

Traffic Signals Ahead

Description: The *Traffic Signals Ahead* sign indicates that traffic control signals are present in the Work Area.

Minimum Size: 50 km/h 75 cm x 75 cm (#3031)
 60 - 90 km/h 90 cm x 90 cm (#3032)
 100 - 110 km/h 120 cm x 120 cm (#3033)

Colour / Sheeting: Red, Yellow, Green & Black on Yellow, High Intensity



Stop Ahead

Description: The *Stop Ahead* sign indicates that a Stop sign is present in the Work Area.

Minimum Size: 50 km/h 75 cm x 75 cm (#3011)
 60 - 90 km/h 90 cm x 90 cm (#3012)
 100 - 110 km/h 120 cm x 120 cm (#3013)

Colour / Sheeting: Red & Black on Yellow, High Intensity



Yield Ahead

Description: The *Yield Ahead* sign indicates that a Yield sign is present in the Work Area.

Minimum Size: 50 km/h 75 cm x 75 cm (#3021)
 60 - 90 km/h 90 cm x 90 cm (#3022)
 100 - 110 km/h 120 cm x 120 cm (#3023)

Colour / Sheeting: Red, White, & Black on Yellow, High Intensity



Grooved Pavement

Description: The *Grooved Pavement* sign warns bicyclists and motorcyclists of road surface conditions that require extra care and attention. This sign is typically used where milling activities occur.

Minimum Size: 50 km/h 75 cm x 75 cm (#4550)
 60 - 110 km/h 90 cm x 90 cm (#4551)

Colour / Sheeting: Black on Orange, High Intensity



Construction Zone Begins

Description: The *Construction Zone Begins* sign indicates that road users are now entering the Construction Zone, where double fines for speeding are enforceable.

Minimum Size: 120 cm x 90 cm (#4316)

Colour / Sheeting: Black on Orange, High Intensity



Construction Zone Ends

Description: The *Construction Zone Ends* sign indicates that road users have reached the end of the Work Area and that roadway conditions have returned to normal. It also marks the end of where double fines for speeding are enforceable.

Minimum Size: 120 cm x 90 cm (#4318)

Colour / Sheeting: Black on Orange, High Intensity



Wet Paint

Description: The *Wet Paint* sign warns road users that line painting is occurring ahead. It is to be mounted on the Trail Vehicle that follows the paint truck.

Minimum Size: 120 cm x 90 cm (#4652)

Colour / Sheeting: Black on Orange, High Intensity



Follow Me

Description: The *Follow Me* sign is used to advise road users that a Pilot Vehicle will lead them through a Work Area and that the Pilot Vehicle must be followed.

Minimum Size: 120 cm x 90 cm (#4654)

Colour / Sheeting: Black on Orange, High Intensity



Section 4 – Installation and Inspection of Traffic Control Devices

The mounting height varies depending on the sign size and the type of sign support. Figures 4-1 and 4-2 depict the proper sign position and mounting height for fixed and portable sign supports. Note: tabs are to be installed directly below the sign and shall not be installed on top or in front such that the sign is obscured. Signs should be mounted at a consistent height through the Work Area.

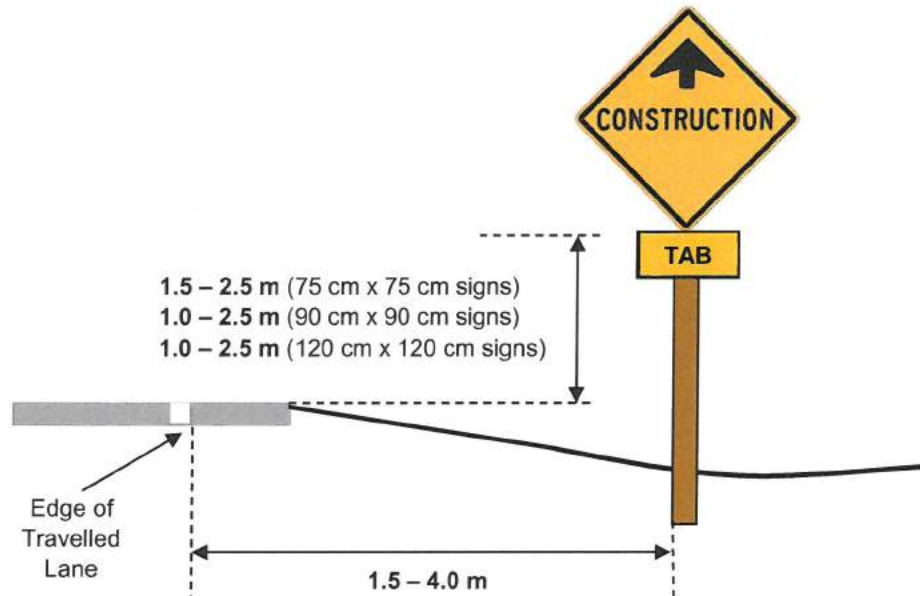


Figure 4-1: Sign Position and Height for Fixed Sign Supports

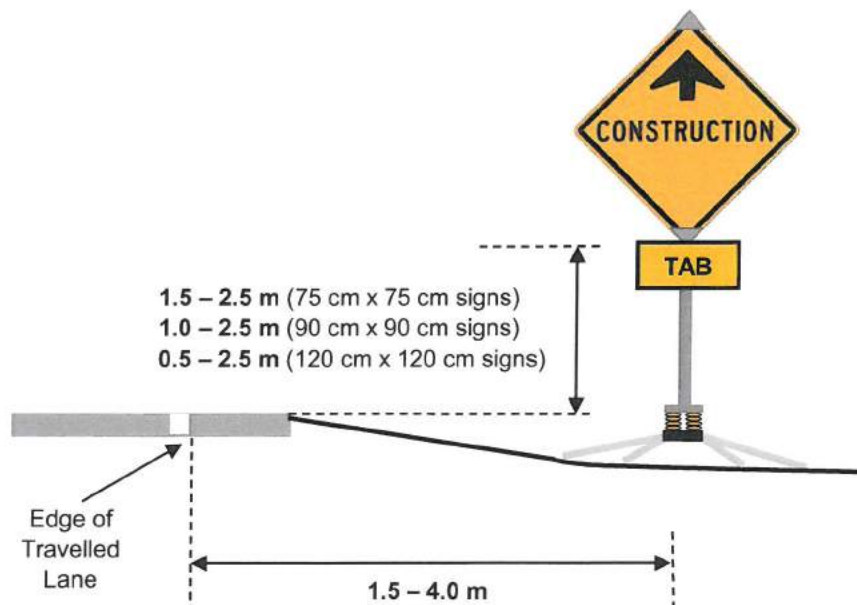


Figure 4-2: Sign Position and Height for Portable Sign Supports

Sequence

1. Begin at the first advance warning sign on the same side of the road as the Activity Area.
2. Proceed with the flow of traffic, placing all signs on the same side of the road as the Activity Area.
3. Make a legal turn.
4. Sign the opposite approach, beginning at the first advance warning sign and working with the flow of traffic.

Special Instructions

- Sign truck must display either 1) a Flashing Arrow Board set to the caution mode (recommended), or 2) a 360 degree amber light.
- A Trail Vehicle may be used based upon site specific conditions such as restricted sight distances or high traffic volumes.

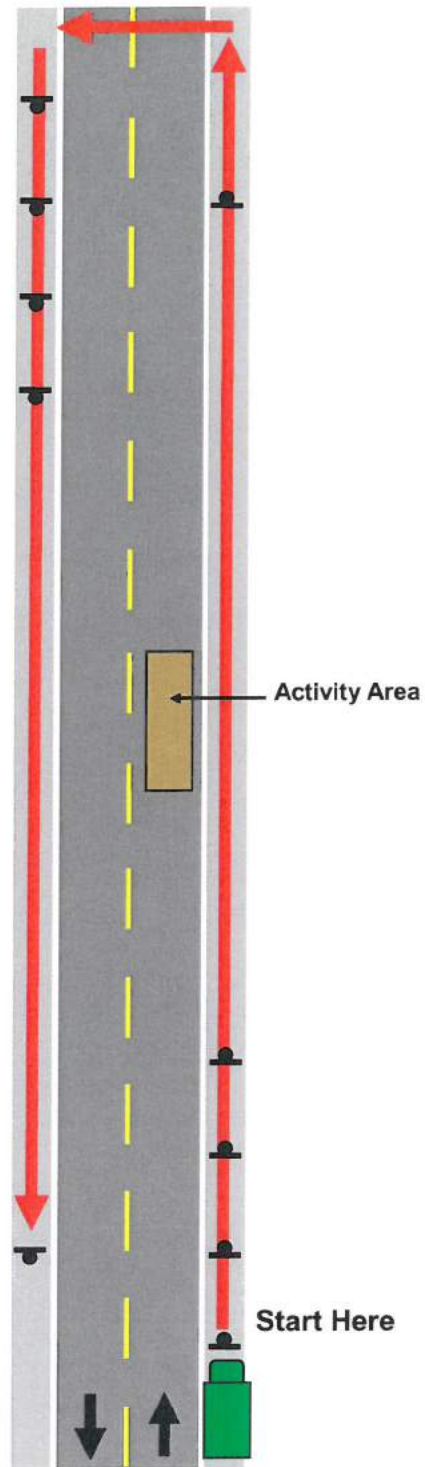


Figure 4-3: Sign Setup (Two Lane Roads)

Sequence

1. Ensure that all signs and Traffic Control Persons (TCPs) are in place.
2. Begin with the Transition Taper, laying out delineators with the flow of traffic.
3. Continue with the flow of traffic, laying out delineators in the Buffer and Activity Areas.
4. Lay out delineators in the termination taper.
5. Install remaining traffic control devices such as traffic control signals, barricade boards, etc, if applicable.

Special Instructions

- Sign truck must display either 1) a FAB set to the caution mode (recommended), or 2) a 360 degree amber light.

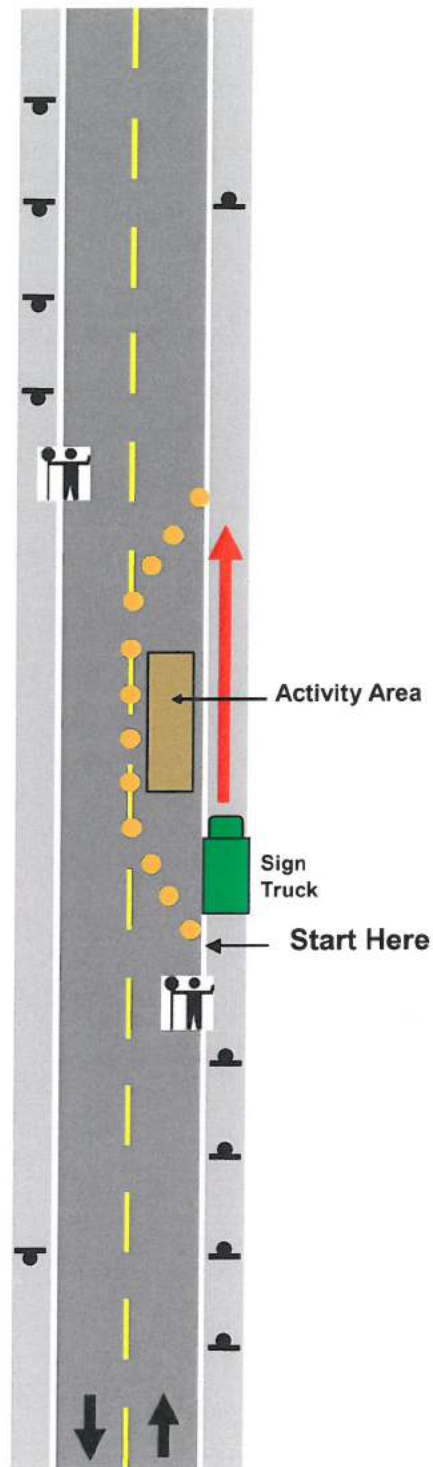


Figure 4-4: Lane Closure Setup (Two Lane Roads)

Sequence

1. Ensure that all work activities are complete and that workers, materials, and equipment have been removed from the Activity Area.
2. Have TCPs regulate flow in both directions, as needed.
3. Pick up the delineators in the terminating taper (or at the furthest delineator if no termination taper exists).
4. Continue against the flow of traffic, picking up delineators in the Activity and Buffer Areas.
5. Have TCP #1 stop traffic in the closed lane.
6. Pick up delineators in the Transition Taper.

Special Instructions

- Sign truck must display either 1) a FAB set to the caution mode (recommended), or 2) a 360 degree amber light.

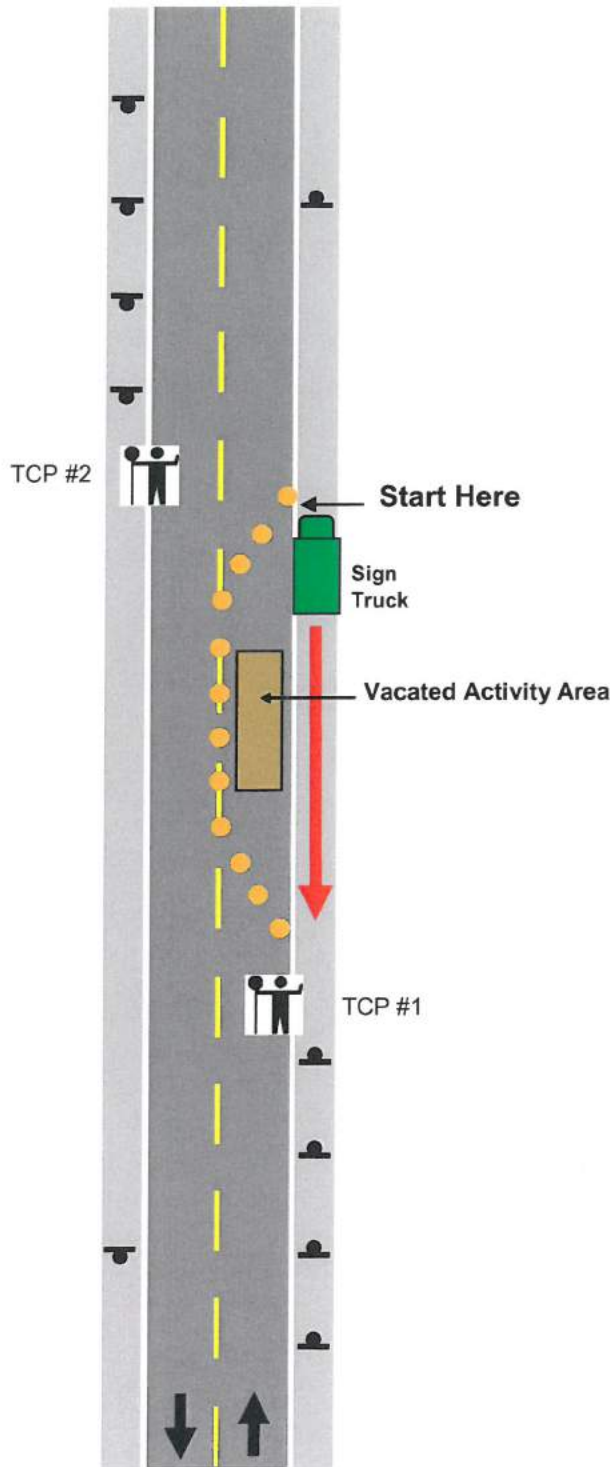


Figure 4-5: Lane Closure Removal (Two Lane Roads)

Sequence

1. Ensure that the Activity Area is clear of all workers, materials, equipment, and Delineation Devices.
2. Beginning on the same side of the road as the Activity Area, proceed with the flow of traffic, picking up all signs on the shoulder.
3. Make a legal turn.
4. Pick up signs on the opposite approach, beginning at the first advance warning sign and working with the flow of traffic.
5. Make a legal turn.
6. Pick up all remaining signs on the same side of the road as the Activity Area, beginning with the first advance warning sign and following the flow of traffic.

Special Instructions

- Sign truck must display either 1) a FAB set to the caution mode (recommended), or 2) a 360 degree amber light.
- A Trail Vehicle may be used based upon site specific conditions such as restricted sight distances or high traffic volumes.

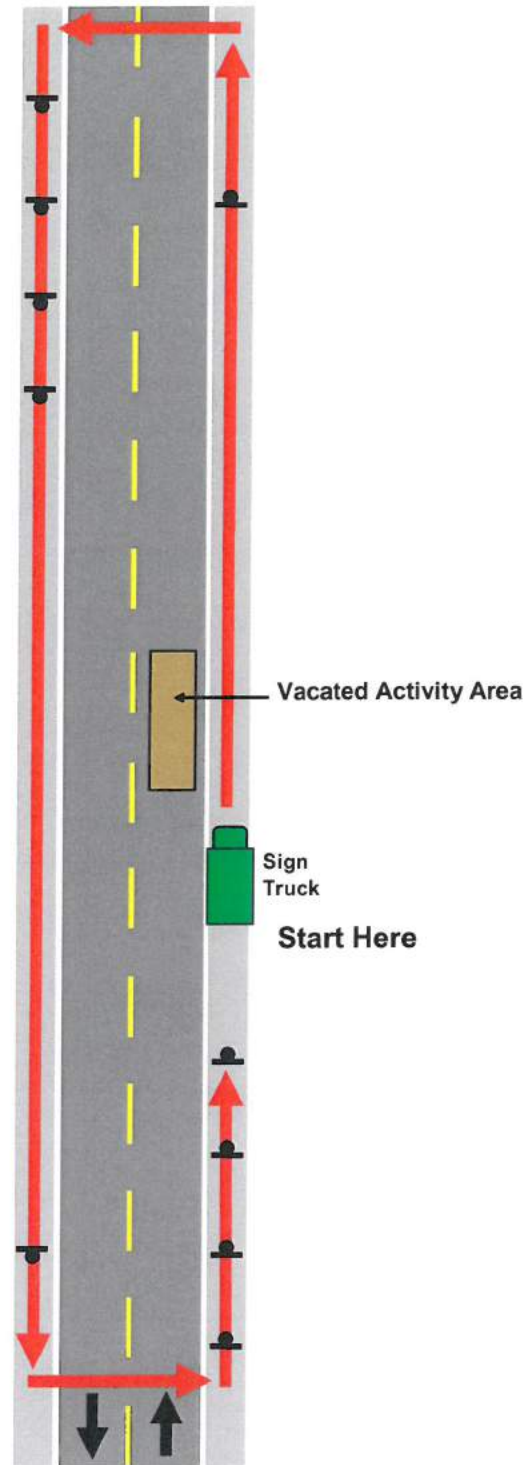


Figure 4-6: Sign Removal (Two Lane Roads)

7 Typical Layouts for Two Lane Roads

GENERAL LAYOUTS

Activity	Work Location	Duration	Volume	Figure No.
Any	Roadside	Any	All	7-1
	Shoulder	Very Short	All	7-2
		Short	All	7-3
		Long	All	7-4
		Partial Lane Closure	Short	All
	Single Lane (inc. Bridges)	Short	All	7-5
		Long	AADT < 300 vpd	7-6
		AADT > 300 vpd	7-7	
Shoulder Diversion	Single Lane	Short / Long	All	7-8a&b
Single Lane Diversion	Two Lanes	Long	AADT < 300 vpd	7-9
			AADT > 300 vpd	7-10
Two Lane Diversion (surfaced)	Two Lanes	Long	All	7-11
Two Lane Diversion (unsurfaced)	Two Lanes	Long	All	7-12
Detour	Two Lanes	Any	All	7-13
Climbing Lane	Uphill Right Lane	Short / Long	All	7-14
	Uphill Centre Lane	Short / Long	All	7-15
	Downhill Lane	Short / Long	All	7-16
Auxiliary Lane	Deceleration Lane	Short / Long	All	7-17
	Acceleration Lane	Short / Long	All	7-18

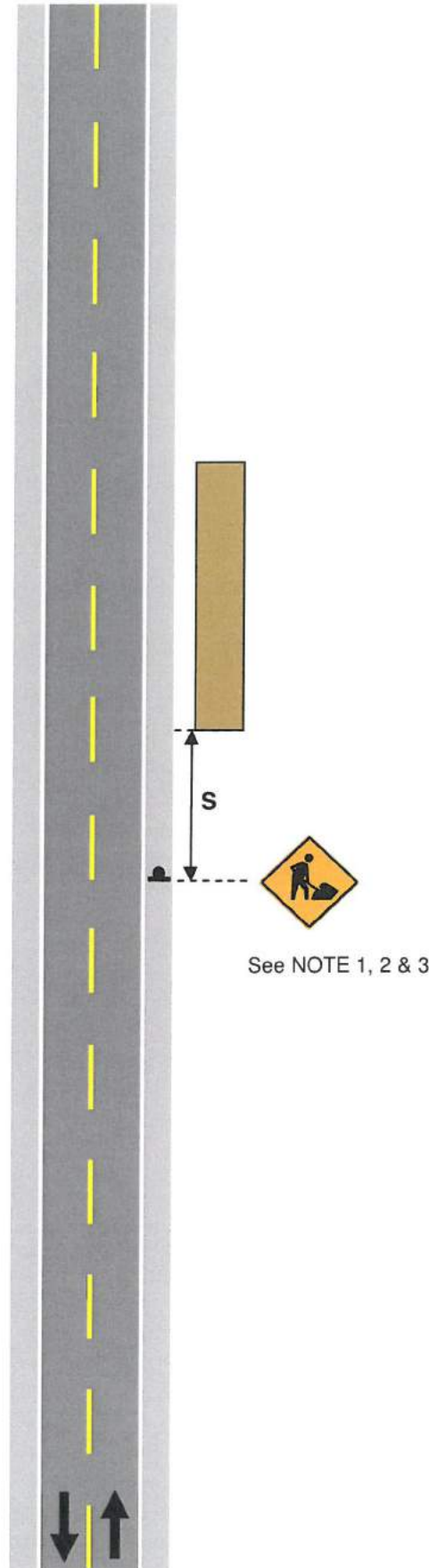
SPECIAL LAYOUTS

Activity	Work Location	Duration	Volume	Figure No.
Surveying	Shoulder	Short	All	7-19
	Single Lane	Short	All	7-20
Patching	Single Lane	Short / Long	All	7-21
Milling & Paving	Single Lane	Short / Long	All	7-22
After Milling or Paving				7-23
Chipsealing	Single Lane	Short / Long	All	7-24
Grading	Single Lane	Short	All	7-25
Line Painting	Single Lane	Moving	All	7-26
Blasting Area				7-27
Low Shoulder				7-28
Other Hazards				7-29
Temporary Haul Road				7-30
Advance Signing (Major Project)				7-31



NOTES:

1. No signs are required for work that occurs outside 15 m from the edge of the travelled lane.
2. No signs are required for work vehicles that are positioned off the shoulder area of the travelled lane onto private driveways for Very Short and Short Duration Work.
3. No signs are required for mowing operations. However, the mower shall be equipped with a 360 degree amber light and a Slow Moving Vehicle Triangle.
4. For mowing operations, the first swath adjacent to the road must be mowed following the direction of traffic.
5. Shoulder must remain clear of all workers, vehicles, and equipment while work is in progress.



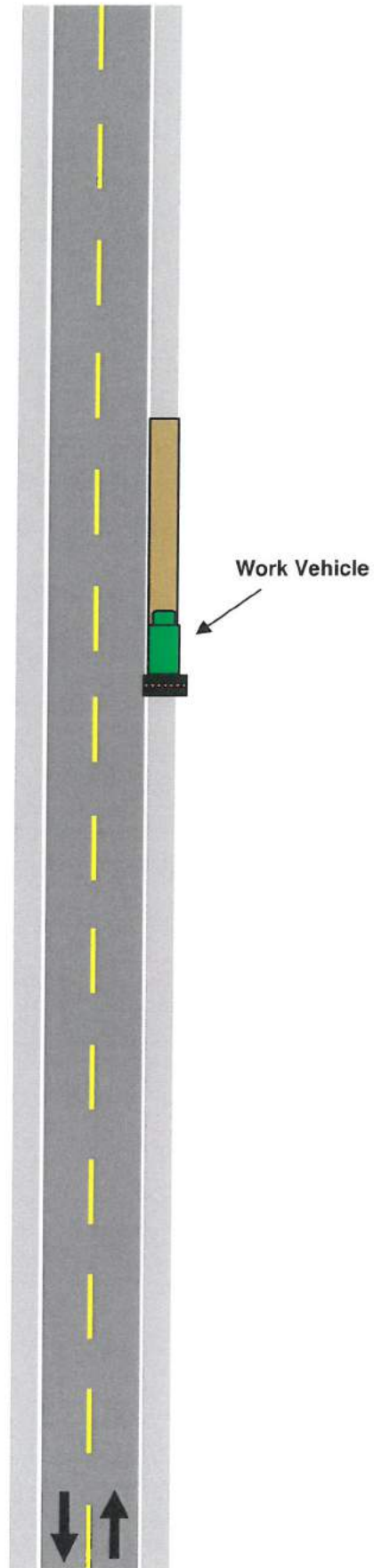
Roadside Work Any Duration All Volumes				
V	50	60-70	80-90	100
S	50	75	100	150

V – Existing Speed Limit (km/h)

S – Minimum Sign Spacing (m)

NOTES:

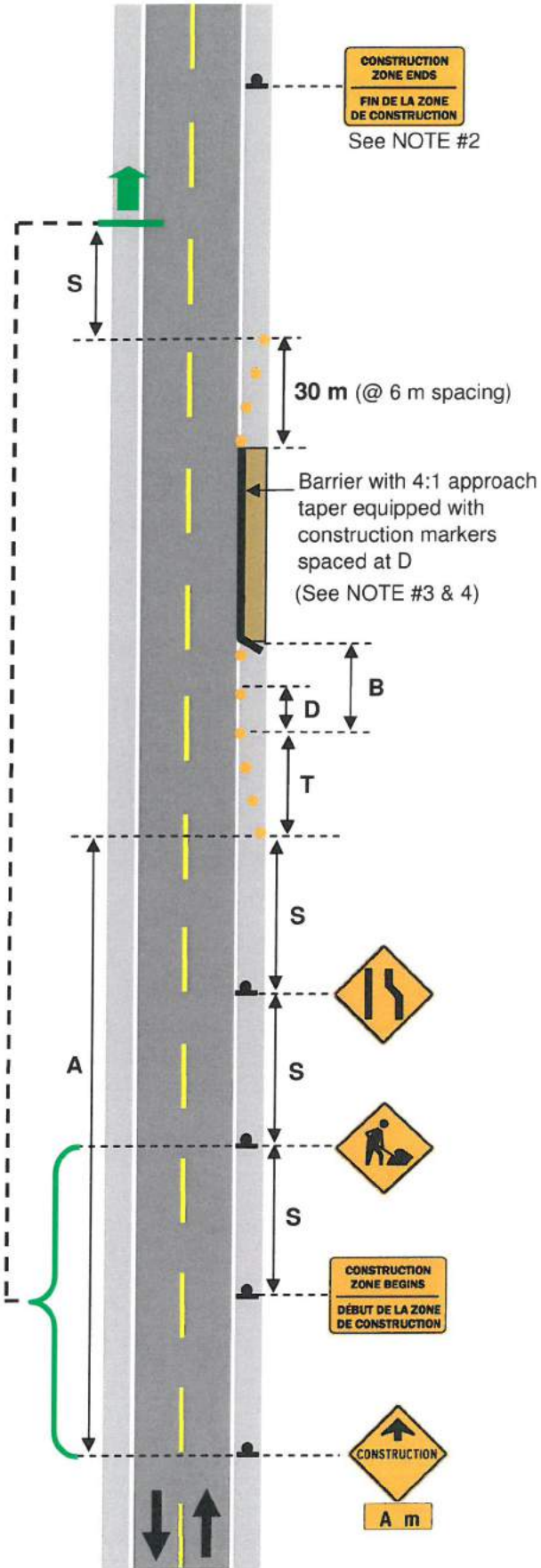
1. Work Vehicle shall be equipped with a Flashing Arrow Board set to caution mode or a 360 degree amber light.
2. No workers, equipment, or vehicles shall encroach on the travelled lane.



Shoulder Work
Very Short Duration
(less than 30 min)
All Volumes

NOTES:

1. Sign opposite approach in the same manner, without the Road Narrows sign.
2. Construction Zone Ends sign to be placed directly across from Construction Zone Begins sign on the opposite approach.
3. Continuous barrier may be replaced by flexible drums or delineator posts if anticipated work duration is 3 days or less.
4. For work on bridge structures, a continuous Barrier is required for all Long Duration Work.



Shoulder Work Long Duration (greater than 1 day) All Volumes				
V	50	60-70	80-90	100
A	350	350	500	1000
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

V – Existing Speed Limit (km/h)

A – Advance Warning Distance (m)

S – Minimum Sign Spacing (m)

T – Taper Length (m)

D – Maximum Delineator Spacing in Taper/Tangent (m)

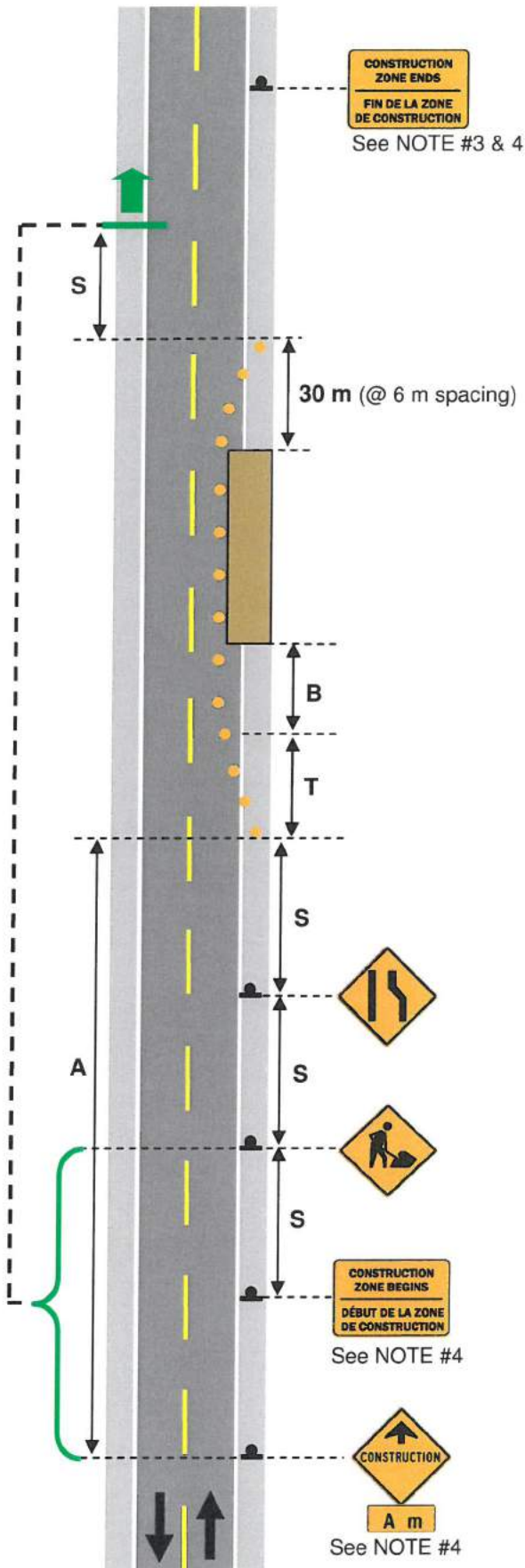
B – Buffer Area Length (m)

NOTES:

1. Must maintain a minimum 2.5 m useable road width in the lane in which work is taking place.
2. Sign opposite approach in the same manner, without the Road Narrows sign.
3. Construction Zone Ends sign to be placed directly across from Construction Zone Begins sign on the opposite approach.
4. For Very Short Duration Partial Lane Closures on roads with AADT \leq 300 and Existing Speed Limit \leq 50 km/h:
 - identified signs may be eliminated,
 - T maybe reduced to T/3,
 - Termination Taper may be reduced to two delineation devices.

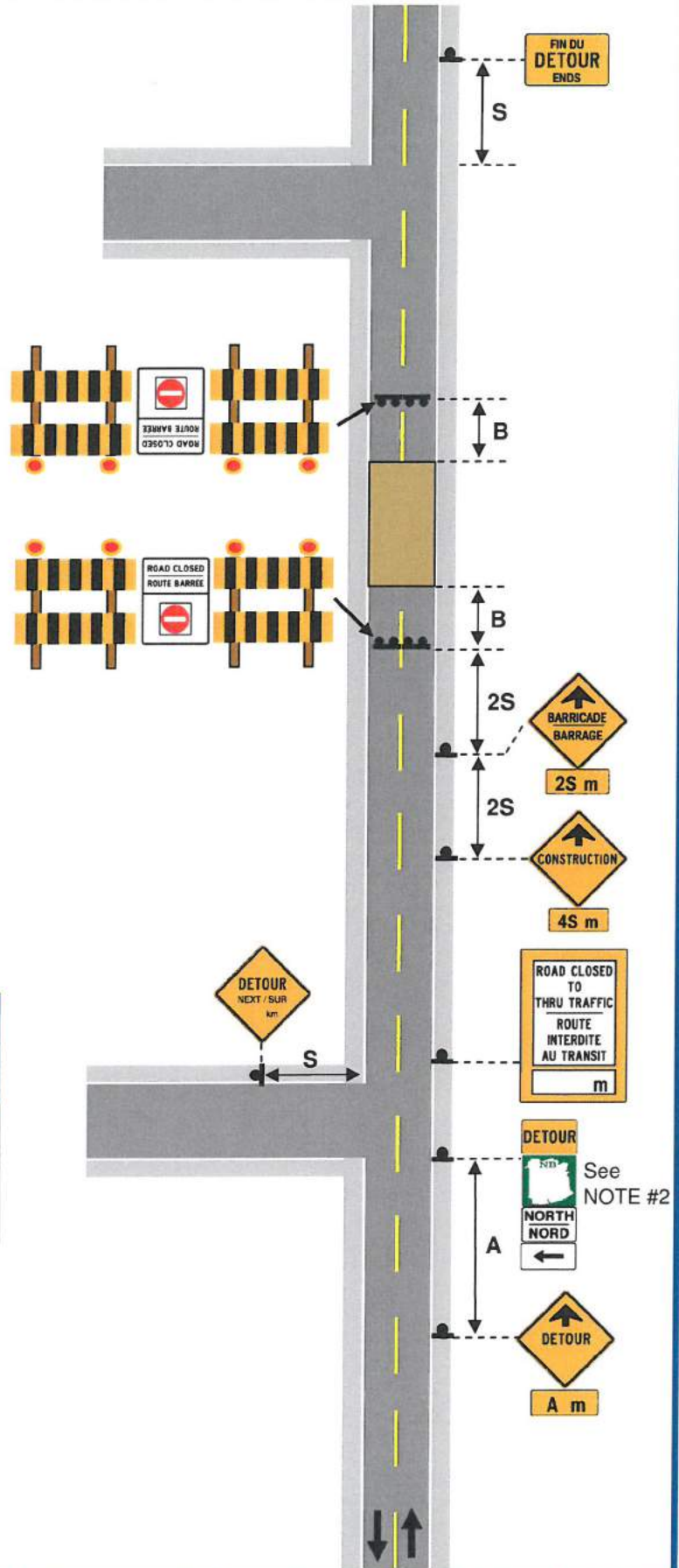
Partial Lane Closure Short Duration All Volumes				
V	50	60-70	80-90	100
A	350	350	500	1000
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

- V – Existing Speed Limit (km/h)
- A – Advance Warning Distance (m)
- S – Minimum Sign Spacing (m)
- T – Taper Length (m)
- D – Maximum Delineator Spacing in Taper/Tangent (m)
- B – Buffer Area Length (m)



NOTES:

1. Sign other approach in the same manner.
2. All intersections along the Detour route shall display appropriate guide signs to clearly direct drivers along the intended path.

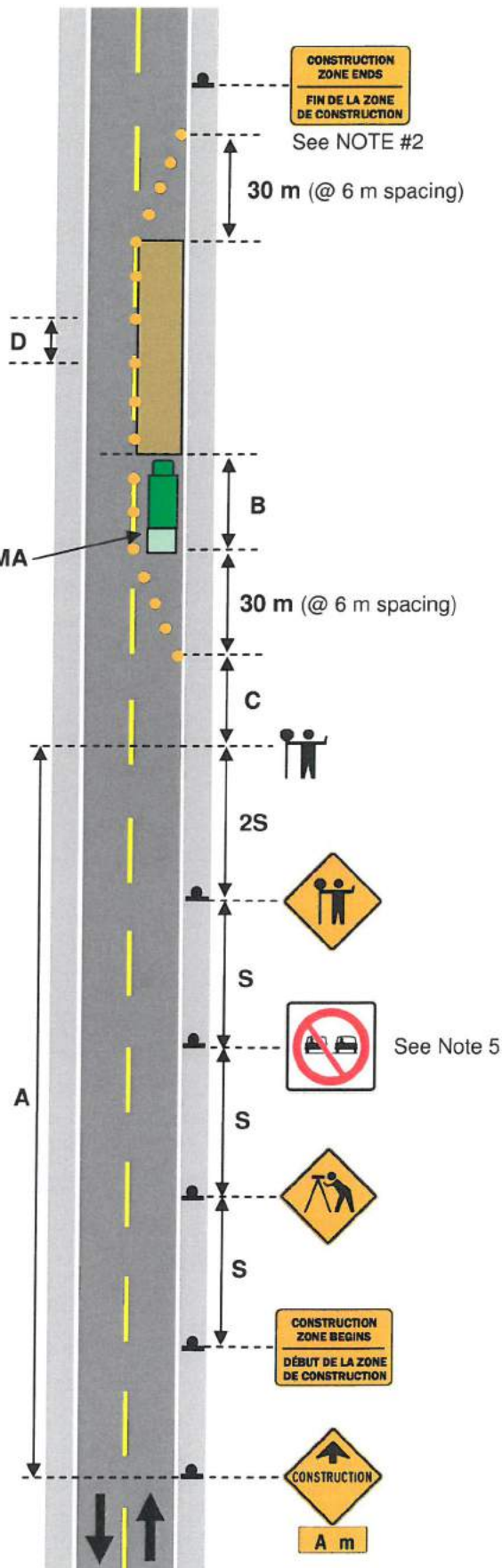


Rural Detour Any Duration All Volumes				
V	50	60-70	80-90	100
A	300	300	500	1000
S	50	75	100	150
B	35	50	70	75

V – Existing Speed Limit (km/h)
 A – Advance Warning Distance (m)
 S – Minimum Sign Spacing (m)
 B – Buffer Area Length (m)

NOTES:

1. Sign opposite approach in the same manner.
2. Construction Zone Ends sign to be placed directly across from Construction Zone Begins sign on the opposite approach.
3. Buffer Vehicle with TMA only required when working on bridge structures.
4. When working on bridges, the Activity Area shall be extended such that TCPs are not located on the structure.
5. No passing sign is optional on roads with less than 300 vehicles per day.



**Surveying (Lane Closure)
Short Duration
(greater than 30 min, less than 1 day)
All Volumes**

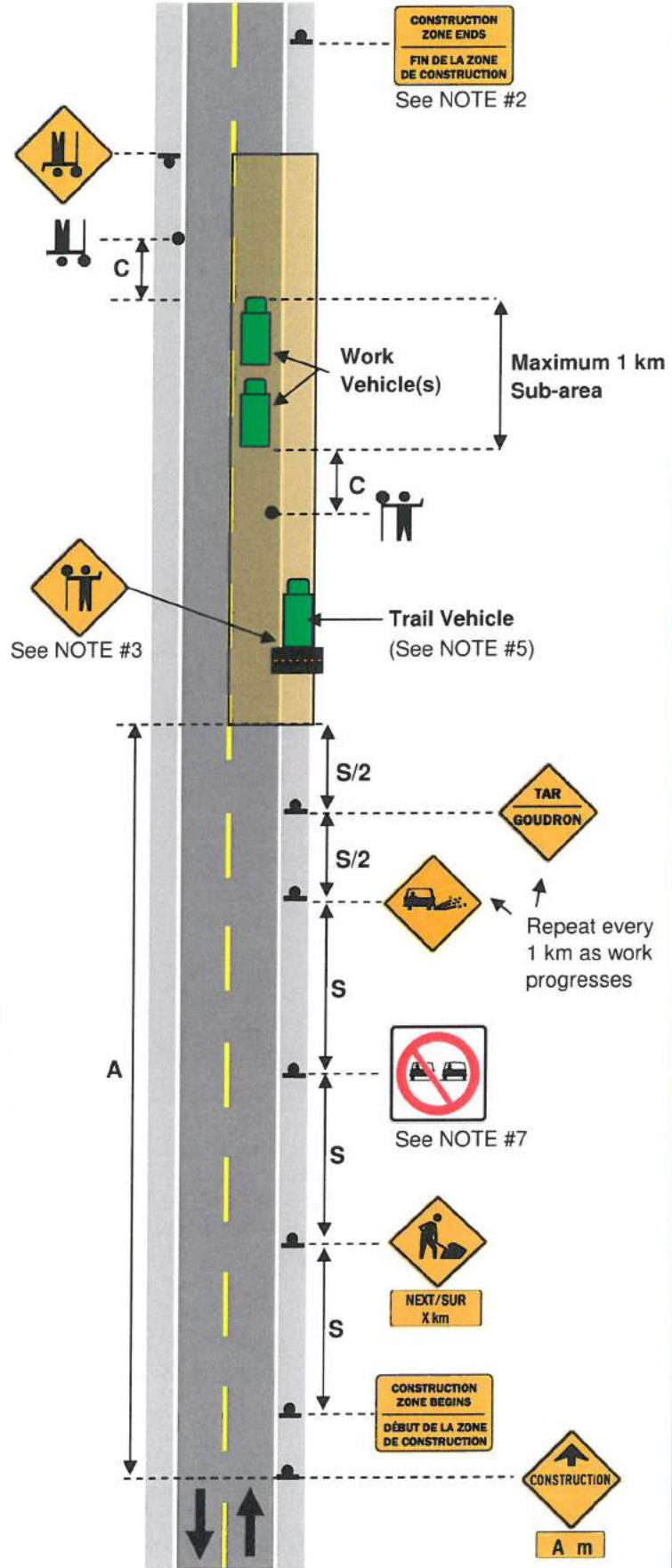
V	50	60-70	80-90	100
A	350	500	1000	1000
S	50	75	100	150
T	30	64	110	180
C	30	40	50	50
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

- V – Existing Speed Limit (km/h)
- A – Advance Warning Distance (m)
- S – Minimum Sign Spacing (m)
- T – Taper Length (m)
- C – Traffic Control Person Setback (m)
- D – Maximum Delineator Spacing in Taper/Tangent (m)
- B – Buffer Area Length (m)

Figure 7-20

NOTES:

1. Sign opposite approach in the same manner.
2. Construction Zone Ends sign to be placed directly across from Construction Zone Begins sign on the opposite approach.
3. Traffic Control Person Ahead signs shall be positioned within 2S m to 3S m of the TCP at all times (shall be mounted on trail vehicle).
4. The Activity Area shall not exceed 4 km.
5. All work vehicles shall be equipped with 360 degree amber lights as a minimum.
6. Trail vehicle not required on roads with a speed limit of 80 km/h or less.
7. No passing sign is optional on roads with less than 300 vehicles per day.



**Chip Sealing
Short Duration
(greater than 30 min, less than 1 day)
All Volumes**

V	50	60-70	80-90	100
A	350	500	1000	1000
S	50	75	100	150
C	30	40	50	50

V – Existing Speed Limit (km/h)

A – Advance Warning Distance (m)

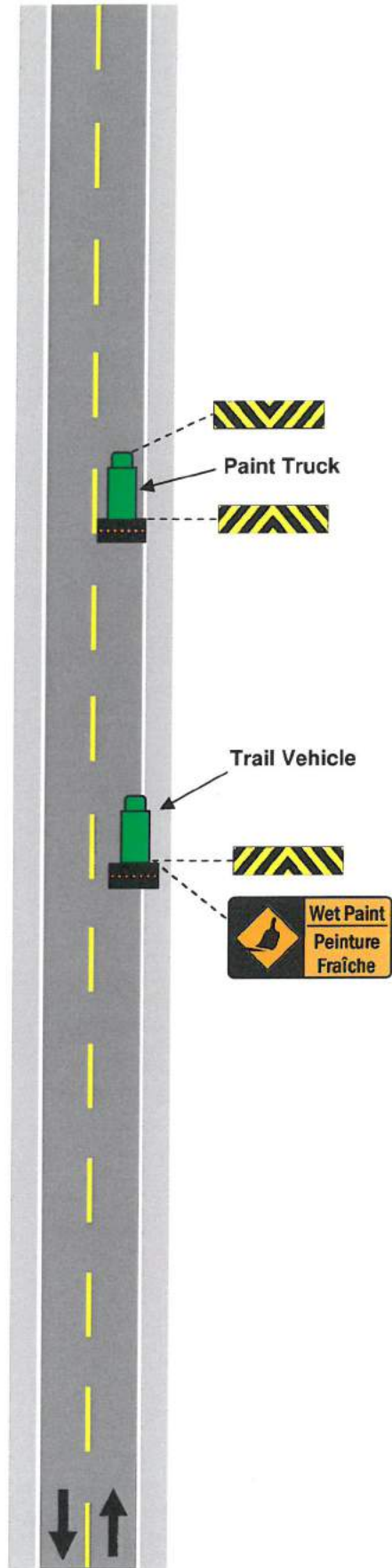
S – Minimum Sign Spacing (m)

C – Traffic Control Person Setback (m)

NOTES:

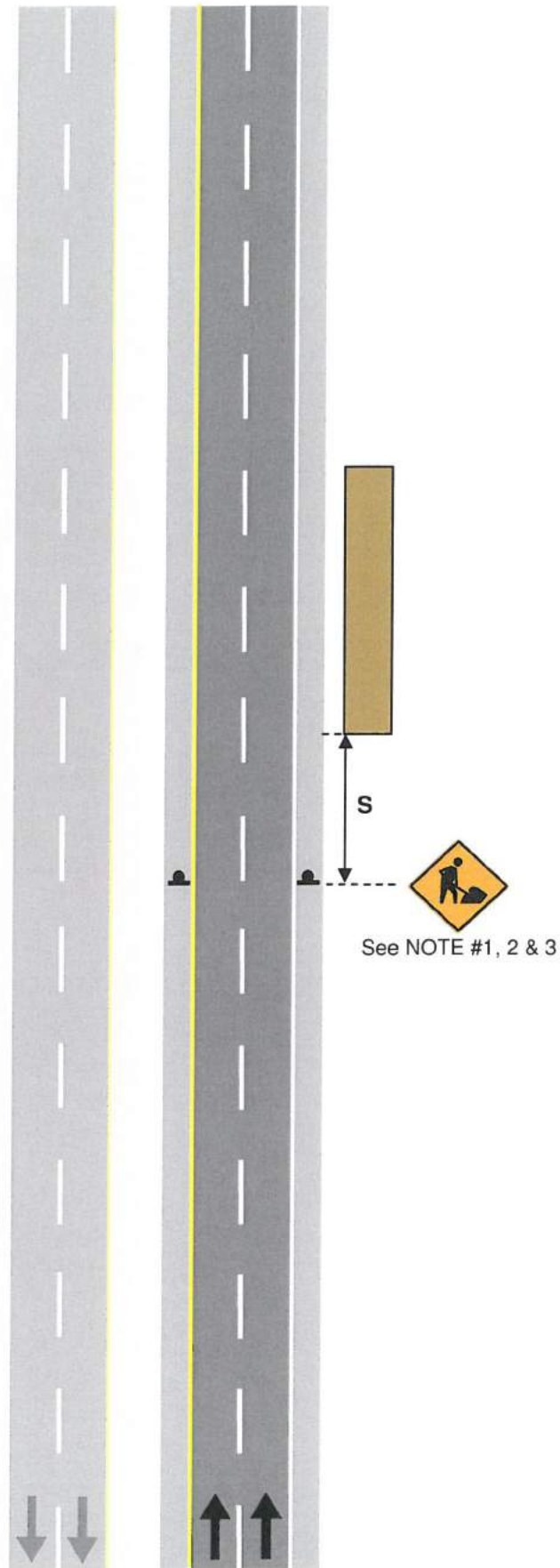
1. Both vehicles shall be equipped with a Flashing Arrow Board set to caution mode.

Line Painting
Moving Operation
All Volumes



NOTES:

1. No signs are required for work that occurs outside 15 m from the edge of the travelled lane.
2. No signs are required for work vehicles that are positioned off the shoulder area of the travelled lane onto private driveways for Very Short and Short Duration Work.
3. No signs are required for mowing operations. However, the mower shall be equipped with a 360 degree amber light and a Slow Moving Vehicle Triangle.
4. For mowing operations, the first swath adjacent to the road must be mowed following the direction of traffic.
5. Shoulder must remain clear of all workers, vehicles, and equipment while work is in progress.
6. For work in the median, sign the other direction only if work is within 15 m of the opposing travel lane and no median barrier is present.



Roadside Work Any Duration All Volumes				
V	50	60-70	80-90	100-110
S	50	75	100	150

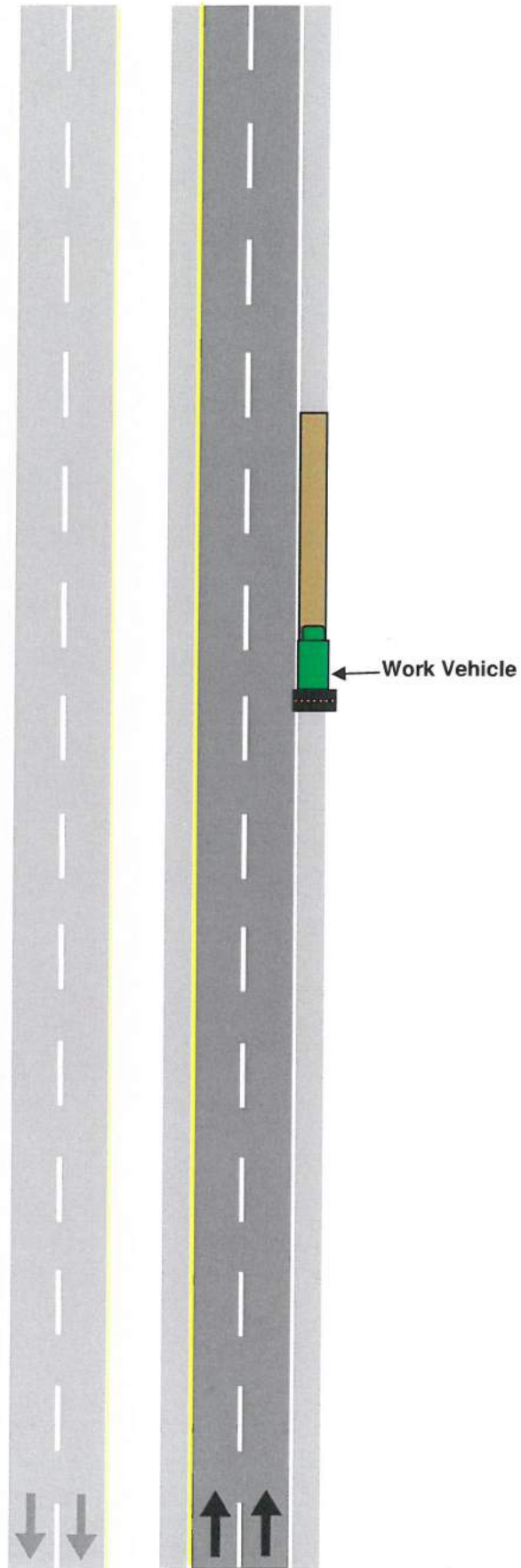
V – Existing Speed Limit (km/h)

S – Minimum Sign Spacing (m)

NOTES:

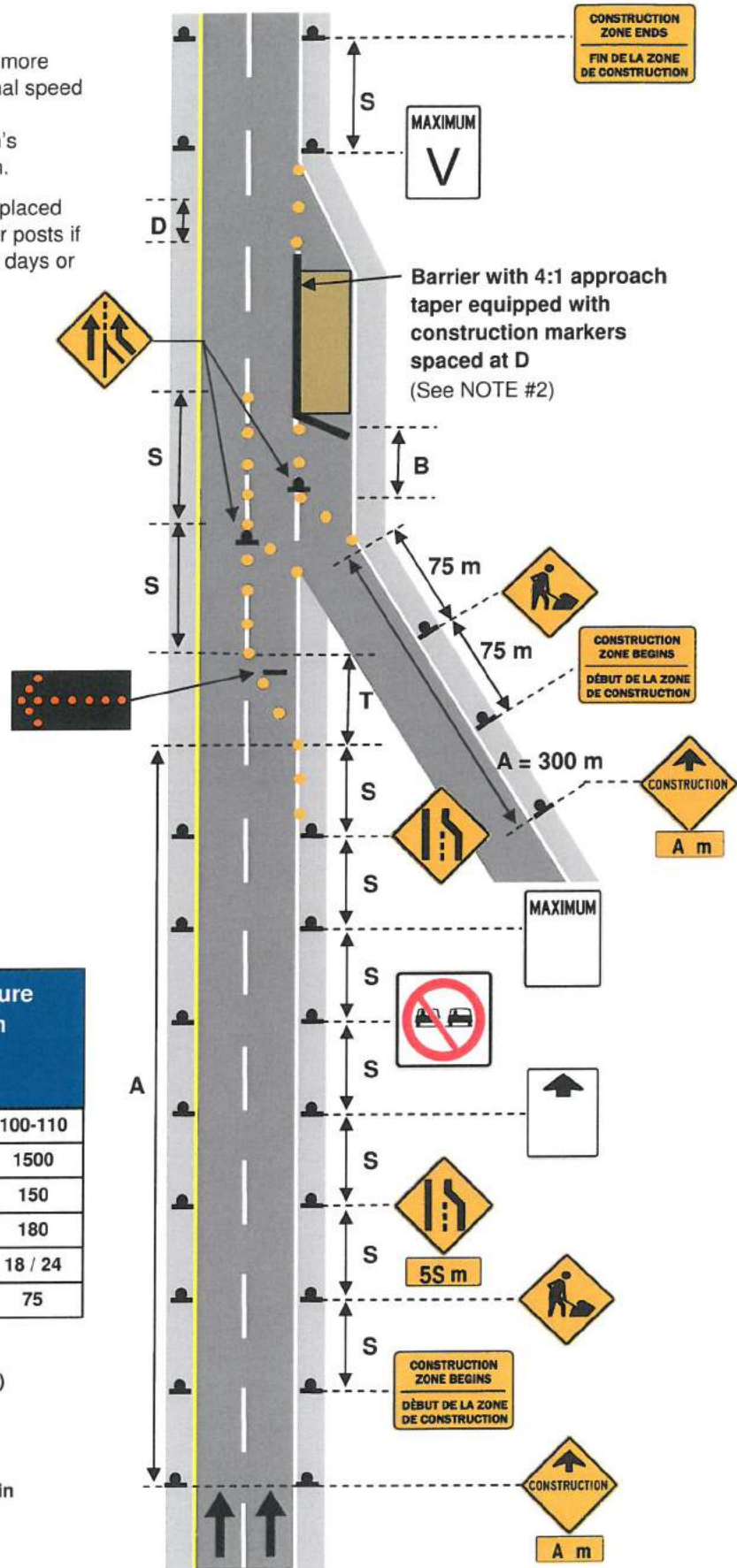
1. Work Vehicle shall be equipped with a Flashing Arrow Board set to caution mode or a 360 degree amber light.
2. No workers, equipment, or vehicles shall encroach on the travelled lane.
3. Use Figure 8-7 if insufficient shoulder width is available.

**Shoulder Work
Very Short Duration
(less than 30 min)
All Volumes**



NOTES:

1. Speeds shall not be reduced more than 20 km/h below the original speed limit unless approved by the Department of Transportation's Maintenance & Traffic Branch.
2. Continuous barrier may be replaced by flexible drums or delineator posts if anticipated work duration is 3 days or less.



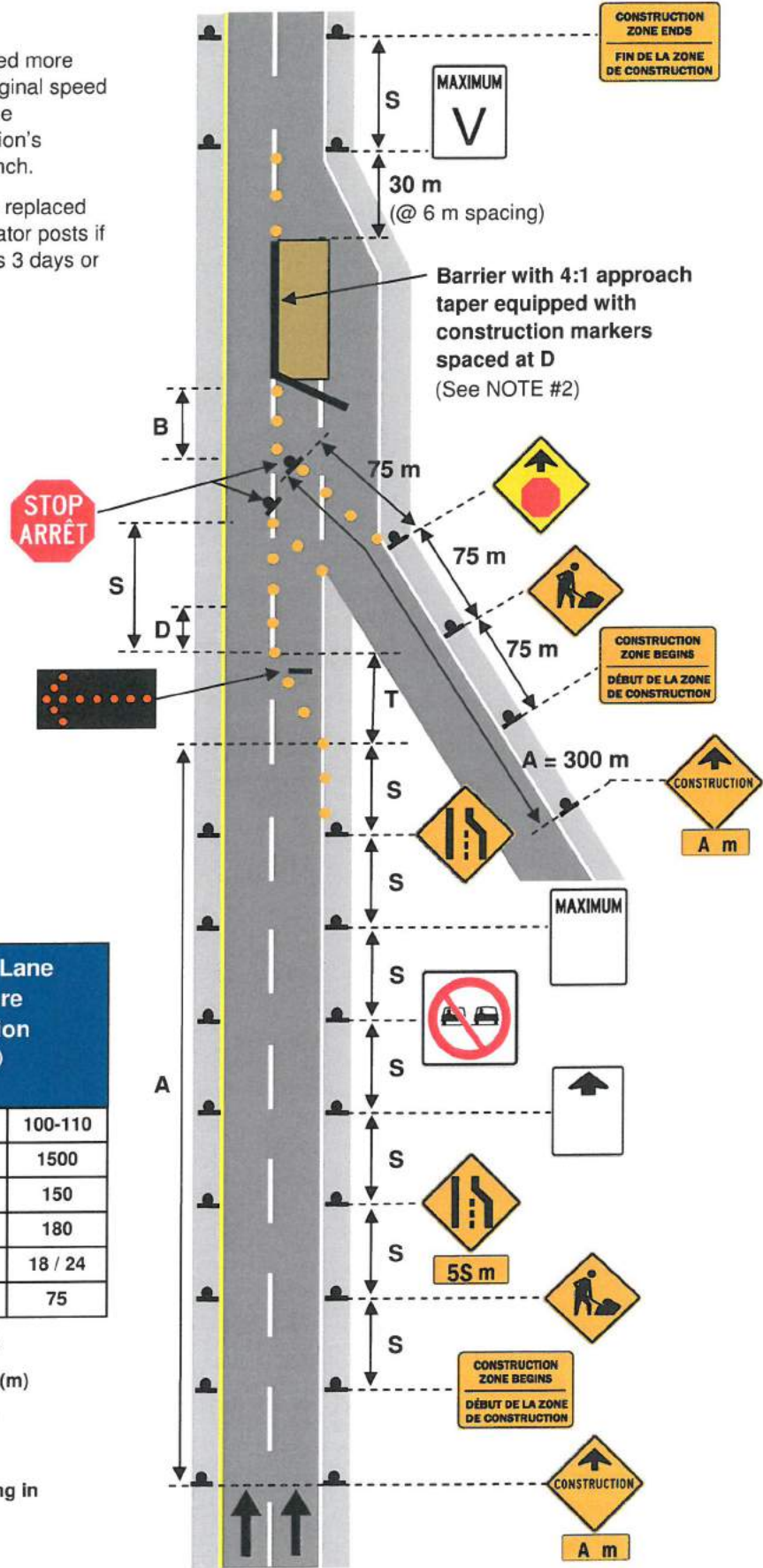
Acceleration Lane Closure Short / Long Duration (greater than 30 min) All Volumes				
V	50	60-70	80-90	100-110
A	500	1000	1000	1500
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

V – Existing Speed Limit (km/h)
 A – Advance Warning Distance (m)
 S – Minimum Sign Spacing (m)
 T – Taper Length (m)
 D – Maximum Delineator Spacing in Taper/Tangent (m)
 B – Buffer Area Length (m)

Figure 8-11

NOTES:

1. Speeds shall not be reduced more than 20 km/h below the original speed limit unless approved by the Department of Transportation's Maintenance & Traffic Branch.
2. Continuous barrier may be replaced by flexible drums or delineator posts if anticipated work duration is 3 days or less.



Next to Acceleration Lane Single Lane Closure Short / Long Duration (greater than 30 min) All Volumes				
V	50	60-70	80-90	100-110
A	500	1000	1000	1500
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

- V – Existing Speed Limit (km/h)
- A – Advance Warning Distance (m)
- S – Minimum Sign Spacing (m)
- T – Taper Length (m)
- D – Maximum Delineator Spacing in Taper/Tangent (m)
- B – Buffer Area Length (m)

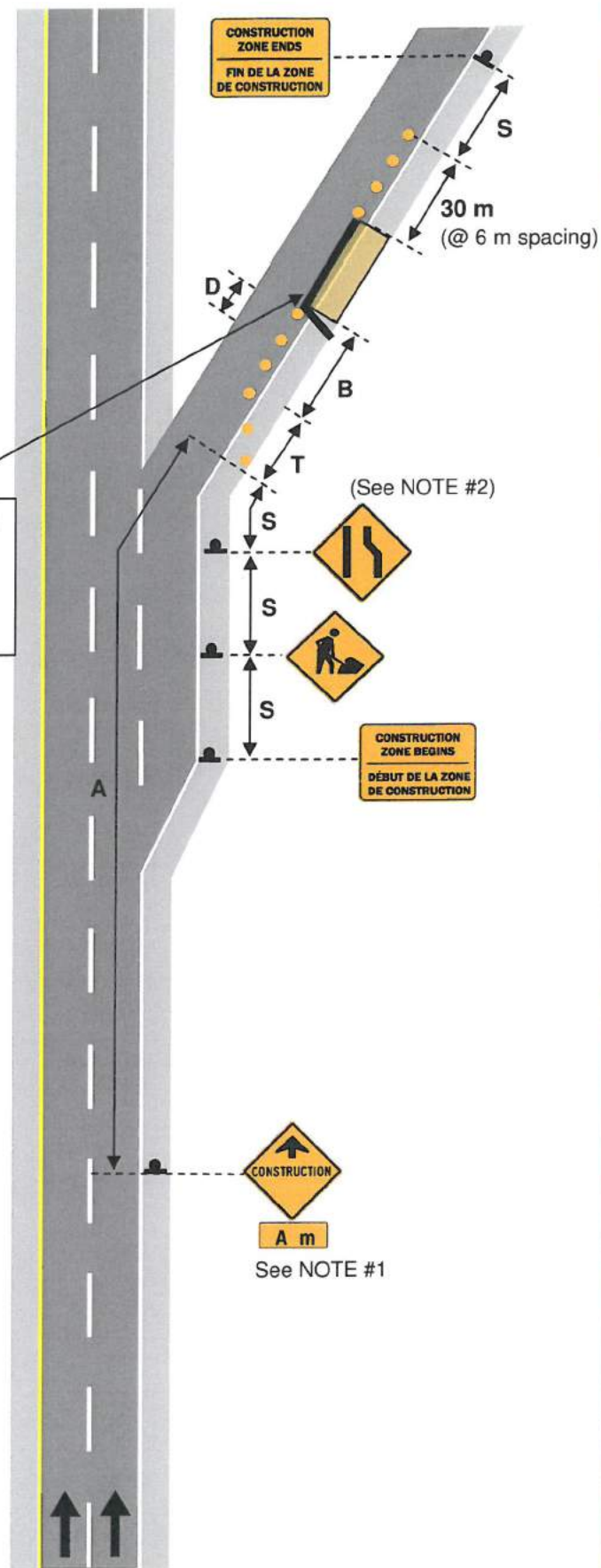
NOTES:

1. Minimum lane width shall be at least 2.5 m adjacent to the activity area.
2. Advisory ramp speed shall be used for determining S, T, D and B values on the ramp. If no advisory is posted, use 60-70 km/h.
3. Continuous barrier may be replaced by flexible drums or delineator posts if anticipated work duration is 3 days or less.
4. Existing advisory ramp speed may be reduced where deemed necessary.

Barrier with 4:1 approach taper equipped with construction markers spaced at D (see NOTE #3)

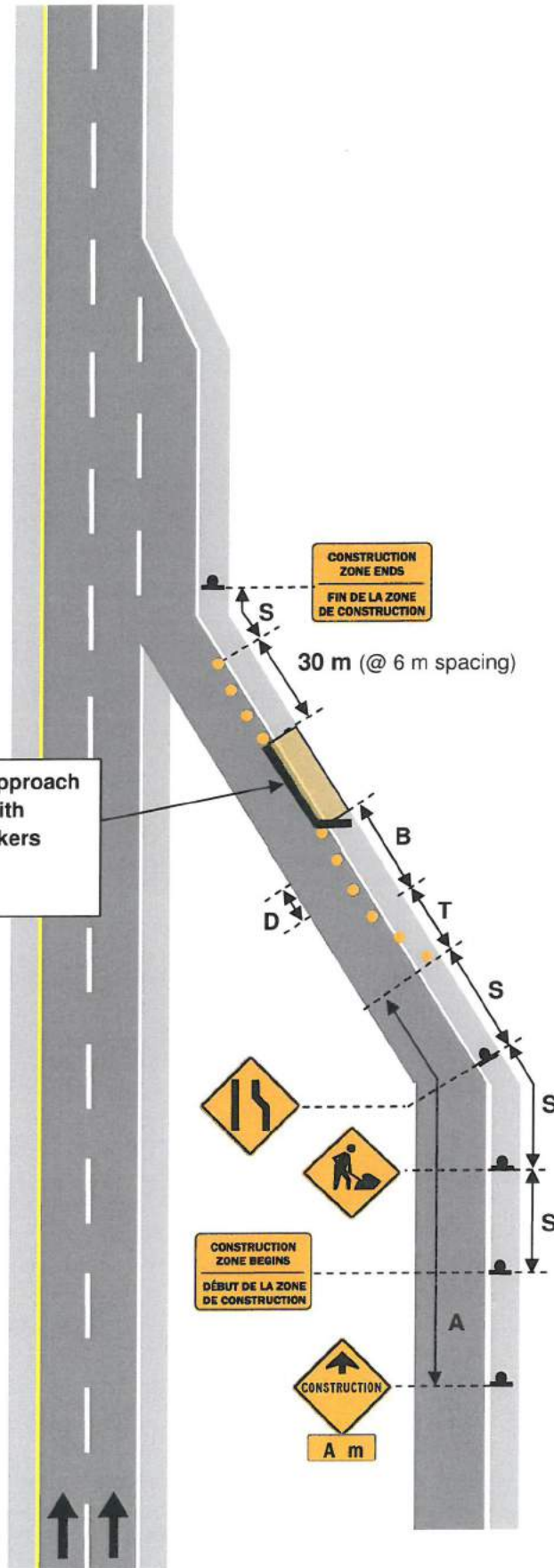
Off Ramp (Partial Lane Closure) Short / Long Duration (greater than 30 min) All Volume				
V	50	60-70	80-90	100-110
A	300	300	500	1000
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

- V – Existing Speed Limit (km/h)
- A – Advance Warning Distance (m)
- S – Minimum Sign Spacing (m)
- T – Taper Length (m)
- D – Maximum Delineator Spacing in Taper/Tangent (m)
- B – Buffer Area Length (m)



NOTES:

1. If the ramp is too short to provide distance "A", then Construction Ahead signs shall be placed on both approaches on the secondary road and display the appropriate directional arrows.
2. Continuous barrier may be replaced by flexible drums or delineator posts if anticipated work duration is 3 days or less.
3. Minimum lane width shall be at least 2.5 m adjacent to the activity area.
4. If ramp speed is not posted, use 60-70 km/h for selecting A, S, T, D and B.



Barrier with 4:1 approach taper equipped with construction markers spaced at D (see NOTE #2)

On Ramp (Partial Lane Closure) Short / Long Duration (greater than 30 min) All Volumes				
V	50	60-70	80-90	100-110
A	300	300	500	1000
S	50	75	100	150
T	30	64	110	180
D	6 / 8	8 / 10	10 / 14	18 / 24
B	35	50	70	75

- V – Existing Speed Limit (km/h)
- A – Advance Warning Distance (m)
- S – Minimum Sign Spacing (m)
- T – Taper Length (m)
- D – Maximum Delineator Spacing in Taper/Tangent (m)
- B – Buffer Area Length (m)

NOTES:

1. Paint Truck and Buffer Vehicle to display right arrow when working in the right lane travelled lane.
2. An additional trail vehicle may be utilized to control tracking.

**Line Painting
Moving Operation
All Volumes**

