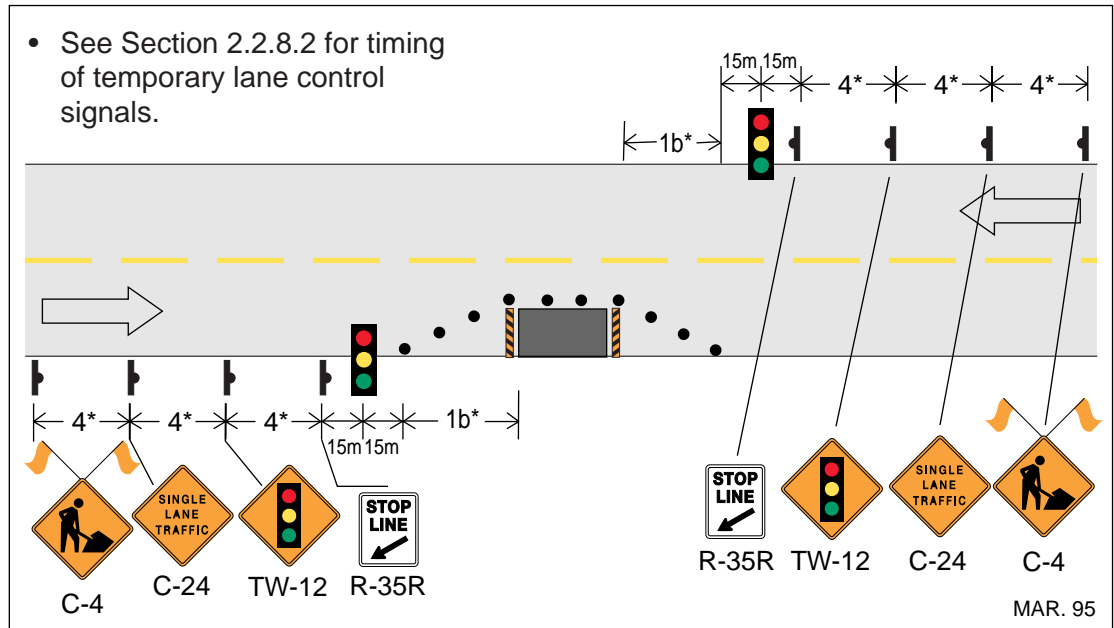
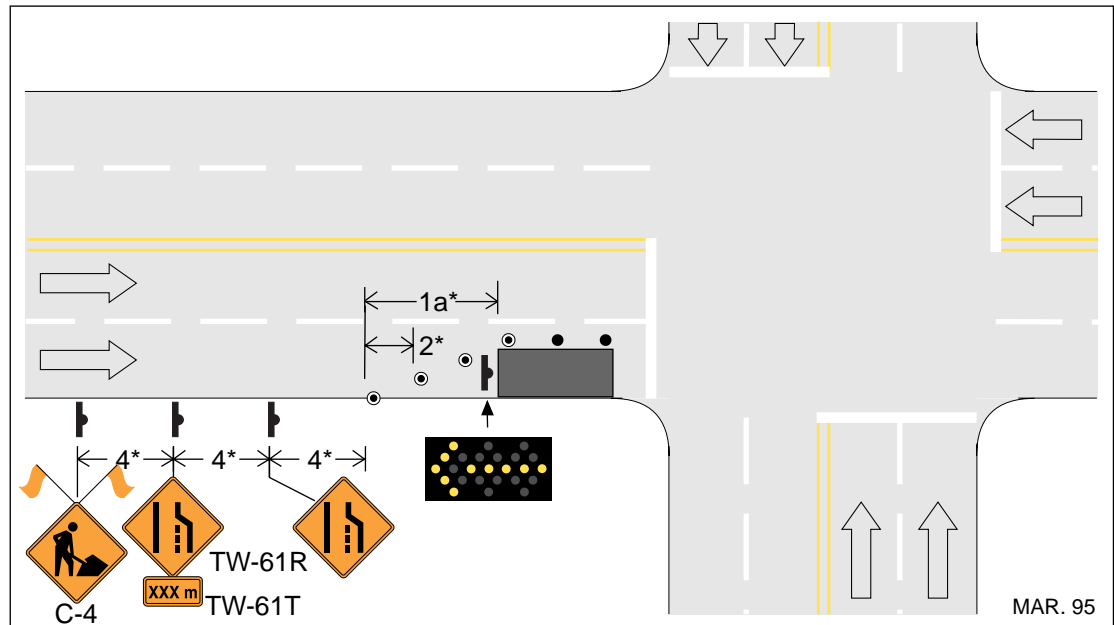


Figure 3.4.3 Right Lane Closed – Multilane Roadway



- If the speed limit is 60 km/h or less the upstream TW-61R may be omitted and the C-4 moved downstream by 4*.
- Substitution for the Fab sign may be made as indicated in the following table:

Speed Limit	Workers or Work Vehicle Present	No Workers or Vehicles Present
≤60	C-53 plus 360° & 4 way flashers or C-53 plus HLWD	C-53 plus HLWD
≥ 70	No Substitution	C-53 plus HLWD

Figure 3.4.4 Left Lane Closed – Multilane Roadway

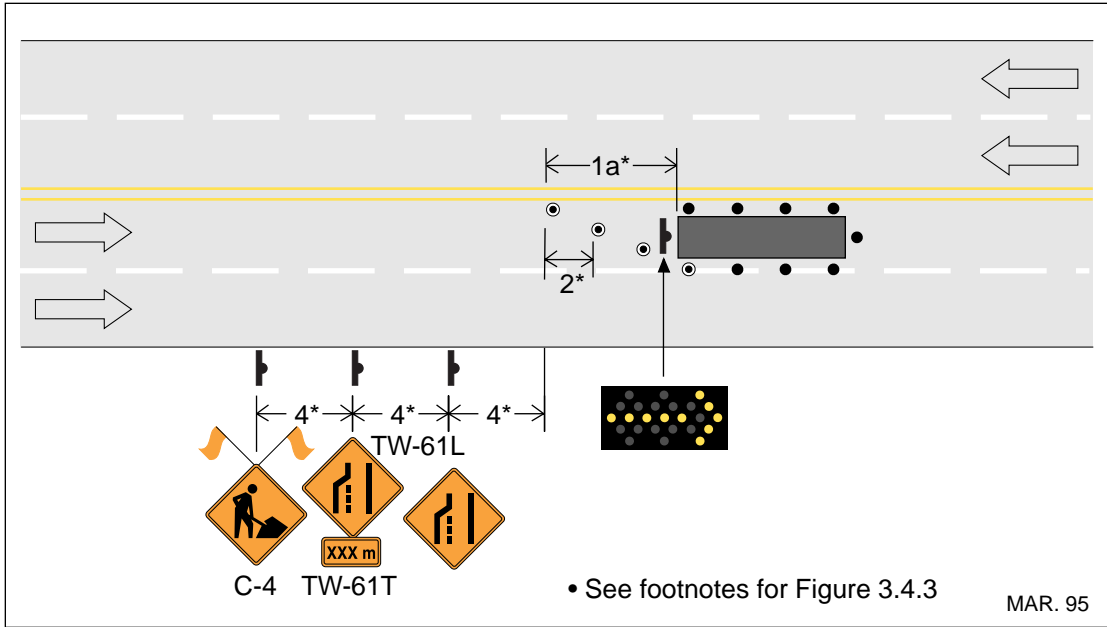


Figure 3.4.5 Centre Lane Closed – Multilane Roadway

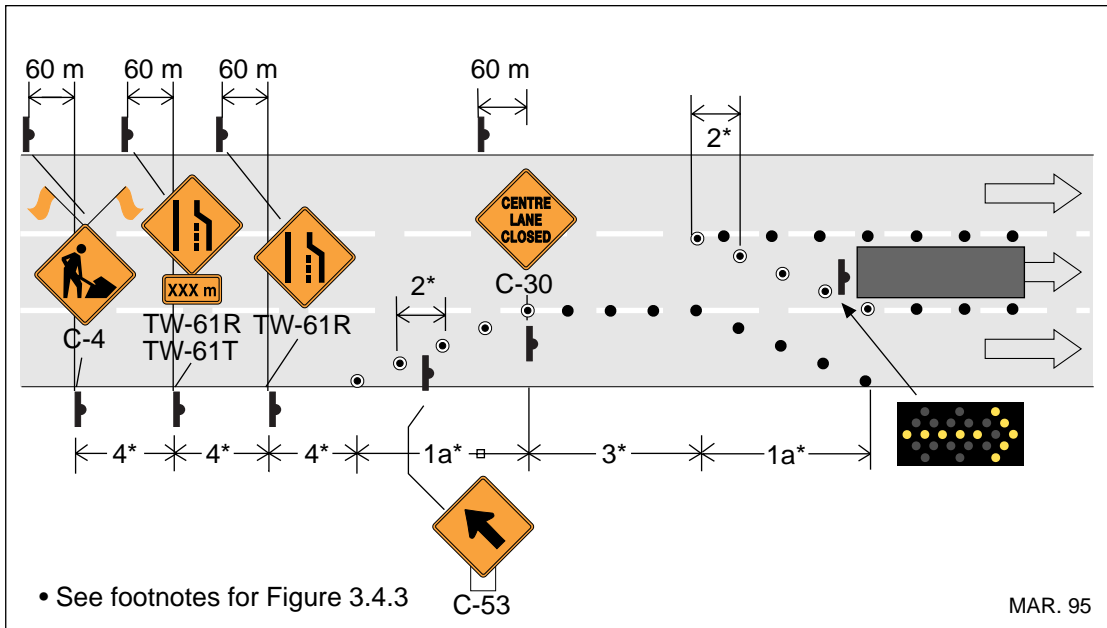
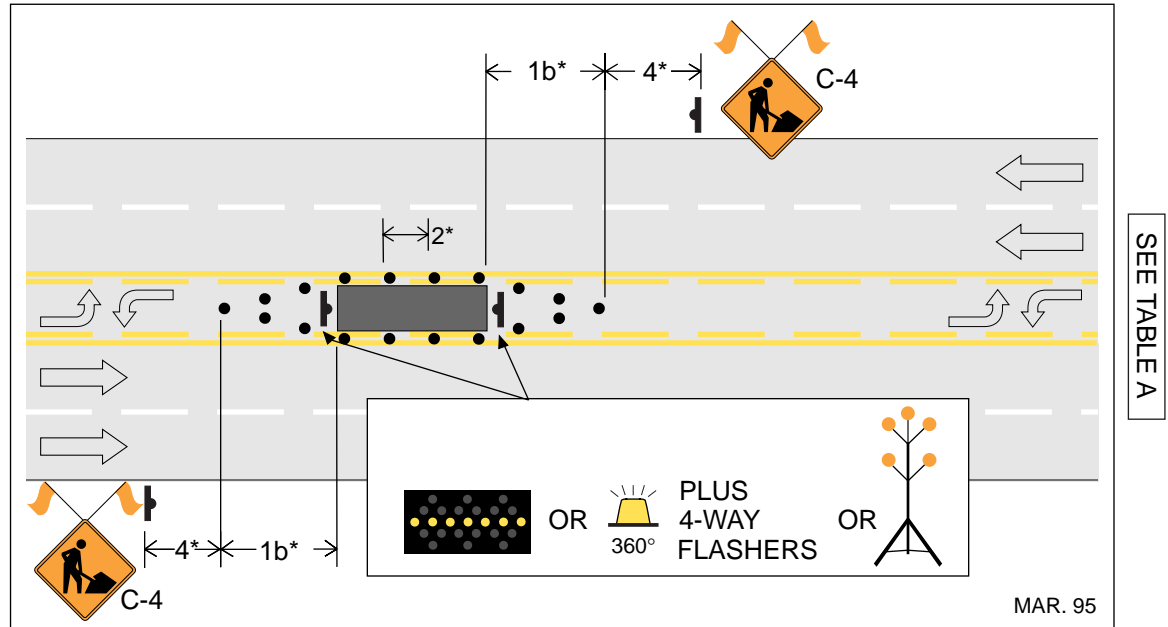


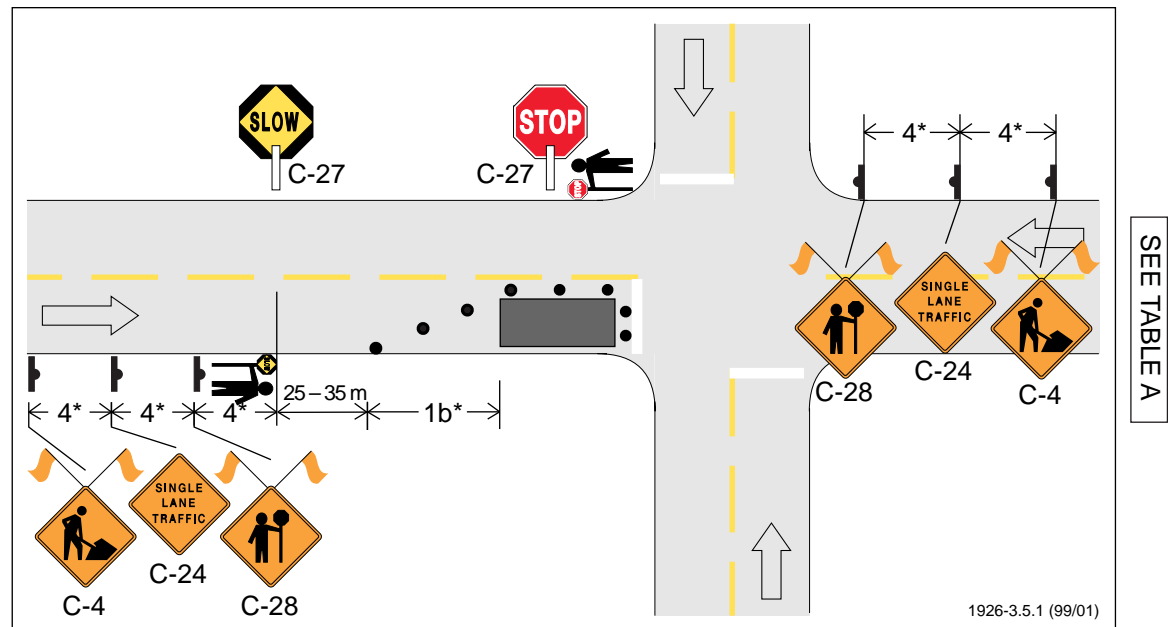
Figure 3.4.6 Two-way Left Turn Lane Closed



SEE TABLE A

- Depending on the nature of the work, one or both adjacent lanes may also need to be closed; as per Figure 3.4.4.

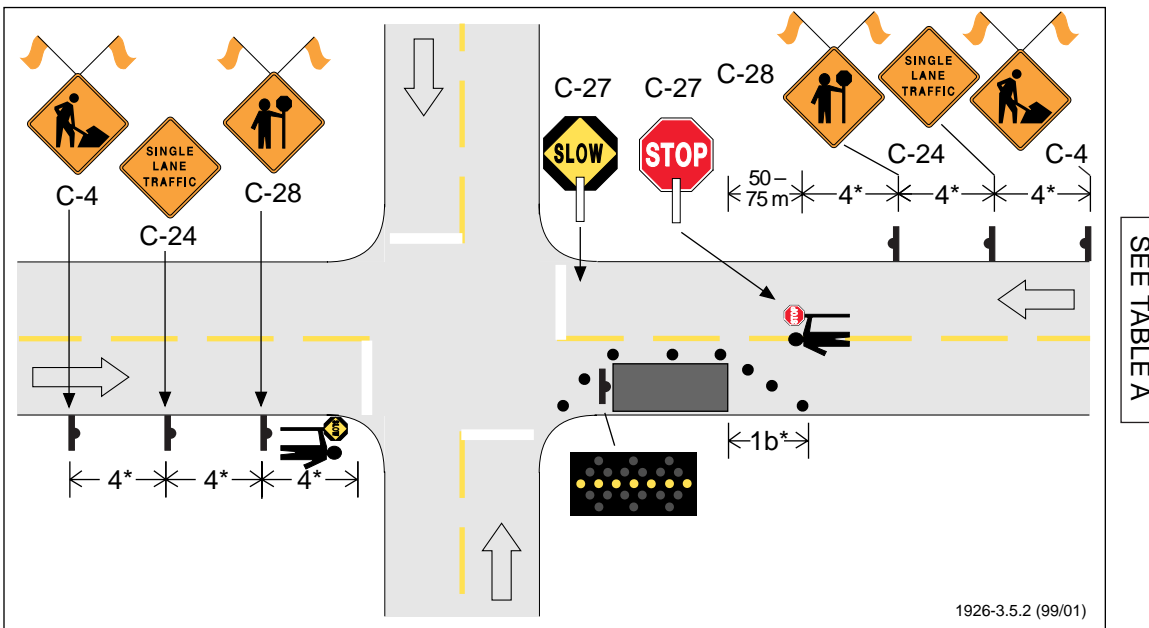
Figure 3.5.1 One Lane Closed (Near Side) – Two Lane Two-way Intersection



SEE TABLE A

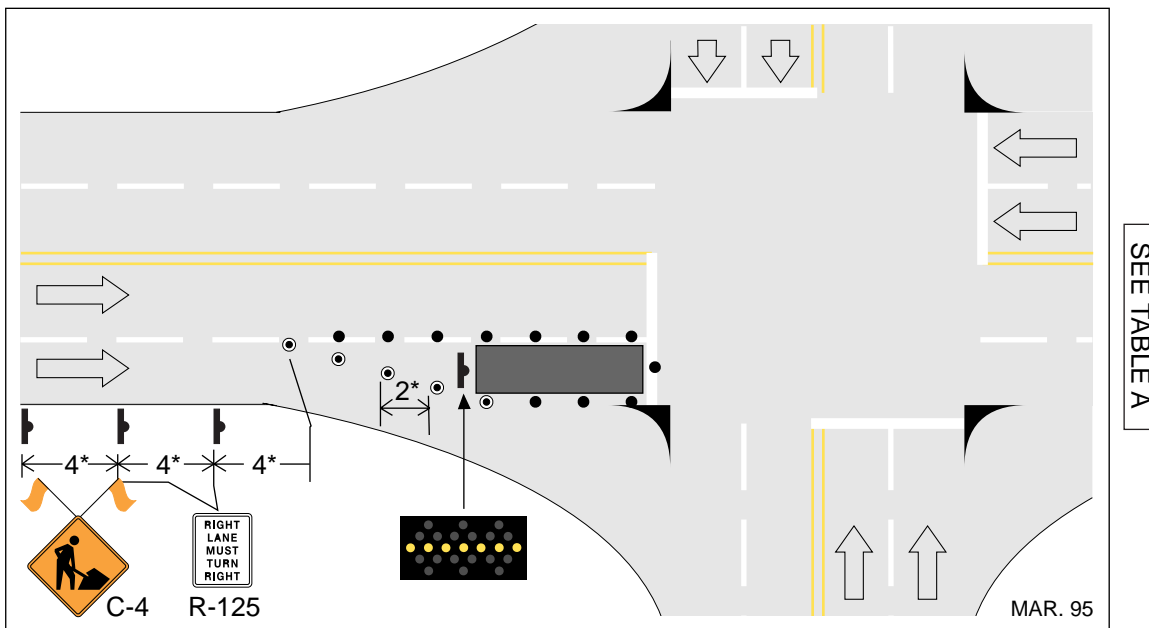
- When traffic volumes are high or the intersection is signalized, consult the road authority to determine whether police assistance is required.
- Traffic signals should be placed in flashing operation.

**Figure 3.5.2 One Lane Closed (Far Side)
– Two Lane Two-way Intersection**



- If the speed is 60 km/h or less; a HLWD or a 360° plus 4-way flashers may be used in place of a FAB.
- Also see footnotes for Figure 3.5.1.

Figure 3.5.3 One Lane Closed (Near Side) – Multilane Intersection



- If speed limit is 60 km/h or less, the FAB can be replaced by a 360° plus 4-way flashers.
- Tubular markers shall be placed on a line parallel to the pavement edge.

Figure 3.5.4 One Lane Closed (Far Side) – Multilane Intersection

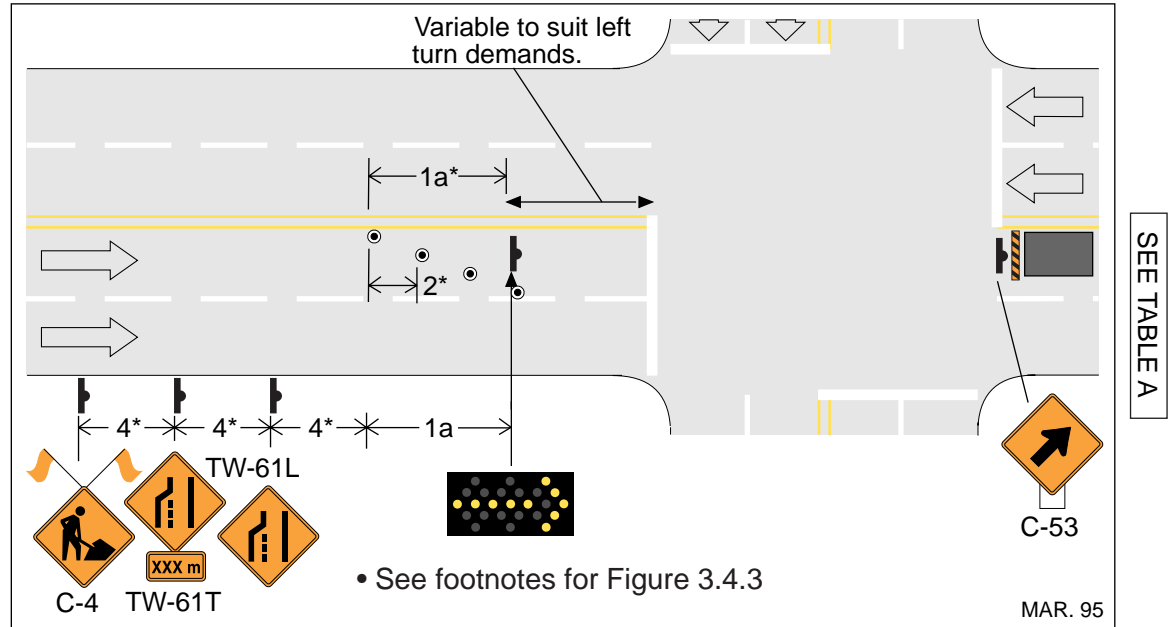
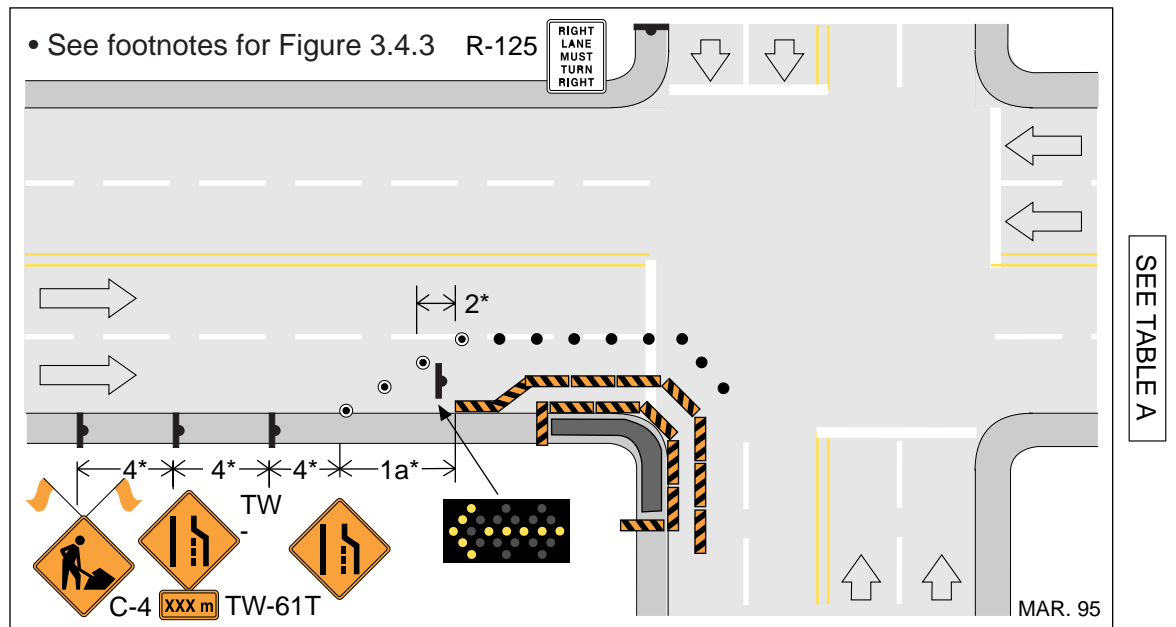


Figure 3.6.1 Sidewalk Detour onto Roadway



3.7 PAVEMENT MARKING

GENERAL

Two Lane Two-way Rural Roadway

See Part C, Appendix B.

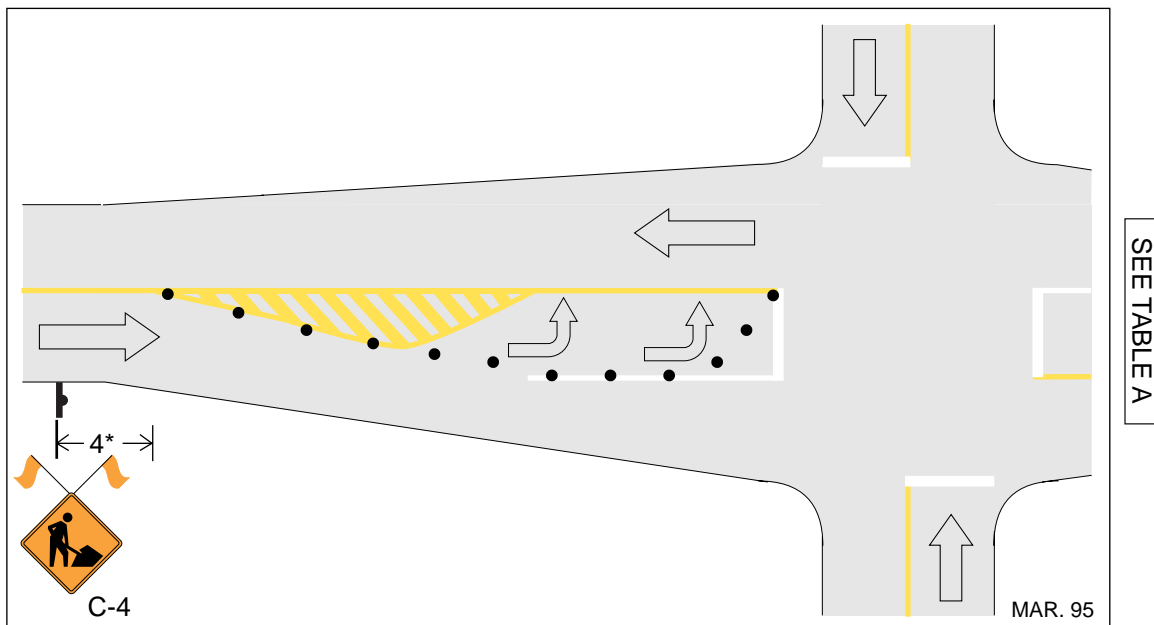
Multilane Rural Roadway

See Part C, Appendix B.

Intersections

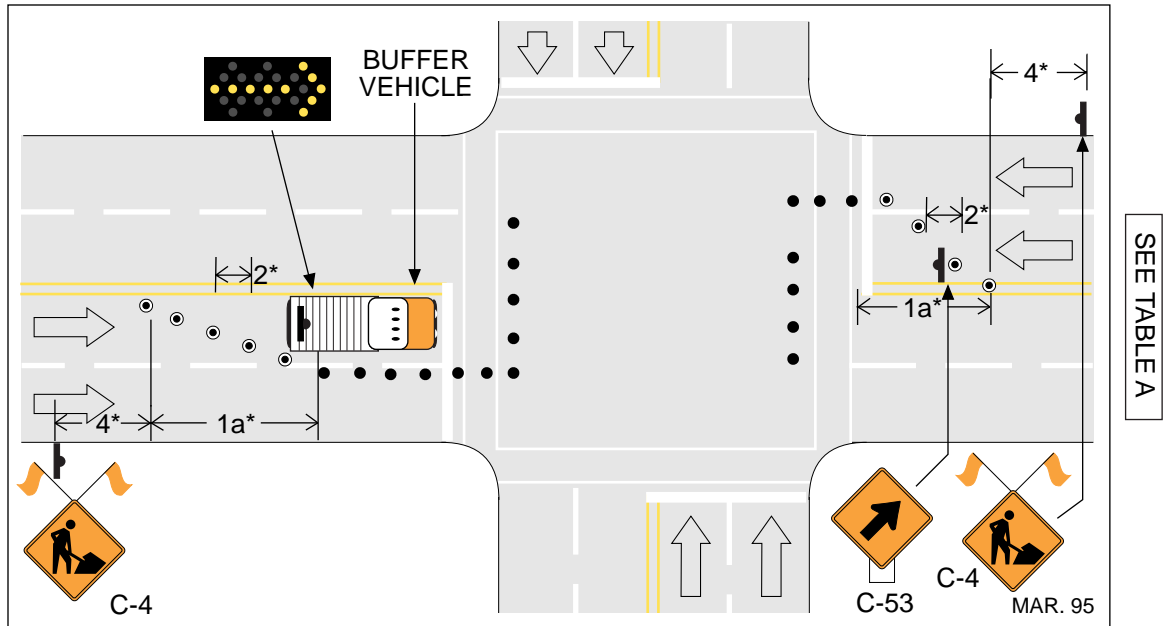
Figures 3.7.1 to 3.7.3 inclusive indicate traffic control required for installation of pavement arrows, stopline and crosswalk markings.

Figure 3.7.1 Marking – Left Turn Arrows



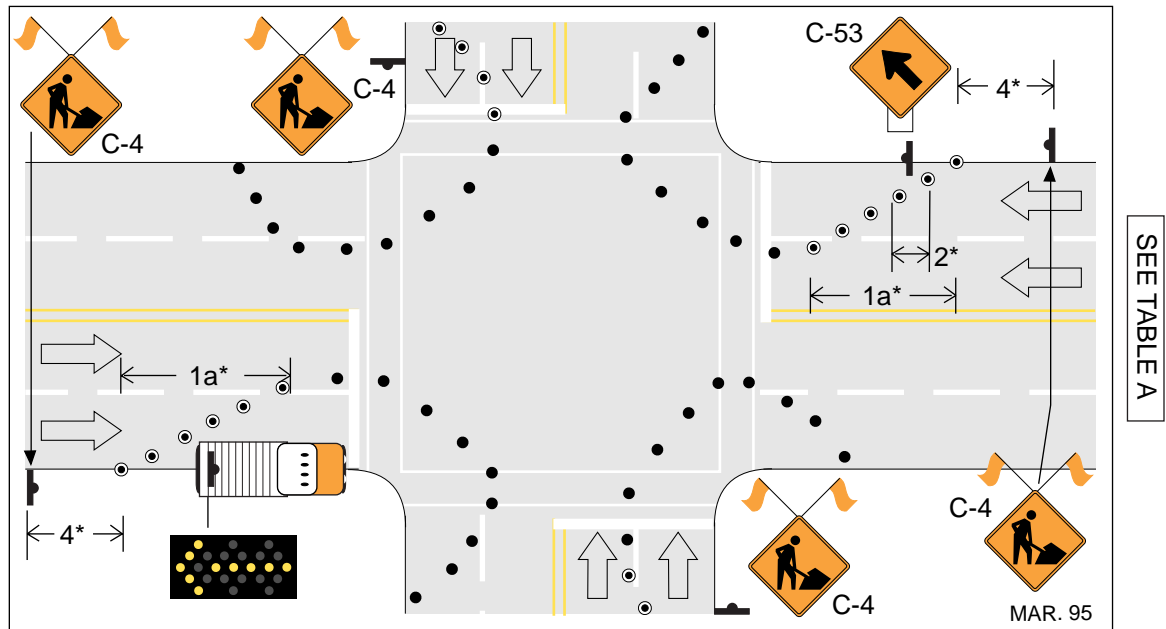
- The C-4 sign may be removed when the painting operation is complete and no workers are present. The Type A cones remain until the paint has dried.
- A vehicle with a FAB or a 360° plus 4-way flashers shall be stationed within the upstream island when the speed limit is 70 km/h or higher and workers are present.

**Figure 3.7.2 Stop Lines and Crosswalks (Left Lanes)
– Multilane Roadway**



- Buffer vehicle is used when workers are on the roadway, regardless of speed.
- See Table for Figure 3.4.3.

**Figure 3.7.3 Marking – Stop Lines and Crosswalks (Right Lanes)
– Multilane Roadway**



- Buffer vehicle is used when workers are on the roadway, regardless of speed.
- See Table for Figure 3.4.3.

3.8 SURVEYING

GENERAL

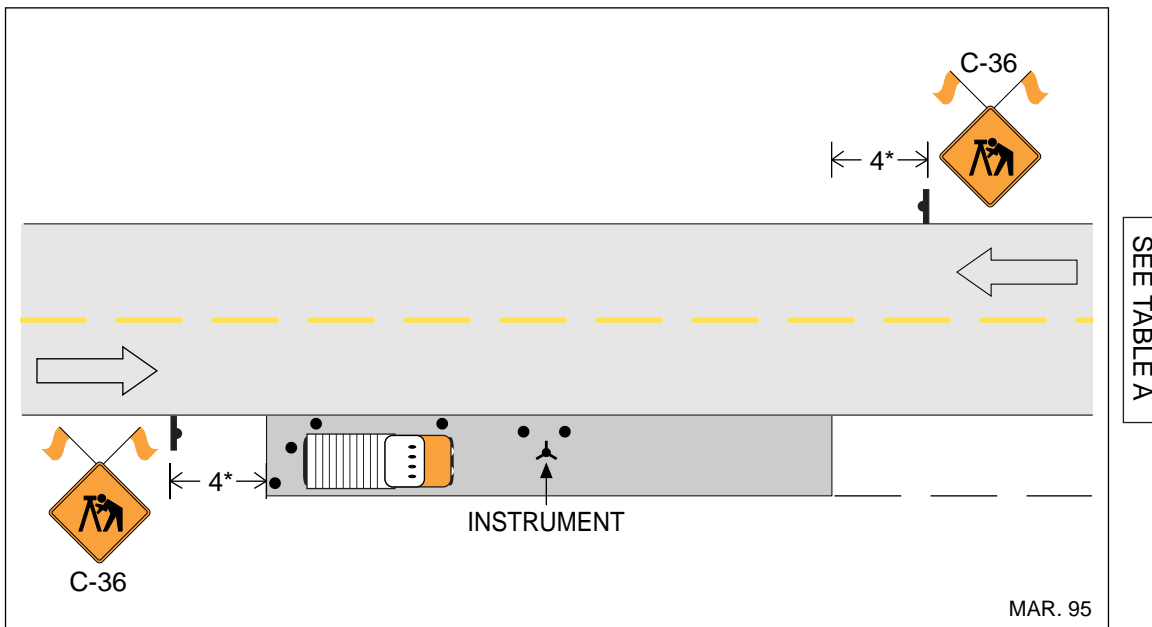
Survey work areas may not have the attention getting vehicles and equipment typically present at construction and maintenance work sites. Extra caution is therefore required by survey crews.

It is advantageous to have members of the survey crew qualified as TCPs (Section 2.3) so they can control traffic when required or supplement personnel working solely as TCPs.

All signs must be removed or covered when no member of the crew is working on or adjacent to the roadway.

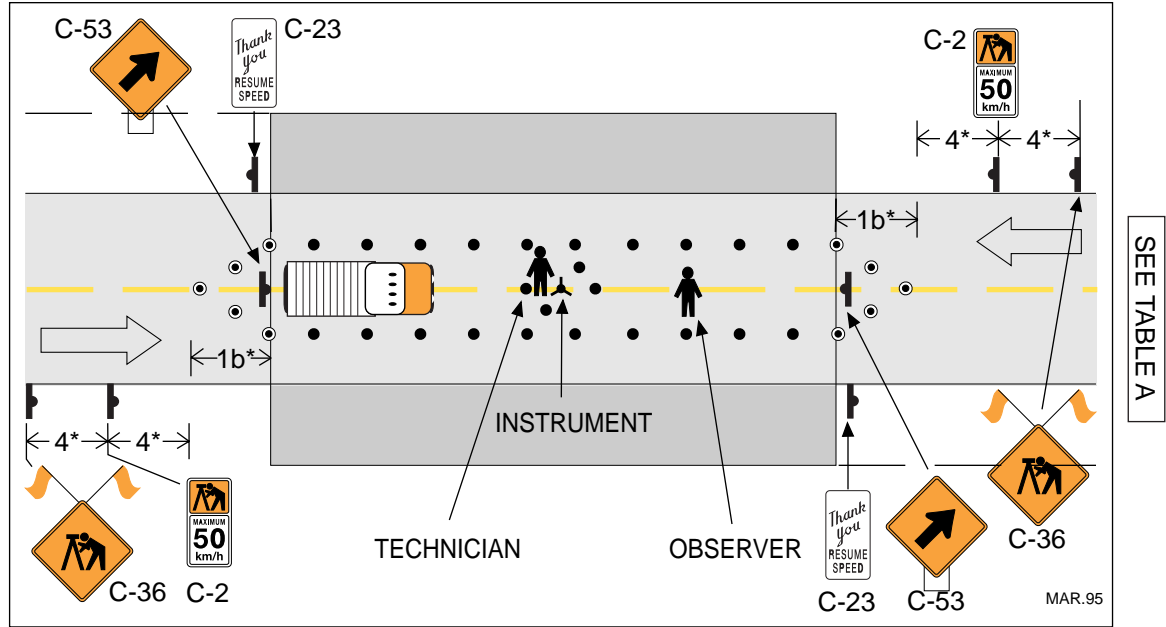
The following figures illustrate traffic control for various surveying situations.

Figure 3.8.1 Surveying – Work on Shoulder



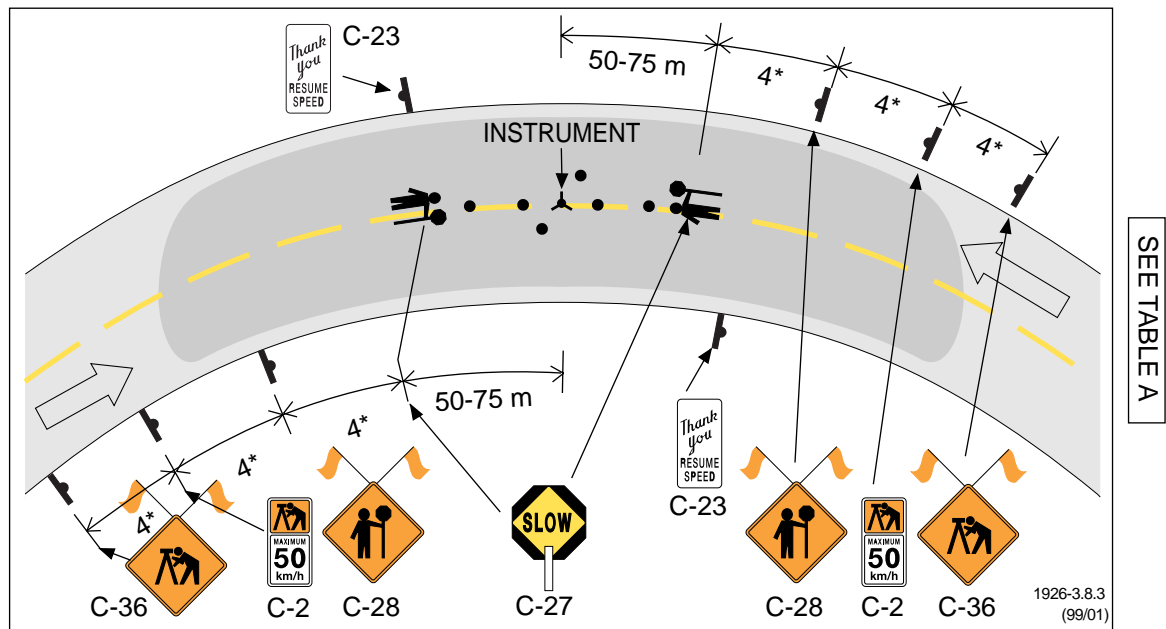
- Buffer vehicle with 360° and 4-way flashers is required for speed limits of 70 km/h or greater and on high volume roads.

Figure 3.8.2 Surveying – Work on Centreline (Tangent)



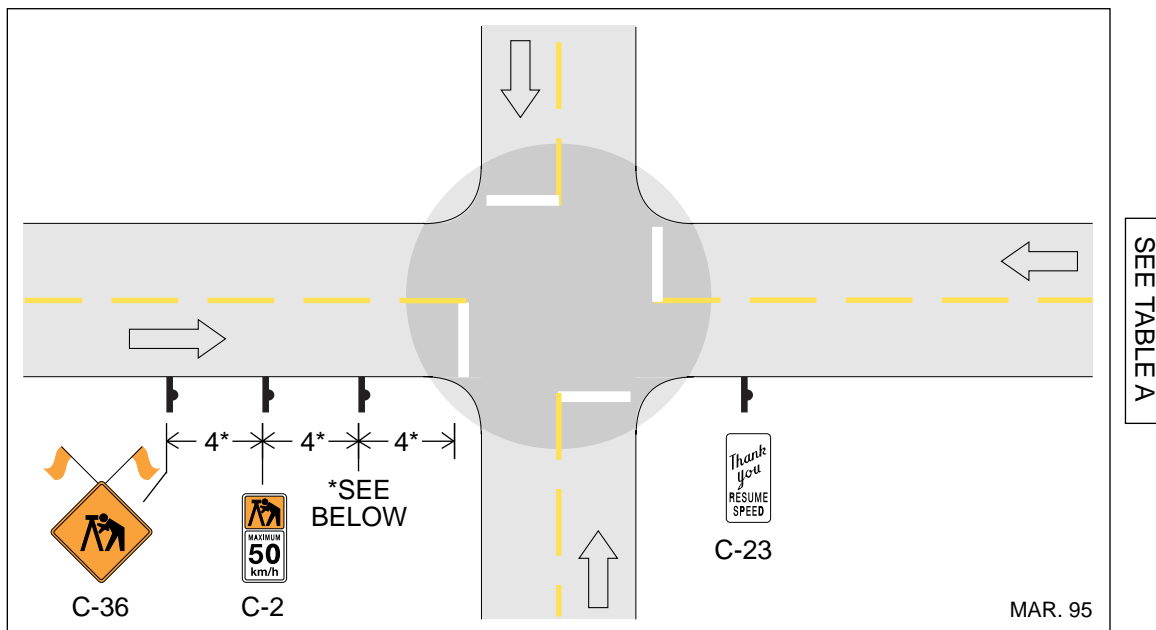
- An observer may be required to assist the instrument person by watching traffic.
- Buffer vehicle with 360° and 4-way flashers is required when the speed limit is 70 km/h or greater.
- C-2 and C-23 signs (Temporary Speed Zone) should be used only where conditions warrant. If they are not required the C-36 signs can be moved downstream by a distance 4*.

Figure 3.8.3 Surveying – Work on Centreline (Curve or Hill)



- Buffer vehicle with 360° and 4-way flashers may be used where the speed limit is 70 km/h or greater.
- C-2 and C-23 signs (Temporary Speed Zone) should be used only where conditions warrant. If not required the C-36 signs can be moved downstream by a distance 4*.

Figure 3.8.4 Surveying – Work in Intersections



- The same signing is required on all approaches to the intersection.
- * The use of C-28 signs and one or more TCPs are optional depending on specific circumstances.
- C-2 and C-23 signs (Temporary Speed Zone) should be used only when conditions warrant. If they are not required the C-36 signs can be moved downstream by a

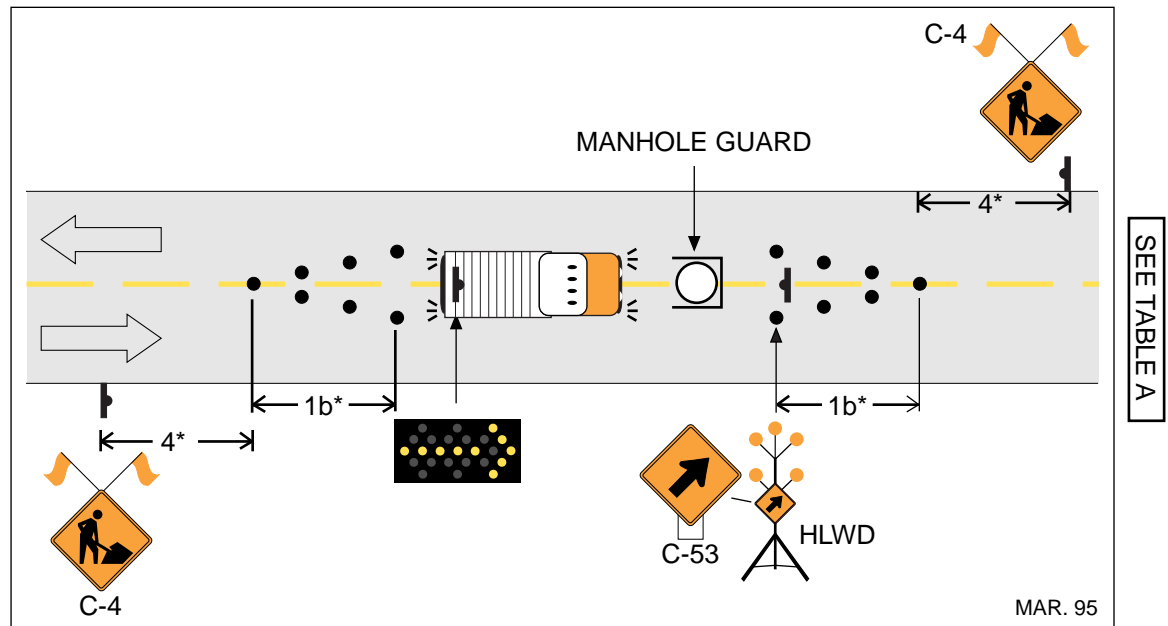
3.9 UTILITY WORK

GENERAL

In most circumstances, traffic control required for utility work is no different than that required for road construction or maintenance.

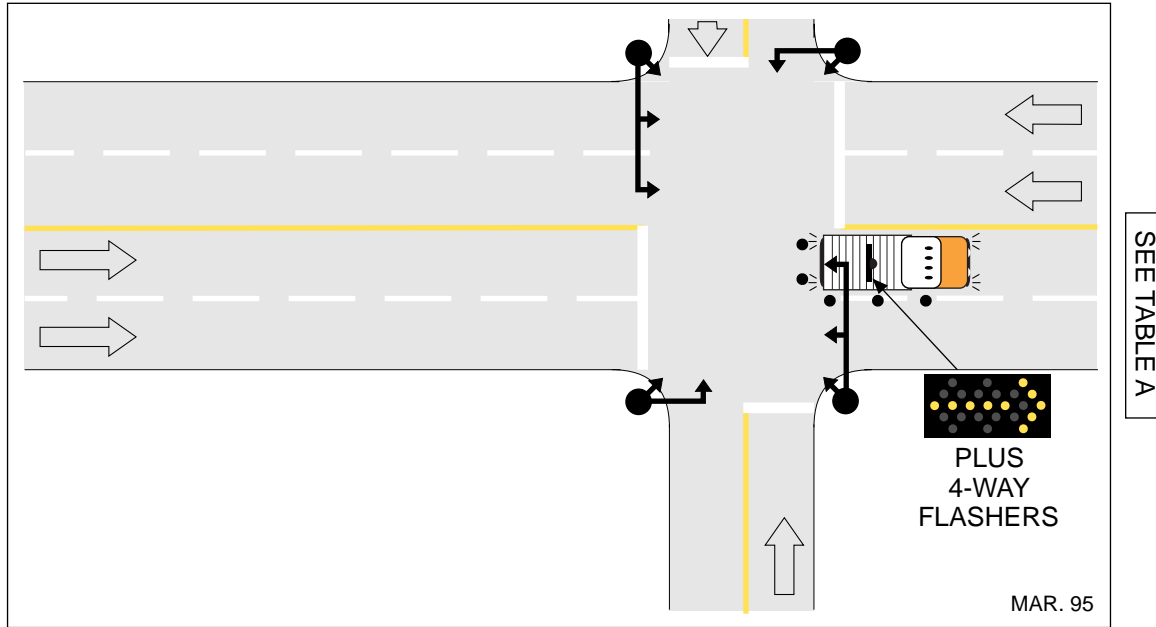
The following figures, however, illustrate traffic control for situations peculiar to utility work.

Figure 3.9.1 Utility Work on Centreline – Urban Area



- Additional advanced warning may be used if required.
- C-1 and C-23 signs (Temporary Speed Zone) may be used when conditions warrant.
- See Table for Figure 3.4.3.

Figure 3.9.2 Traffic Signal Relamping or Overhead Utility Work



- Work vehicle with 4-way flashers operating and FAB directing traffic into the right lane is stopped under a signal head where lamps are to be replaced.
- If the speed is 70 km/h or higher, the signal may be placed in flashing operation.