

TRAFFIC CONTROL (Typical Lane Closure)

TAPER FORMULA:

L = S x W FOR SPEEDS OF 45 OR MORE.

L = WS²/60 FOR SPEEDS OF 40 OR LESS.

WHERE:

- L = MINIMUM LENGTH OF TAPER
- S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
- W = WIDTH OF OFFSET.

■ CHANNELIZING DEVICES

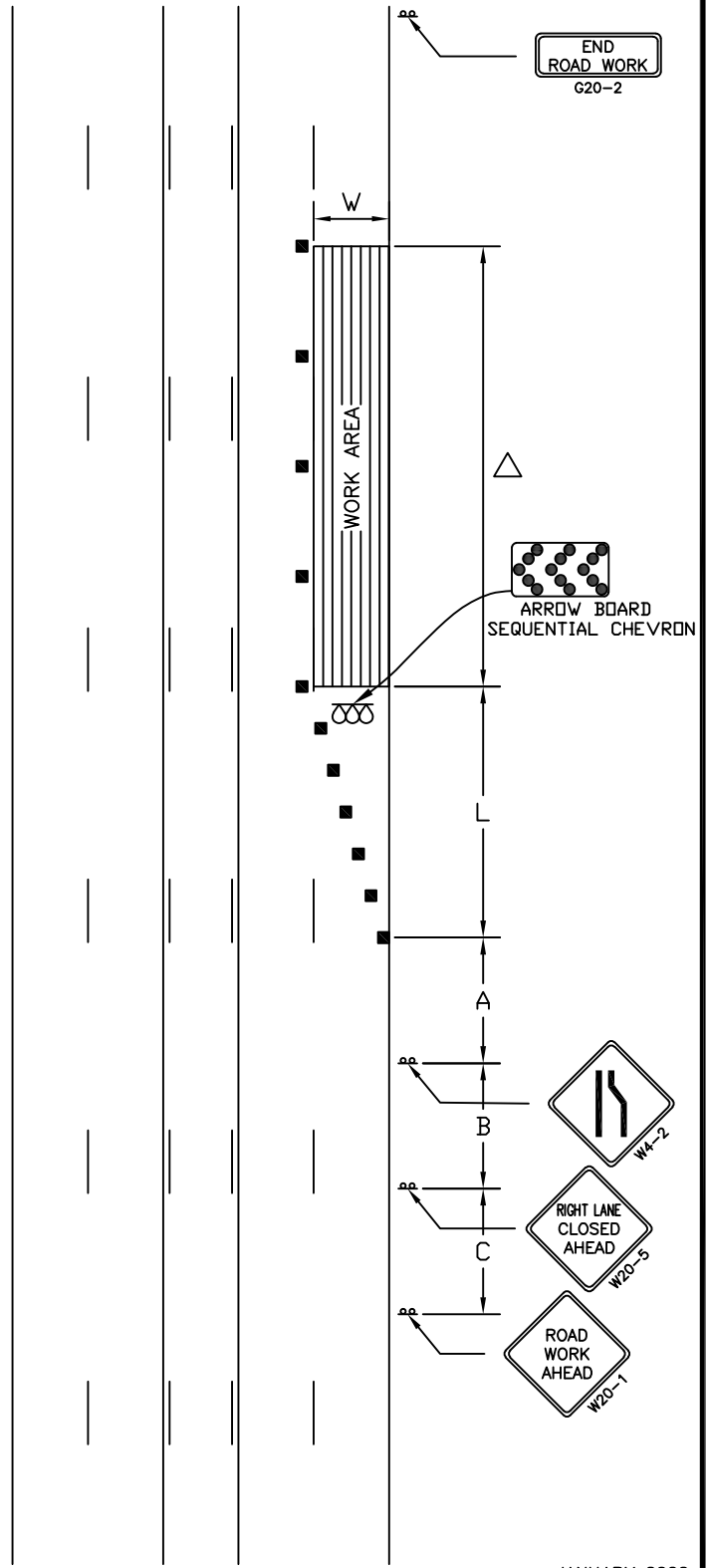
△ SPACING BETWEEN DEVICES SHALL BE UP TO 2 TIMES THE NUMERICAL VALUE OF THE POSTED SPEED LIMIT PRIOR TO WORK.

NOTE:

THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT.

IF THE ROAD HAS AN AADT OF LESS THAN 20,000, THE CLOSURE IS NOT IN PLACE OVERNIGHT, AND THE SPEED IS LESS THAN 40 MPH, THE W20-5 SIGN IS OPTIONAL.

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET)			TAPER LENGTH (FEET) (L)
	(A)	(B)	(C)	
0 - 25	100 - 200			$\frac{W \cdot S^2}{60}$
30	120 - 240			$\frac{W \cdot S^2}{60}$
35	140 - 280			$\frac{W \cdot S^2}{60}$
40	160 - 320			$\frac{W \cdot S^2}{60}$
45	180 - 360			W · S
50	200 - 400			W · S
55	220 - 440			W · S



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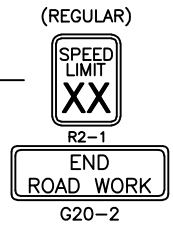


CITY OF NORFOLK
ENGINEERING DIVISION
TYPICAL APPLICATION – CONSTRUCTION OPERATIONS
TYPICAL LANE CLOSURE

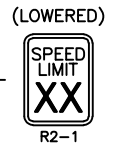
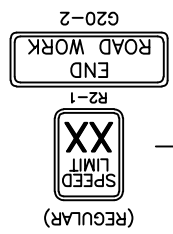
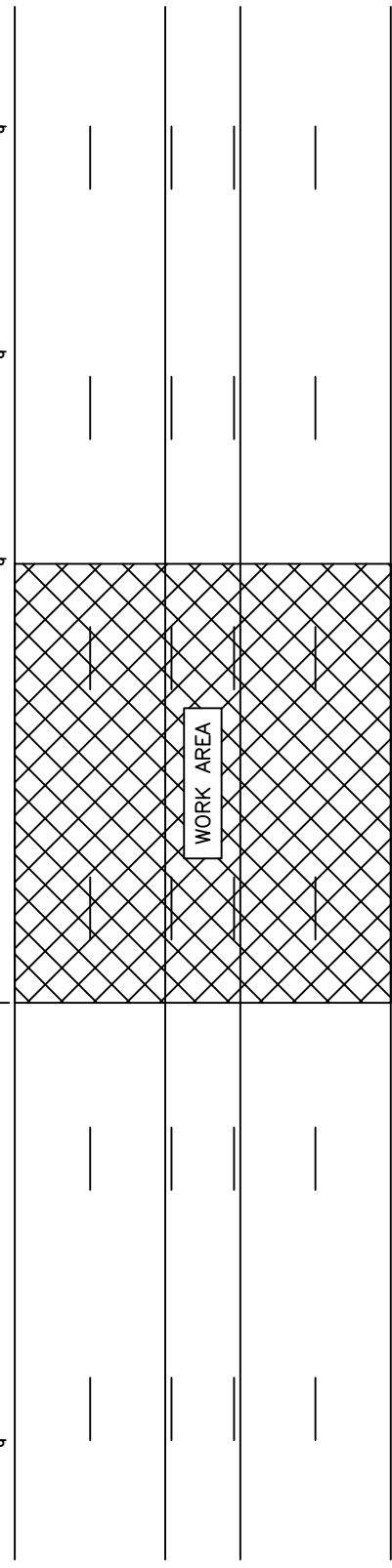
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WORK ZONE SPEED REDUCTIONS

(Typical Lane Closure)



SPEED LIMIT RECOMMENDATION CHART				
CHECK BOX APPROVAL	POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET)		
		(A)	(B)	(C)
	5	100	200	
	10	100	200	
	15	100	200	
	20	100	200	
	25	100	200	
	30	120	240	
	35	140	280	
	40	160	320	
	45	180	360	



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ENGINEERING DIVISION
WORK ZONE SPEED REDUCTION

PLATE NUMBER
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TRAFFIC CONTROL (Double Lane Shifts)

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

WHERE:

- L = MINIMUM LENGTH OF TAPER
- S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
- W = WIDTH OF OFFSET.

■ CHANNELIZING DEVICES

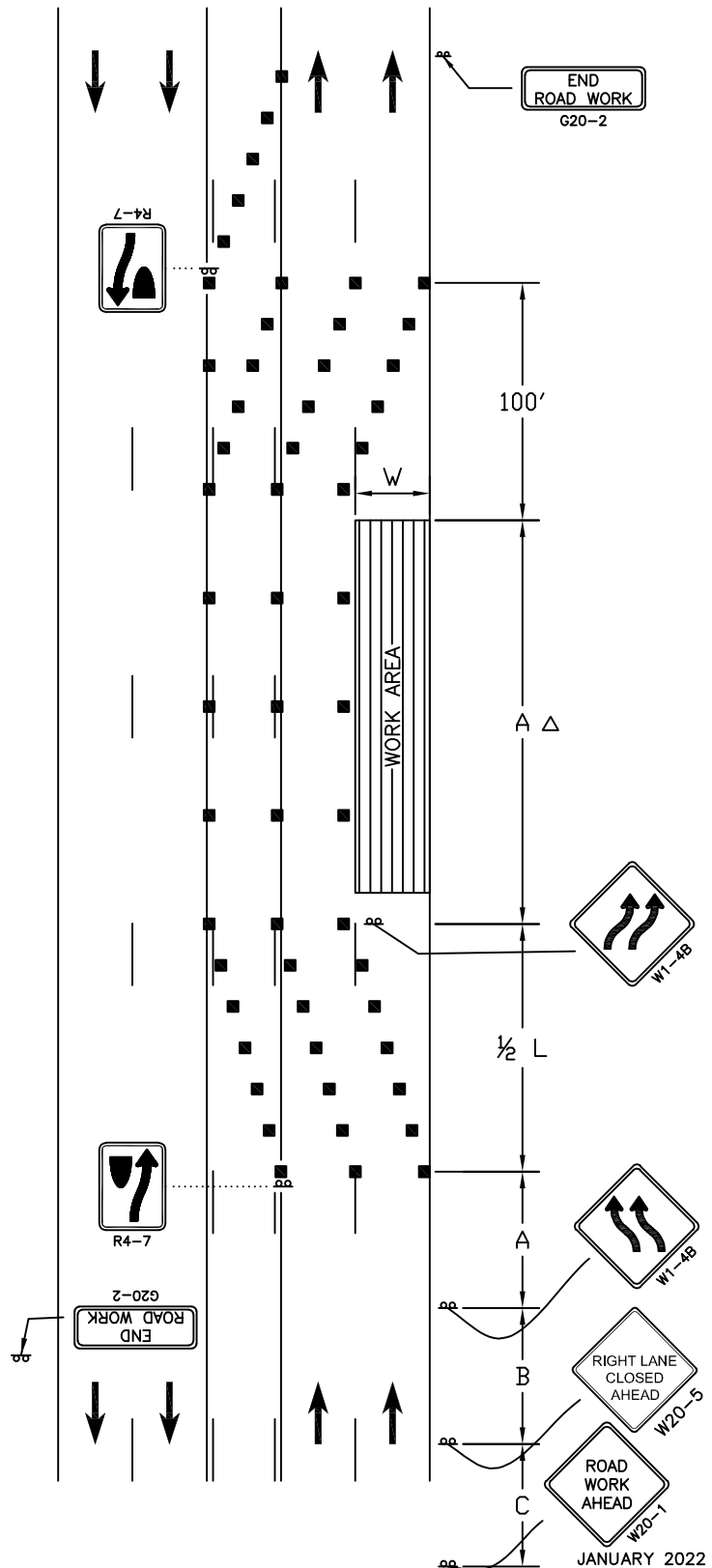
△ SPACING BETWEEN DEVICES SHALL BE UP TO 2 TIMES THE NUMERICAL VALUE OF THE POSTED SPEED LIMIT PRIOR TO WORK.

NOTE:

THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT.

IF THE ROAD HAS AN AADT OF LESS THAN 20,000, THE CLOSURE IS NOT IN PLACE OVERNIGHT, AND THE SPEED IS LESS THAN 40 MPH, THE W20-5 SIGN IS OPTIONAL.

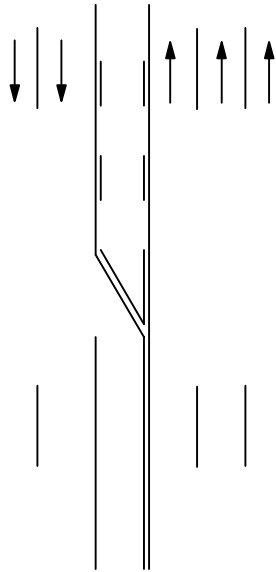
POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET)			TAPER LENGTH (FEET) (L)
	(A)	(B)	(C)	
0 - 25	100 - 200			$\frac{W \cdot S^2}{60}$
30	120 - 240			$\frac{W \cdot S^2}{60}$
35	140 - 280			$\frac{W \cdot S^2}{60}$
40	160 - 320			$\frac{W \cdot S^2}{60}$
45	180 - 360			$W \cdot S$
50	200 - 400			$W \cdot S$
55	220 - 440			$W \cdot S$



POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600

■ Channelizing Device

Ⓞ 4" White Temporary Pavement Marking



POSTED SPEED PRIOR TO WORK (M.P.H.)	Spacing of Channelizing Devices (FEET) (G)
0 - 30	25
35 - 40	25
50	50

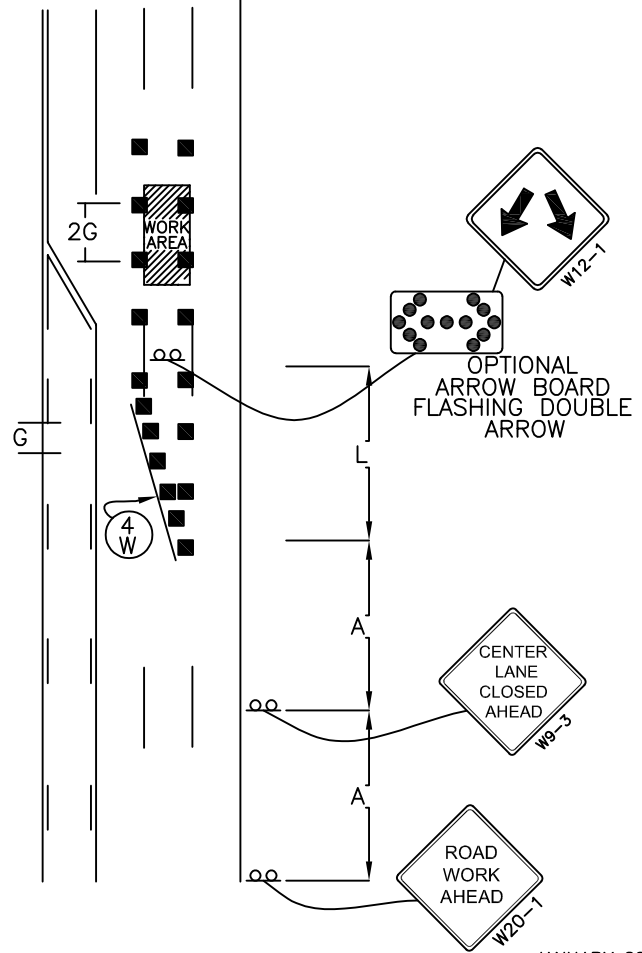
If the work space extends across the crosswalk, then close the crosswalk.

The merging taper may direct traffic into either the right or left lane but not both. In this typical, a left taper should be used so that right-turn movements will not impede traffic.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

Temporary pavement markings shall be used if traffic control must remain overnight.

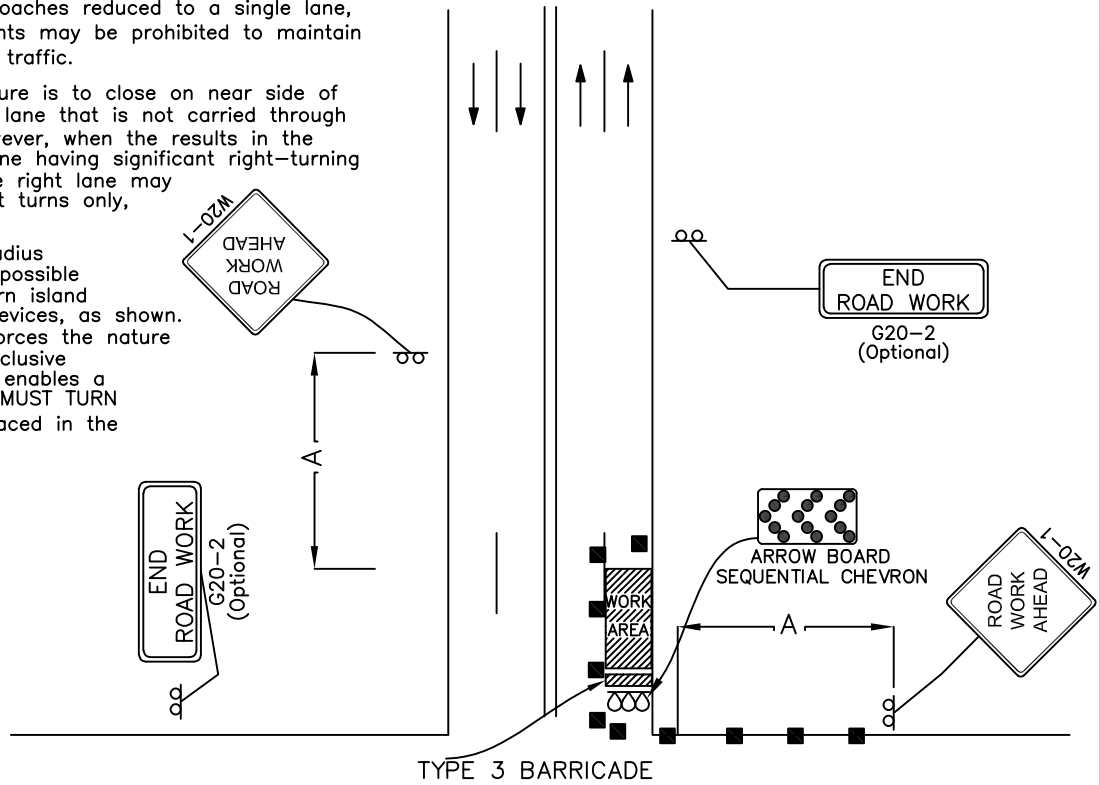


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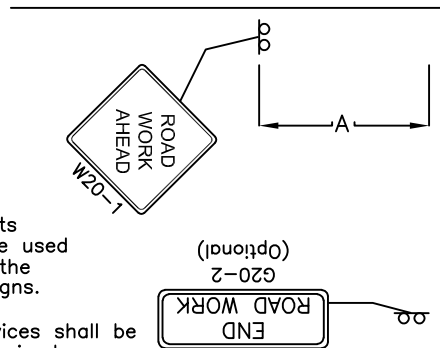
For intersection approaches reduced to a single lane, left-turning movements may be prohibited to maintain capacity for through traffic.

The standard procedure is to close on near side of the intersection and lane that is not carried through the intersection. However, when the results in the closing of a right lane having significant right-turning movements, then the right lane may be restricted to right turns only, as shown.

Where the turning radius is large, it may be possible to create a right turn island using channelizing devices, as shown. This procedure reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island as shown.



XYZ STREET

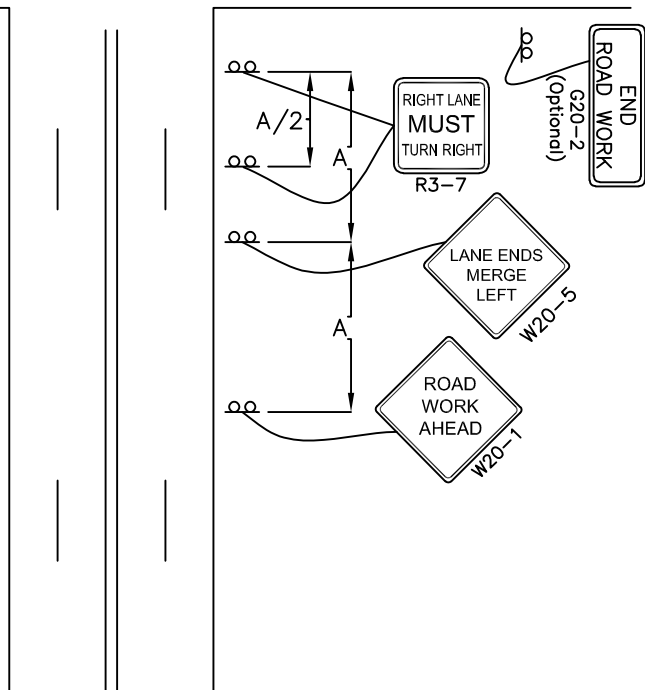


flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

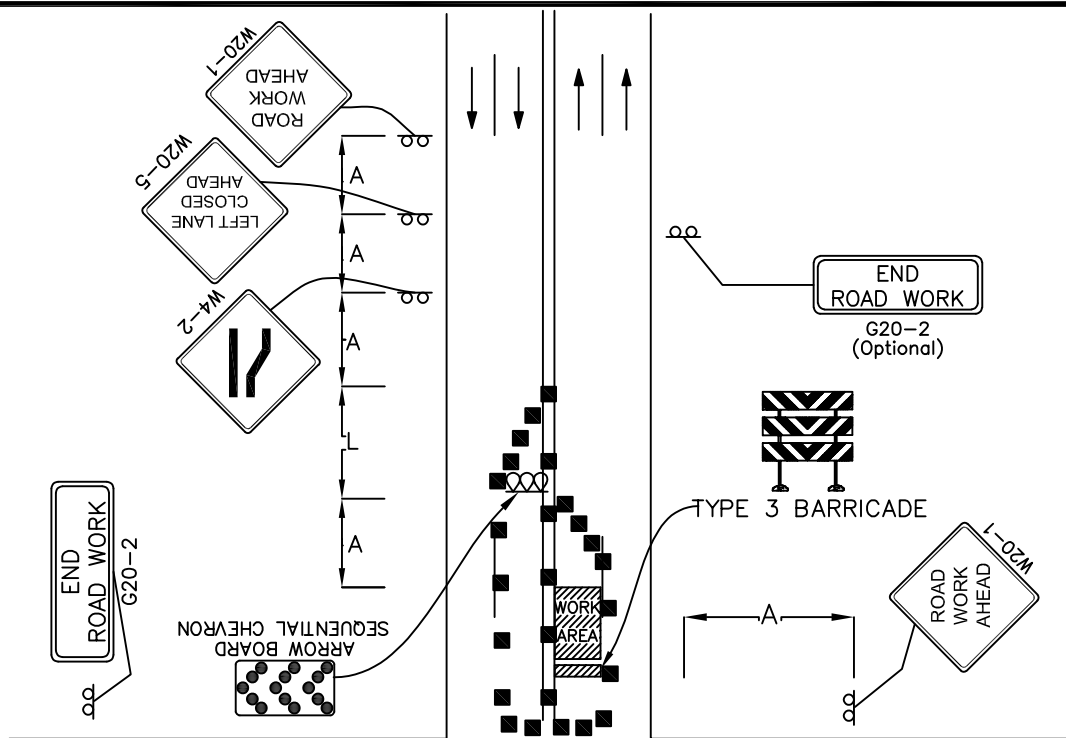
The channelizing devices shall be drums or type 2 barricades if traffic if traffic control must remain overnight.

■ Channelizing Device

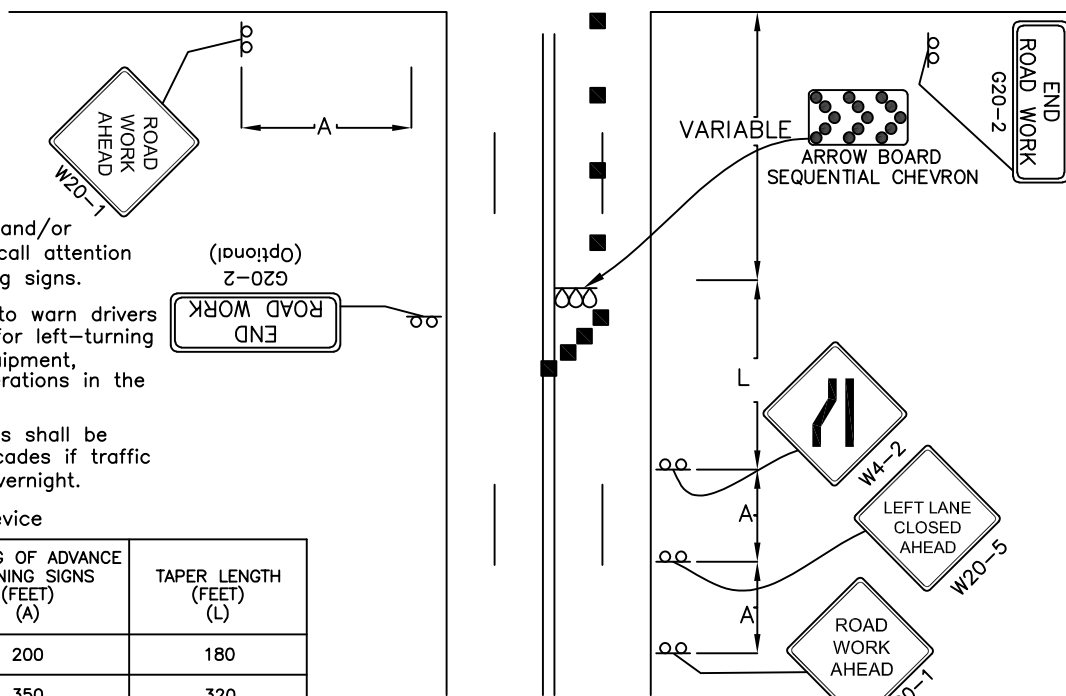
POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600



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XYZ STREET



Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

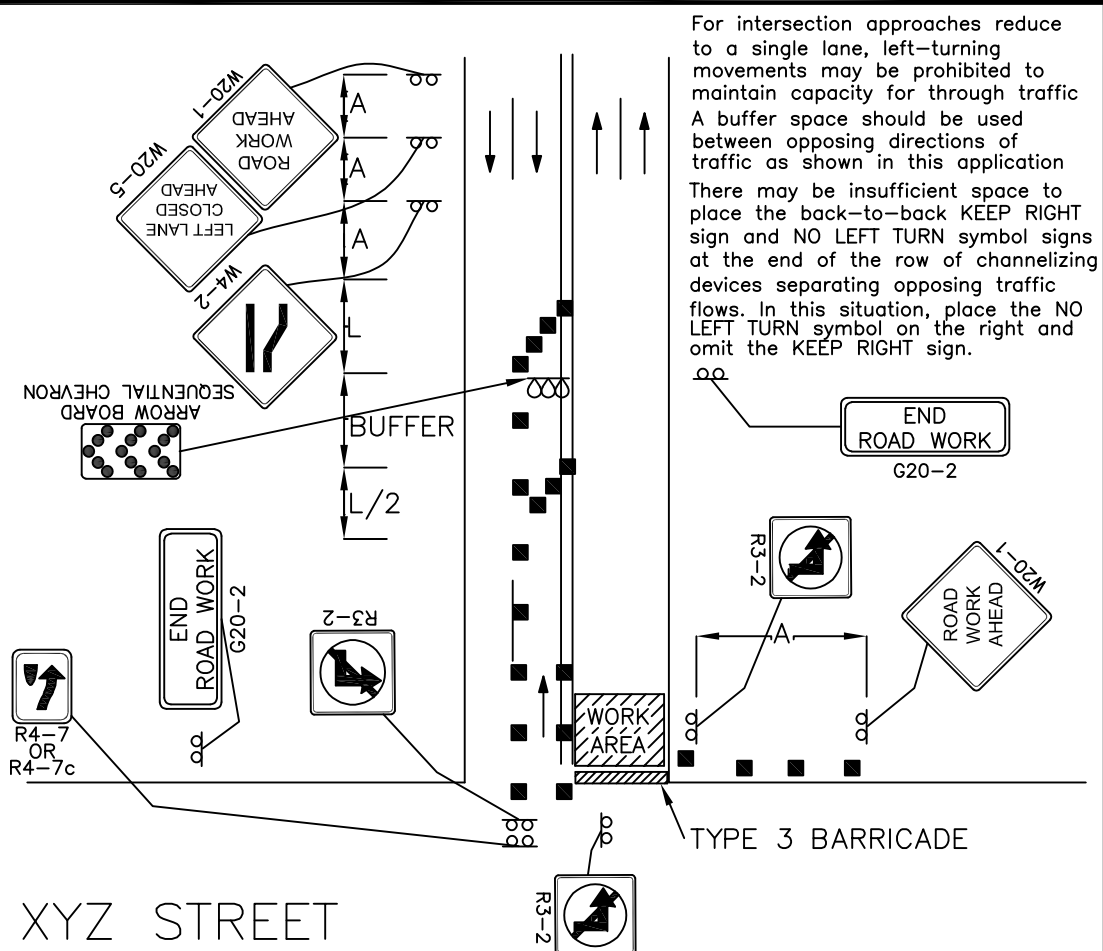
Care should be taken to warn drivers of vision obstructions for left-turning vehicles caused by equipment, material, and work operations in the work area.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

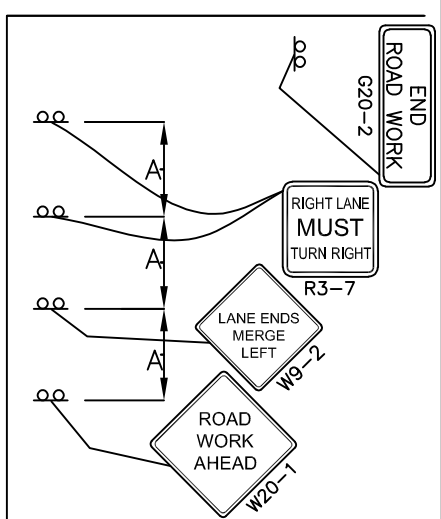
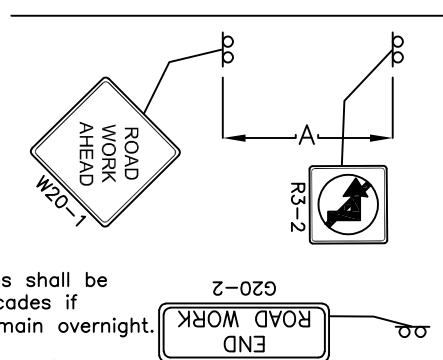
■ Channelizing Device

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600

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XYZ STREET



The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight. Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

■ Channelizing Device

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600

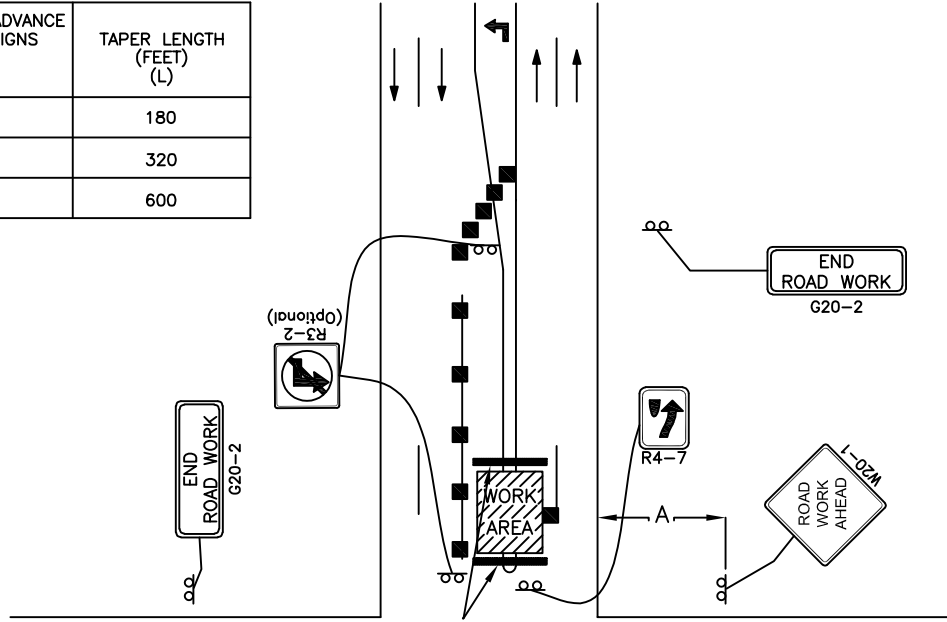
Where the turning radius is large, it may be possible to create a right-turn island using channelizing devices, as shown. This procedure reinforces the nature of the temporary exclusive right-turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

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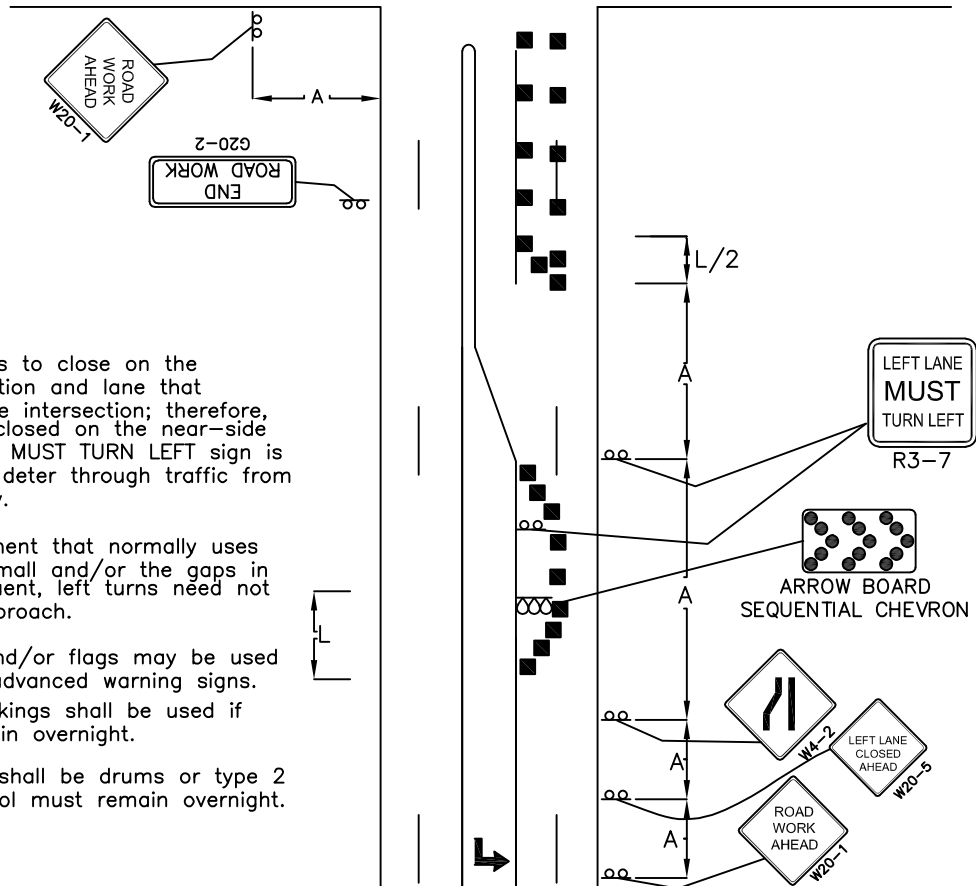
POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600

■ Channelizing Device



TYPE 3 BARRICADE

XYZ STREET



NOTE:

The standard procedure is to close on the near side of the intersection and lane that is not carried through the intersection; therefore, the left through lane is closed on the near-side approach. The LEFT LANE MUST TURN LEFT sign is placed in the median to deter through traffic from entering the left turn bay.

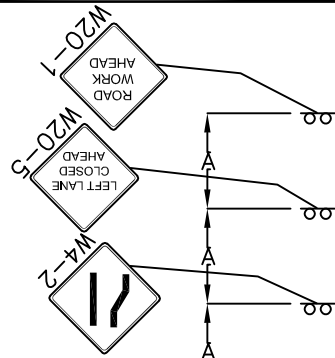
If the left-turning movement that normally uses the closed turn bay is small and/or the gaps in opposing traffic are frequent, left turns need not be prohibited on that approach.

Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be drums or type 2 barricades if traffic control must remain overnight.

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Pavement markings no longer applicable shall be removed or obliterated as soon as practical.

Temporary pavement markings shall be used if traffic control must remain overnight.

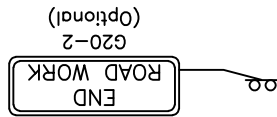
The channelizing devices shall be 42" cones or drums.



42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and center line channelizing markers.

The length of A and L may be adjusted to fit field conditions.



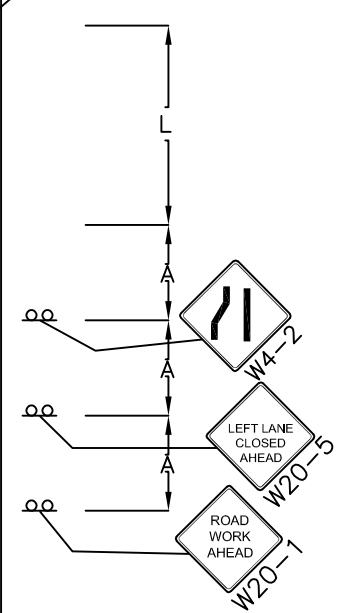
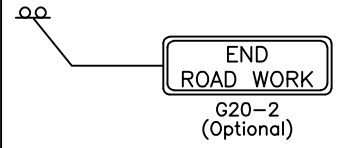
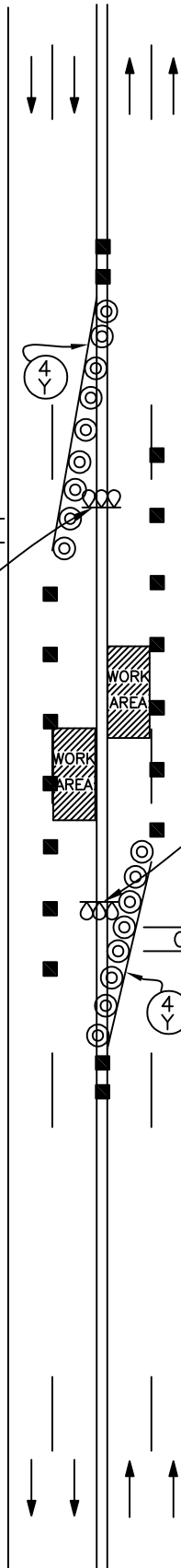
■ Channelizing Device

Ⓞ 4" Yellow Temporary Pavement Marking

⊙ Reflectorized Drum

* Spacing is 40' for 42" cones.

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A)	TAPER LENGTH (FEET) (L)	SPACING OF CHANNELIZING DEVICES (FEET) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60-65	1000	780	50 *



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CITY OF NORFOLK
ENGINEERING DIVISION
GUIDE FOR TRAFFIC CONTROL DEVICES
4-LANE UNDIVIDED, LEFT LANE CLOSED

PLATE NUMBER 44
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TRAFFIC CONTROL

(Typical TURN Lane Closure – STATE HIGHWAY)

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

WHERE:

- L = MINIMUM LENGTH OF TAPER
- S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
- W = WIDTH OF OFFSET.
- T = LENGTH OF TURN LANE TAPER.
50 FOOT SPACING OF CHANNELIZING DEVICES

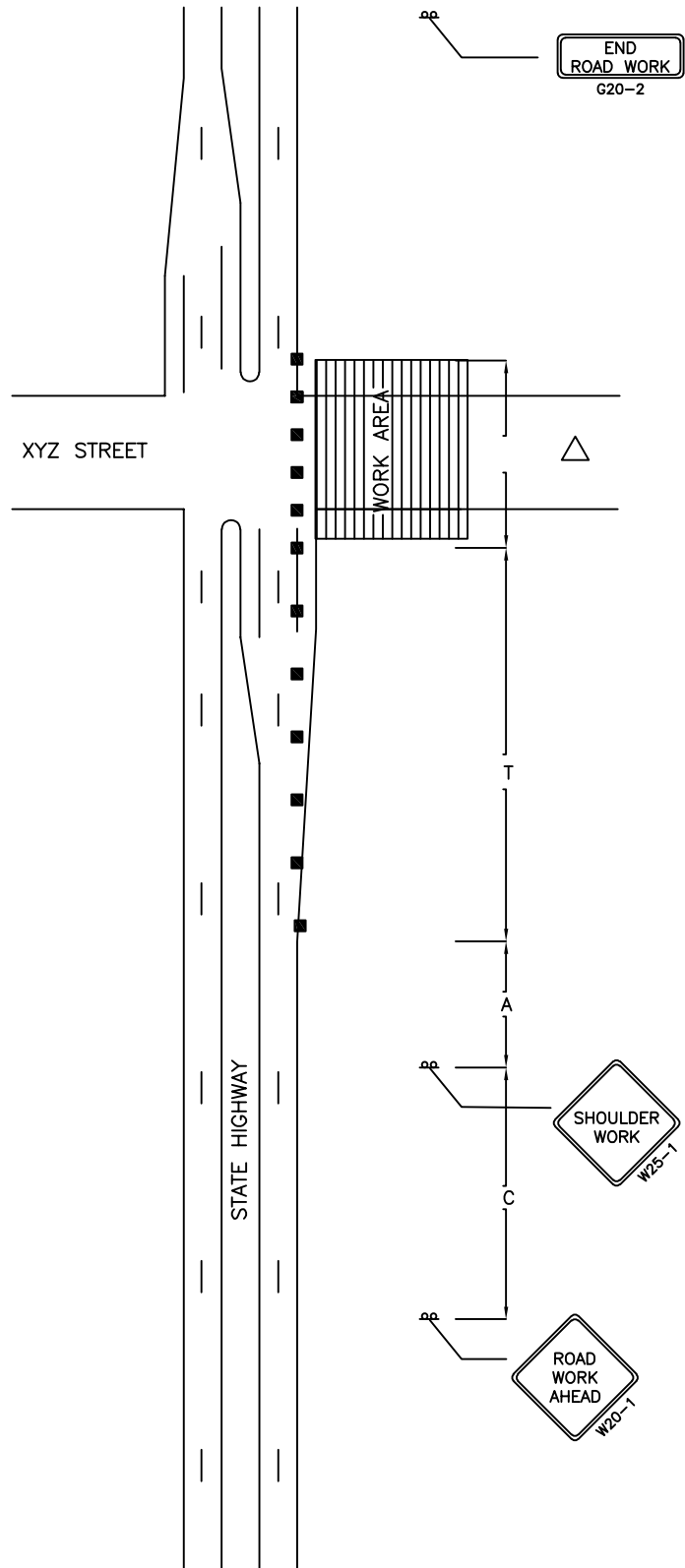
- CHANNELIZING DEVICES
- △ SPACING BETWEEN DEVICES SHALL BE 10 FEET MAXIMUM.

NOTE:

THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT.

IF THE ROAD HAS AN AADT OF LESS THAN 20,000, THE CLOSURE IS NOT IN PLACE OVERNIGHT, AND THE SPEED IS LESS THAN 40 MPH, THE W20-5 SIGN IS OPTIONAL.

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET)			TAPER LENGTH (FEET) (L)
	(A)	(B)	(C)	
0 – 25	100 – 200			$\frac{W \cdot S^2}{60}$
30	120 – 240			$\frac{W \cdot S^2}{60}$
35	140 – 280			$\frac{W \cdot S^2}{60}$
40	160 – 320			$\frac{W \cdot S^2}{60}$
45	180 – 360			$W \cdot S$
50	200 – 400			$W \cdot S$
55	220 – 440			$W \cdot S$



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GUIDE APPLICATION – CONSTRUCTION OPERATIONS
TURN LANE CLOSURE GUIDE – STATE HIGHWAY

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