

Stationary work zones are work activities that exceed one hour but could last for several days or even longer. Signs and channelizing devices are recommended for stationary work zones when workers or vehicles are on the travelled roadway. It is recommended to always use devices to separate traffic from the work area. Traffic Safety Drums are required for all lane closure tapers on roadways 45 mph or higher. Devices, such as arrow boards, barricades and buffer vehicles, may also be used depending on the situation. For longer term projects, temporary concrete barrier, temporary pavement markings, and post mounted signs might be typical devices necessary.

Examples of stationary work zone operations include: paving, light standard repair, sign installation, and bridge repair. Stationary work zone traffic control is usually associated with a substantial work operation that may have many workers, equipment, truck-hauling, and flagging.

Traffic operations, all work activities, workers, and flagger locations must be incorporated into the work zone operation and provided for during planning and selecting the Traffic Control Plans (TCPs).

The following TCPs show typical stationary traffic control setups for a variety of situations commonly encountered.

- TCP 1** *Typical Alternating One-Way Traffic Flagger Controlled*
(For two-lane, two-way roadways with possible intersection.)
- TCP 2** *Typical Pilot Car Operation*
(This plan supplements the flagger control plan when additional direction is necessary for safety of driver and crews.)
- TCP 3** *Typical Single-Lane Closure for Multi-Lane Roadways*
(For multi-lane operations requiring a lane closure.)
- TCP 4** *Typical Double-Lane Closure for Multi-Lane Roadways*
(For high-speed work operations requiring two lanes being closed.)
- TCP 5** *Typical Shoulder Closure – Low Speed (40 mph or Less)*
(Shoulder closure operations for 40 mph or less roadways allowing minor lane encroachment.)
- TCP 6** *Typical Shoulder Closure – High Speed (45 mph or Higher)*
(Shoulder closure operations 45 mph or higher with no encroachment allowed. Recommend maintaing at least a 2-foot buffer space between work and fog line.)
- TCP 7** *Typical Temporary Off-Ramp for Multi-Lane Roadways*
(This plan provides a method to maintain an off-ramp connection during a short-term work operation.)

- TCP 8** *Typical Temporary On-Ramp for Multi-Lane Roadways (Add Lane Condition)*
(This plan provides a method to maintain an on-ramp connection during a short-term work operation. This allows for the on-ramp traffic to enter the roadway with an add-lane connection.)
- TCP 9** *Typical Short-Term Temporary On-Ramp for Multi-Lane Roadways (Merge Condition)*
(This plan provides a method to maintain an on-ramp connection for a short-term work operation. For long-term operations, this merge connection is not appropriate and requires a ramp design to ensure the appropriate taper rates are maintained.)
- TCP 10** *Typical Right Lane Closure With Shift – 5 Lane Roadway*
(This plan applies to an urban setting with two-way turn pockets. The turn pocket is used to maintain the through movement and the left turn movements are restricted.)
- TCP 11** *Typical Left Lane and Center Turn Lane Closure – 5 Lane Roadway*
(This plan applies to an urban setting with a two-way turn pocket where the work area is the inside lanes. The through traffic is maintained in the outside lanes and the left-turn movements are restricted.)
- TCP 12** *Typical Lane Shift – Three Lane Roadway*
(This plan allows maintaining one lane in each direction by utilizing one of the lanes in the multi-lane section for the opposite direction. Example would be a truck climbing lane location.)
- TCP 13** *Typical Short-Term Ramp Closure (On-Ramp and Off-Ramp)*
(This plan depicts the signing and devices required for both off-ramp closure operations and an on-ramp closure operations.)

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	-	-

WHEN A TMA IS USED, THE ROLL AHEAD DISTANCE IS 30' MINIMUM TO 100' MAXIMUM
 PROTECTIVE VEHICLE MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA

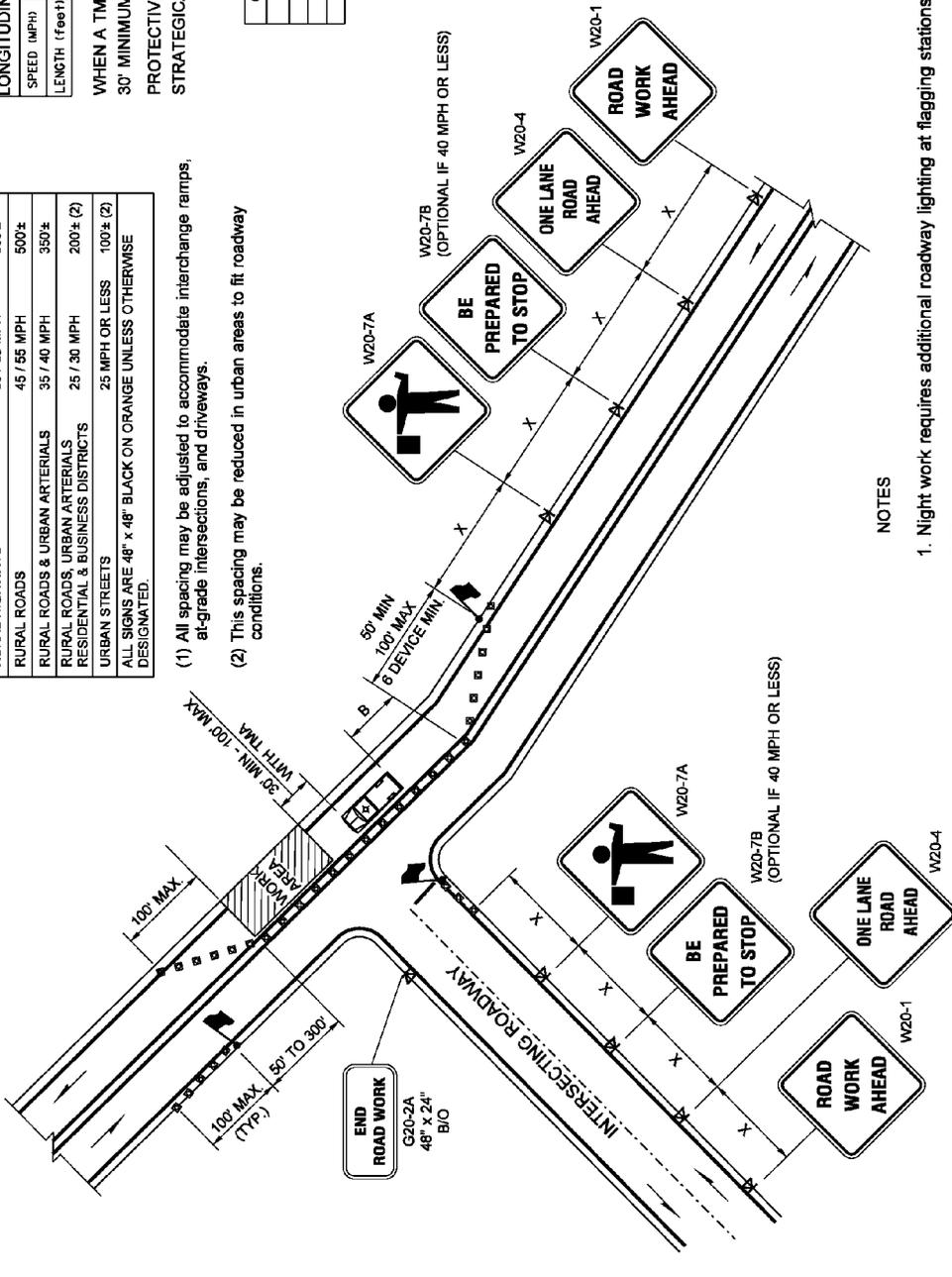
CHANNELIZING DEVICE SPACING (FEET)	
MPH	TANGENT
50 / 65	40
35 / 45	30
25 / 30	20
	40

SIGN SPACING = X (FEET) (1)	
RURAL HIGHWAYS	60 / 65 MPH 800'±
RURAL ROADS	45 / 55 MPH 500'±
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH 350'±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH 200'± (2)
URBAN STREETS	25 MPH OR LESS 100'± (2)

ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

(1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

(2) This spacing may be reduced in urban areas to fit roadway conditions.



NOTES

1. Night work requires additional roadway lighting at flagging stations.
2. Recommend extending channelizing device taper across shoulder.
3. Protective vehicle - may be a work vehicle strategically located to shield the work area.
4. When used, the downstream taper device spacing should be 20' O.C.
5. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible from both directions may be used.
6. Longitudinal buffer space is used to extend the taper in advance of a curve.

LEGEND

- FLAGGING STATION
- SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE

TYPICAL ONE-LANE, TWO-WAY TRAFFIC CONTROL WITH FLAGGERS
 TCP 1

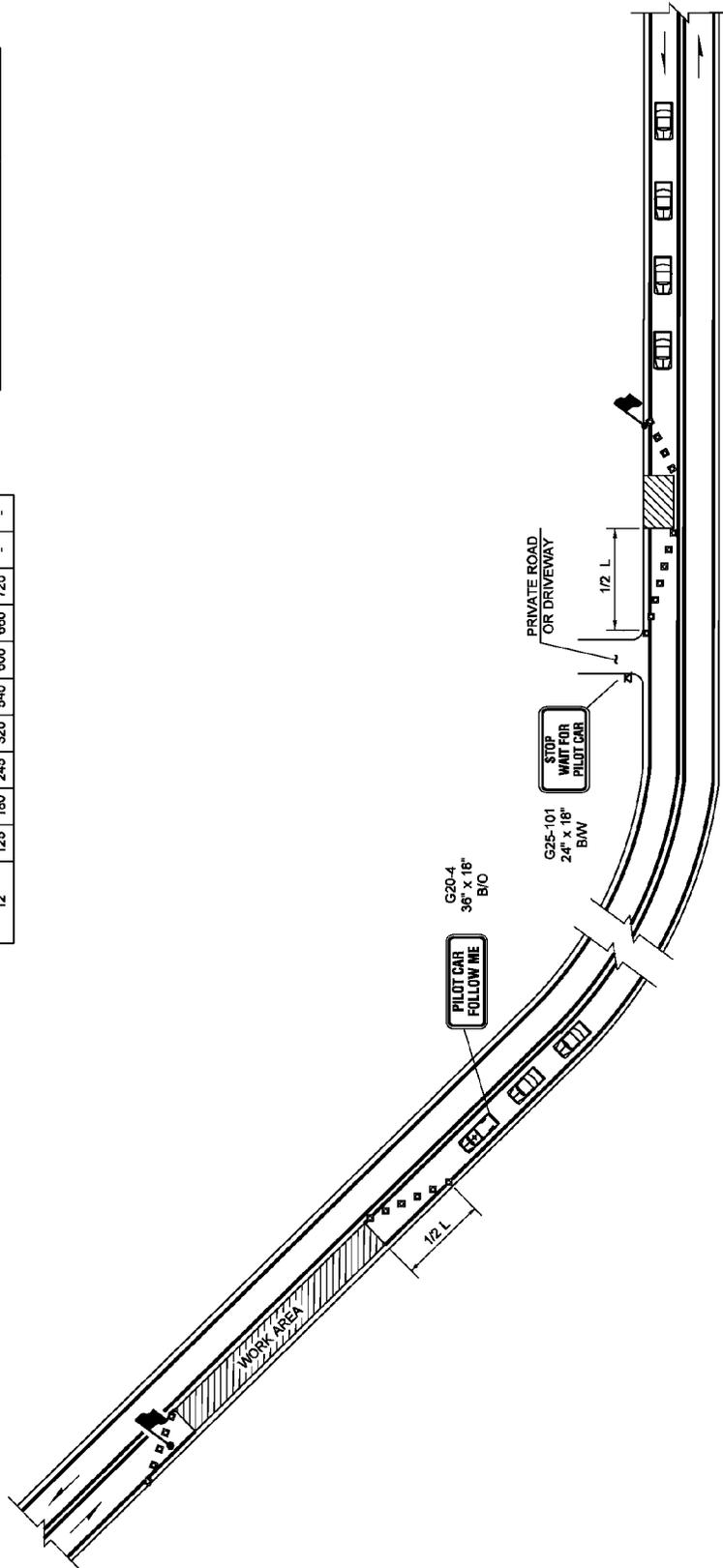
TCP 1 Typical Alternating One-Way Traffic Flagger Controlled

MINIMUM TAPER LENGTH = L (feet)

Lane Width (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	295	495	550	605	660	-	-
12	125	180	245	320	540	600	660	720	-	-

CHANNELIZING DEVICE SPACING (FEET)

MPH	TANGENT	
	TAPER	TANGENT
50 / 65	40	80
35 / 45	30	60
25 / 30	20	40



NOTES

1. Refer to sheet TCP 1 for additional signing and flagging details not shown.
2. Channelizing devices are recommended along centerline to separate traffic from work operation. Devices are required at tapers to shift traffic movement between lanes and for protection at all flagging stations.
3. Sign G25-101 is recommended for non-stop sign controlled approaches such as private driveways. This sign can be made of alternative materials other than aluminum.

LEGEND

- FLAGGING STATION
- SIGN LOCATION
- CHANNELIZING DEVICES
- PILOT VEHICLE
- MOTORIST VEHICLE

**TYPICAL PILOT CAR OPERATION
TCP 2**

TCP 2 Typical Pilot Car Operation

LONGITUDINAL BUFFER SPACE = B

SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

MINIMUM TAPER LENGTH = L (feet)

Lane Width (feet)	Posted Speed (mph)									
	25	30	35	40	45	50	55	60	65	70
10	105	160	205	270	450	500	560	-	-	-
11	115	165	225	295	495	550	605	680	-	-
12	125	180	245	320	540	600	660	720	760	840

SIGN SPACING = X (FEET) (1)

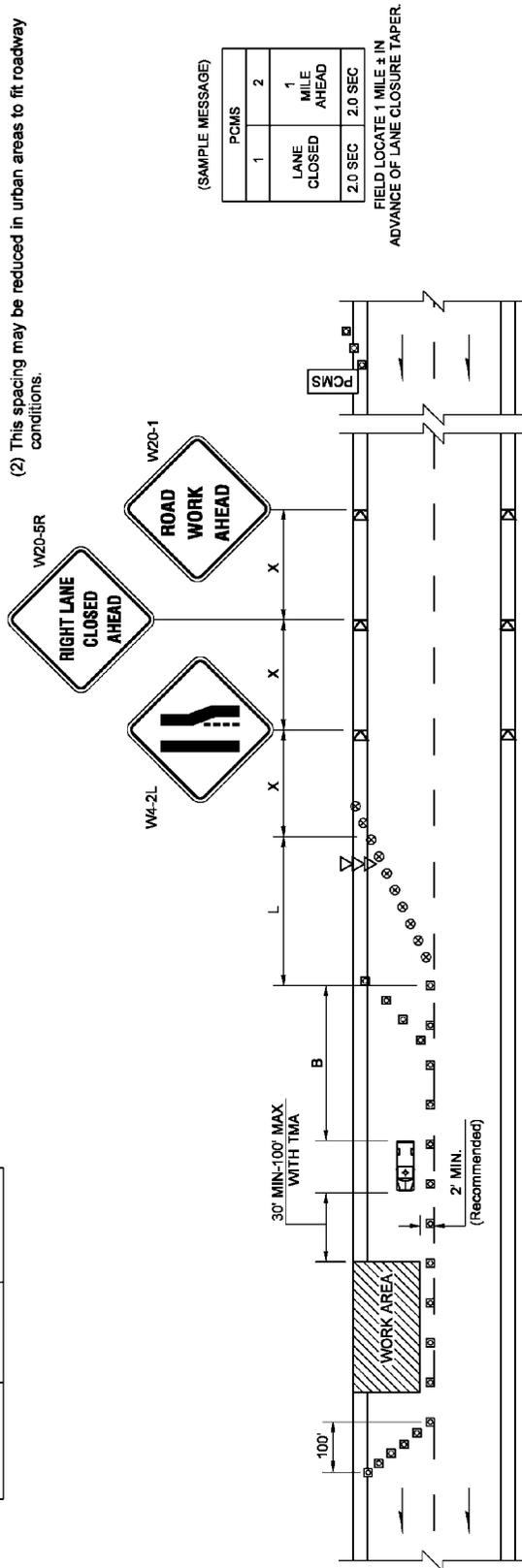
FREEMWAYS & EXPRESSWAYS	55/70 MPH	1500'+
RURAL HIGHWAYS	60/65 MPH	800'+
RURAL ROADS	45/55 MPH	500'+
RURAL ROADS & URBAN ARTERIALS	35/40 MPH	350'+
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200'+ (2)
URBAN STREETS	25 MPH OR LESS	100'+ (2)

ALL SIGNS ARE 48" X 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

CHANNELIZING DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50 / 70	40	80
35 / 45	30	80
25 / 30	20	40

- (1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.
- (2) This spacing may be reduced in urban areas to fit roadway conditions.



NOTES

1. A TMA is required for roadway 45 mph or higher. For roads 40 mph or less - if a TMA is not available, the protective vehicle shall be strategically located in the field to shield workers and no roll ahead distance is specified.
2. Extend device taper across shoulder when shoulder width is 8 ft or more.
3. Devices should not encroach into adjacent lanes, see sheet TCD 3 for encroachment detail.
4. Use transverse devices in closed lane every 1000'.
5. Traffic safety drums required for all lane closure tapers on roadway 45 mph or higher.
6. When used, device spacing for the downstream taper should be 20' O.C.
7. Coordinate with Region Traffic office for work hour restrictions.

LEGEND

- ▣ SIGN LOCATION
- ▤ ARROW BOARD
- ⊗ TRAFFIC SAFETY DRUMS
- ⊗ CHANNELIZING DEVICES
- ⊗ PROTECTIVE VEHICLE REQUIRED
- ⊗ PORTABLE CHANGEABLE MESSAGE SIGN

**TYPICAL SINGLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS
TCP 3**

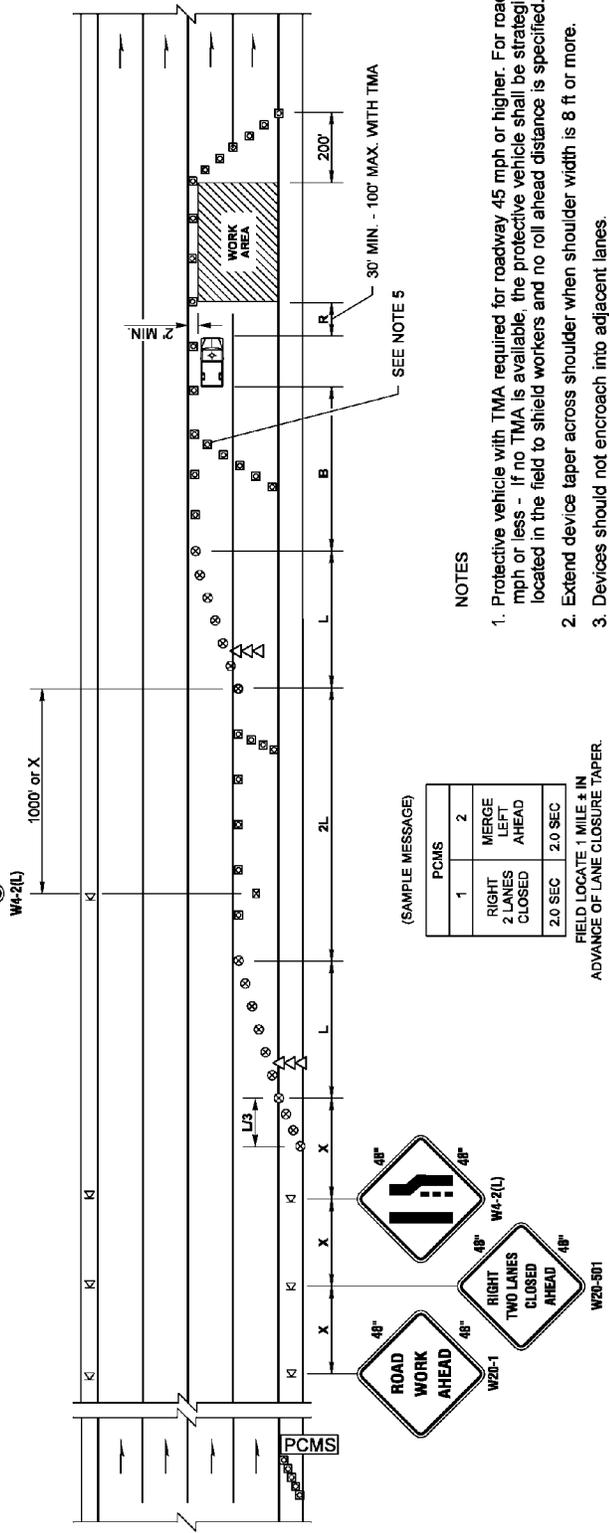
SIGN SPACING = X (FEET) (1)			
FREEWAYS & EXPRESSWAYS	55/70 MPH	1500' ±	
RURAL HIGHWAYS	60/65 MPH	800' ±	
RURAL ROADS	45/55 MPH	500' ±	
RURAL ROADS & URBAN ARTERIALS	35/40 MPH	350' ±	
RURAL ROADS, URBAN ARTERIALS RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200' ± (2)	
URBAN STREETS	25 MPH OR LESS	100' ± (2)	

- (1) All spacing may be adjusted to accommodate interchange ramp at-grade intersections, and driveways.
- (2) This spacing may be reduced in urban areas to fit roadway conditions.

LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	350	425	495	570	645	730

MINIMUM TAPER LENGTH = L (feet)										
Lane Width (feet)	25	30	35	40	45	50	55	60	65	70
10	-	-	-	270	450	500	550	-	-	-
11	-	-	-	295	465	550	605	660	-	-
12	-	-	-	320	540	600	660	720	780	840

TCP 4 Typical Double-Lane Closure for Multi-Lane Roadways



PCMS	
1	2
RIGHT 2 LANES CLOSED	MERGE LEFT AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE TAPER.

NOTES

- Protective vehicle with TMA required for roadway 45 mph or higher. For roads 40 mph or less - if no TMA is available, the protective vehicle shall be strategically located in the field to shield workers and no roll ahead distance is specified.
- Extend device taper across shoulder when shoulder width is 8 ft or more.
- Devices should not encroach into adjacent lanes.
- PCMS recommended.
- Use transverse devices in closed lane every 1000'.
- Traffic safety drums required for all lane closure tapers on roadways 45 mph or higher.
- When used, device spacing for the downstream taper should be 20' O.C.
- Coordinate with region traffic office work hour restrictions.

LEGEND

- ⊠ SIGN LOCATION
- ARROW BOARD
- ⊙ TRAFFIC SAFETY DRUMS
- ⊠ CHANNELIZING DEVICES
- ⊠ PROTECTIVE VEHICLE REQUIRED
- ⊠ PORTABLE CHANGEABLE MESSAGE SIGN

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/70	40	80
40/45	30	60

TYPICAL DOUBLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS
TCP 4

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	-	-	-	-	-	-

Protective vehicle recommended - may be a work vehicle, if a TMA is not available, the protective vehicle shall be strategically located in the field to shield workers and no roll ahead distance is specified.

SIGN SPACING = X (FEET) (1)			
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350'±	
RURAL ROADS, URBAN ARTERIALS RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200'± (2)	
URBAN STREETS	25 MPH OR LESS	100'± (2)	

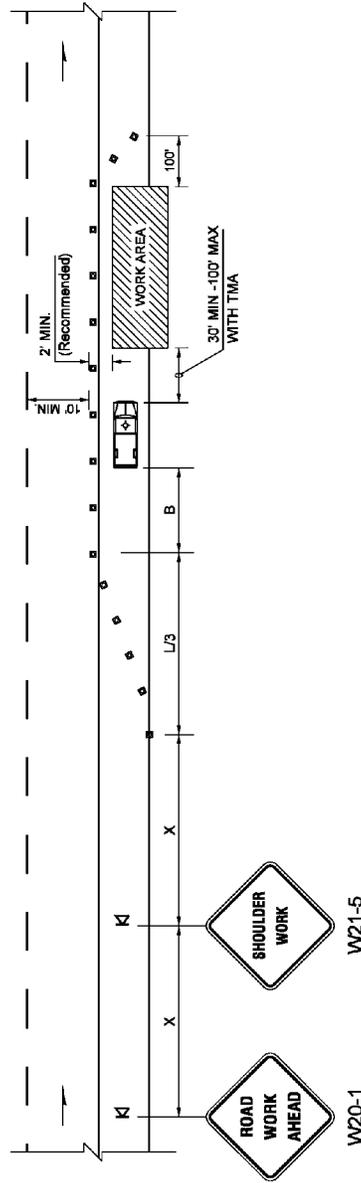
ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

- (1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.
- (2) This spacing may be reduced in urban areas to fit roadway conditions.

MINIMUM TAPER LENGTH = L (feet)										
Shoulder Width (feet)	Posted Speed (mph)									
	26	30	35	40	45	50	55	60	65	70
8	84	120	162	210	-	-	-	-	-	-
10	105	150	204	270	-	-	-	-	-	-

3 DEVICES MINIMUM SPACED 10' O.C. IN TAPERS FOR SHOULDER WIDTHS LESS THAN 8 FEET

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
35 / 40	30	60
25 / 30	20	40



NOTES

- 1. Protective vehicle recommended - may be a work vehicle.
- 2. When used, device spacing for the downstream taper should be 20' O.C.

LEGEND

- W SIGN LOCATION
- CHANNELIZING DEVICES
- W20-1 PROTECTIVE VEHICLE - RECOMMENDED
- W21-5

TYPICAL SHOULDER CLOSURE - LOW SPEED (40 MPH OR LESS)
TCP 5

TCP 5 Typical Shoulder Closure – Low Speed (40 mph or Less)

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

Protective vehicle required - may be a work vehicle. If a TMA is not available, the protective vehicle shall be strategically located in the field to shield workers and no roll ahead distance is specified.

CHANNELIZING DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50 / 70	40	80
45 / 50	30	60

SIGN SPACING = X (FEET)

FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1500' +/-
RURAL HIGHWAYS	60 / 65 MPH	800'±
RURAL ROADS	45 / 55 MPH	500'±

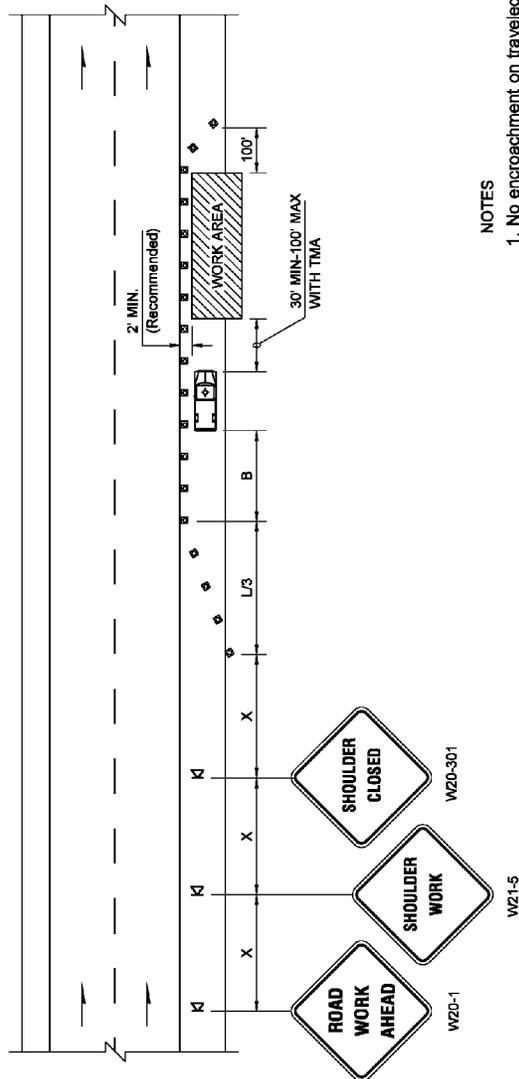
ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

MINIMUM TAPER LENGTH = L (feet)

Shoulder Width (feet)	Posted Speed (mph)										
	25	30	35	40	45	50	55	60	65	70	
6	-	-	-	-	-	270	300	330	360	390	420
8	-	-	-	-	-	360	405	450	480	525	570
10	-	-	-	-	-	450	510	555	600	660	705

3 DEVICES MINIMUM SPACED 10' O.C. IN TAPERS FOR SHOULDER WIDTHS LESS THAN 8 FEET



LEGEND

- SIGN LOCATION
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE - REQUIRED

NOTES

1. No encroachment on traveled lane. If encroachment is necessary, lane shall be closed.
2. Protective vehicle required - may be a work vehicle.
3. When used, device spacing for the downstream taper should be 20' O.C.

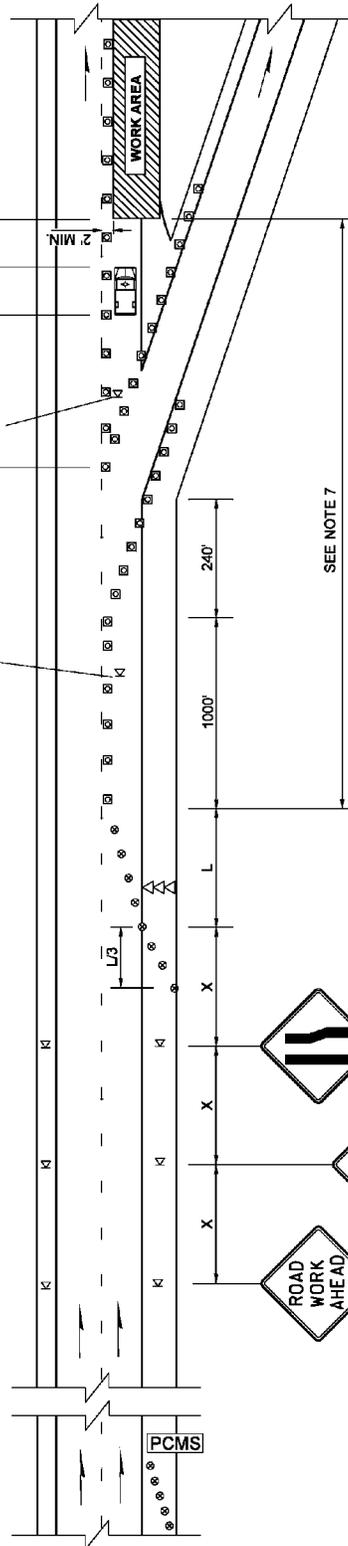
TYPICAL SHOULDER CLOSURE - HIGH SPEED (45 MPH OR HIGHER)
TCP 6

MINIMUM TAPER LENGTH = L (feet)		Posted Speed (mph)										
Lane Width (feet)		25	30	35	40	45	50	55	60	65	70	75
10	-	-	-	-	270	450	500	550	-	-	-	-
11	-	-	-	-	285	465	510	560	605	660	-	-
12	-	-	-	-	320	540	600	660	720	780	840	-

SIGN SPACING = X (FEET)		
FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1600±
RURAL HIGHWAYS	60 / 65 MPH	800±
RURAL ROADS	45 / 55 MPH	500±
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350±

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

OPTIONAL SIGN ~
5' MOUNTING HEIGHT MIN.
48"



SEE NOTE 7

NOTES

1. Protective vehicle with TMA required for 45 MPH or higher. For roads 40 MPH or less ~ if TMA is not available, the vehicle may be strategically located to shield the work area.
2. Coordinate with the region Traffic Office for work hour restrictions.
3. Extend device taper across shoulder when shoulder is 8ft or wider.
4. Devices should not encroach into adjacent lanes.
5. Use transverse devices in closed lane every 1000'.
6. Traffic safety drums required for all lane closure tapers on roadways 45 mph or higher.
7. Consider short term closure of ramp.

LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

(SAMPLE MESSAGE)

PCMS	
1	LANE CLOSED AHEAD
2	EXIT RAMP OPEN
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE TAPER.

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50 / 70	40	80
40 / 45	30	60

LEGEND

- N SIGN LOCATION
- >>> ARROW BOARD
- ⊙ ⊙ ⊙ TRAFFIC SAFETY DRUMS
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN - RECOMMENDED
- ⊞ PROTECTIVE VEHICLE REQUIRED
- ⊞ CHANNELIZING DEVICES

TYPICAL TEMPORARY OFF-RAMP FOR MULTI-LANE ROADWAYS
TCP 7

TCP 7 Typical Temporary Off-Ramp for Multi-Lane Roadways

MINIMUM TAPER LENGTH = L (feet)		Posted Speed (mph)									
Lane Width (feet)		25	30	35	40	45	50	55	60	65	70
10	-	-	-	270	450	600	550	-	-	-	-
11	-	-	-	265	485	550	605	660	-	-	-
12	-	-	-	320	540	600	660	720	780	840	-

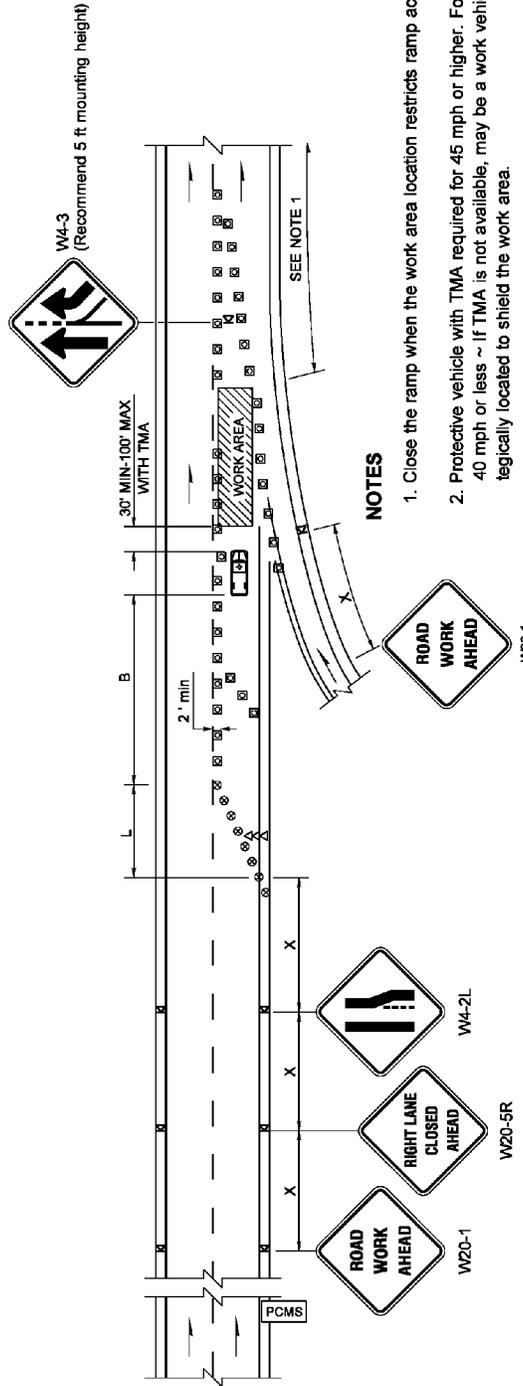
SIGN SPACING = X (FEET)		FREeways & EXPRESSWAYS		RURAL HIGHWAYS		RURAL ROADS		RURAL ROADS & URBAN ARTERIALS	
		55 / 70 MPH	1500'±	60 / 65 MPH	800'±	45 / 55 MPH	500'±	35 / 40 MPH	350'±

ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

BUFFER DATA		LONGITUDINAL BUFFER SPACE = B									
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70	75
LENGTH (feet)	55	200	250	305	360	425	485	570	645	730	-

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

CHANNELIZING DEVICE SPACING (FEET)	
MPH	TANGENT
50 / 70	80
40 / 45	30



NOTES

1. Close the ramp when the work area location restricts ramp access.
2. Protective vehicle with TMA required for 45 mph or higher. For roads 40 mph or less ~ if TMA is not available, may be a work vehicle strategically located to shield the work area.
3. Coordinate with the region Traffic Office for work hour restrictions.
4. Extend the device taper across shoulder when width is 8ft or more.
5. Devices should not encroach into adjacent lanes.
6. Use transverse devices in closed lane every 1000'.
7. Traffic safety drums required for all lane closure tapers on roadways 45 mph or higher.

LEGEND

- ▣ SIGN LOCATION
- ▢ ARROW BOARD
- ⊗ TRAFFIC SAFETY DRUMS
- ⊠ CHANNELIZING DEVICES
- ⊞ PROTECTIVE VEHICLE REQUIRED
- ⊞ PORTABLE CHANGEABLE MESSAGE SIGN - RECOMMENDED

(SAMPLE MESSAGE)

PCMS	
1	2
LANE CLOSED	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE TAPER.

TYPICAL TEMPORARY ON-RAMP FOR MULTI-LANE ROADWAYS
TCP 8

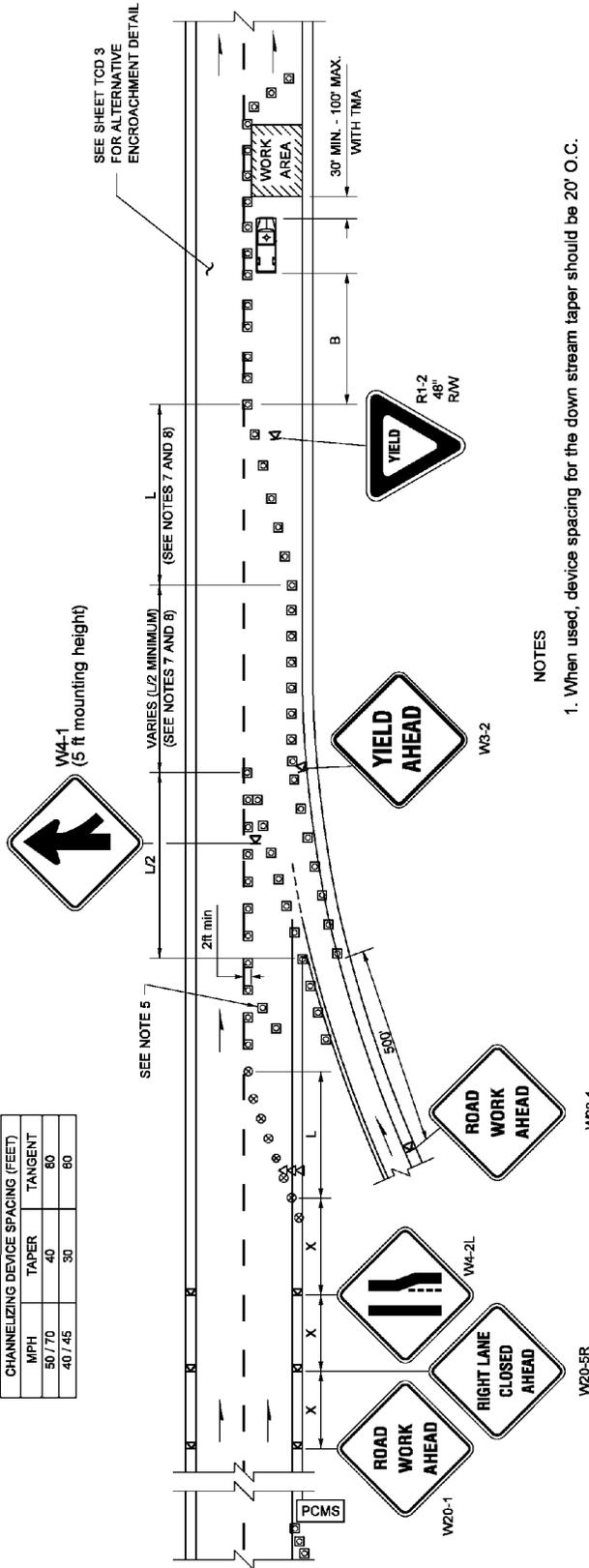
BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (mph)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	485	570	645	730

SIGN SPACING = X (FEET)			
FREeways & EXPRESSWAYS	56 / 70 MPH	1500'±	
RURAL HIGHWAYS	60 / 65 MPH	800'±	
RURAL ROADS	45 / 55 MPH	500'±	
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350'±	
ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.			

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

MINIMUM TAPER LENGTH = L (feet)										
Lane Width (feet)	Posted Speed (mph)									
		25	30	35	40	45	50	55	60	65
10	-	-	-	270	450	500	550	-	-	-
11	-	-	-	295	465	550	605	660	-	-
12	-	-	-	320	540	600	660	720	760	840

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/70	40	60
40/745	30	60



NOTES

- When used, device spacing for the down stream taper should be 20' O.C.
- Protective vehicle with TMA required on roadways 45 mph or higher. On roadways 40 mph or less - may be a work vehicle strategically located to shield work area.
- Coordinate with the region Traffic Office for work hour restrictions.
- Extend device taper across shoulder when 8ft or more in width.
- Use transverse devices in closed lane every 1000'±.
- Traffic safety drums required for all lane closure tapers on roadways 45 mph or higher.
- Where inadequate acceleration distance exists for the temporary entrance ramp, close the ramp until operation is complete.
- For long term on-ramp connections, the ramp must be designed in order to meet minimum acceleration and merge requirements. For additional information and assistance contact the region traffic office.

(SAMPLE MESSAGE)

PCMS	
1	LANE CLOSED
2	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE TAPER.

LEGEND

- ▣ SIGN LOCATION
- ▢ ARROW BOARD
- ⊗ TRAFFIC SAFETY DRUMS
- ⊗ CHANNELIZING DEVICES
- ▣ PROTECTIVE VEHICLE REQUIRED
- ▣ PORTABLE CHANGEABLE MESSAGE SIGN - RECOMMENDED

TYPICAL SHORT-TERM TEMPORARY ON-RAMP FOR MULTI-LANE ROADWAYS
TCP 9

BUFFER DATA									
LONGITUDINAL BUFFER SPACE = B									
SPEED (MPH)	25	30	35	40	45	50	-	-	-
LENGTH (feet)	85	200	250	305	360	425	-	-	-

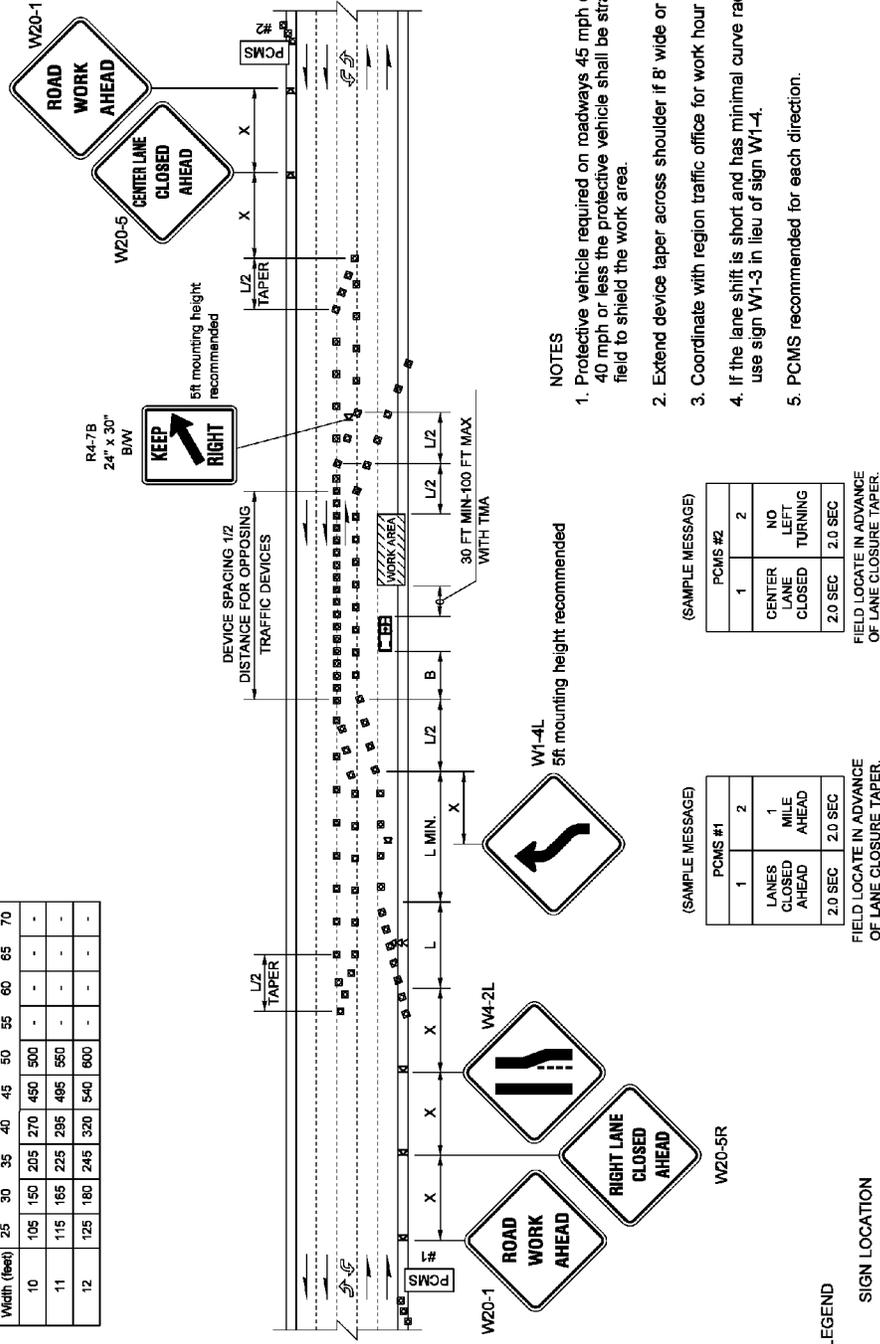
CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50	40	80
35 / 45	30	60
25 / 30	20	40

SIGN SPACING = X (FEET)			
RURAL ROADS	45 / 55 MPH	500±	
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350±	
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200±	

ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

MINIMUM TAPER LENGTH = L (feet)									
Lane Width (feet)	Posted Speed (mph)								
25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	-	-	-
11	115	165	225	295	495	550	-	-	-
12	125	180	245	320	540	600	-	-	-

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.



- NOTES**
- Protective vehicle required on roadways 45 mph or higher. On roadways 40 mph or less the protective vehicle shall be strategically located in the field to shield the work area.
 - Extend device taper across shoulder if 8' wide or more.
 - Coordinate with region traffic office for work hour restrictions.
 - If the lane shift is short and has minimal curve radius (30 mph or less) use sign W1-3 in lieu of sign W1-4.
 - PCMS recommended for each direction.

(SAMPLE MESSAGE)

PCMS #2	
1	CENTER LANE CLOSED
2	NO LEFT TURNING
2.0 SEC	2.0 SEC

FIELD LOCATE IN ADVANCE OF LANE CLOSURE TAPER.

(SAMPLE MESSAGE)

PCMS #1	
1	LANES CLOSED AHEAD
2	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE IN ADVANCE OF LANE CLOSURE TAPER.

- LEGEND**
- M SIGN LOCATION
 - >>> ARROW BOARD
 - CHANNELIZING DEVICES
 - PROTECTIVE VEHICLE - RECOMMENDED
 - PORTABLE CHANGEABLE MESSAGE SIGN

TYPICAL RIGHT LANE CLOSURE WITH SHIFT - 5 LANE ROADWAY
TCP 10

TCP 10 Typical Right Lane Closure With Shift – 5 Lane Roadway

Lane Width (feet)	MINIMUM TAPER LENGTH = L (feet)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	-	-	-	-
11	115	185	225	295	495	550	-	-	-	-
12	125	180	245	320	540	600	-	-	-	-

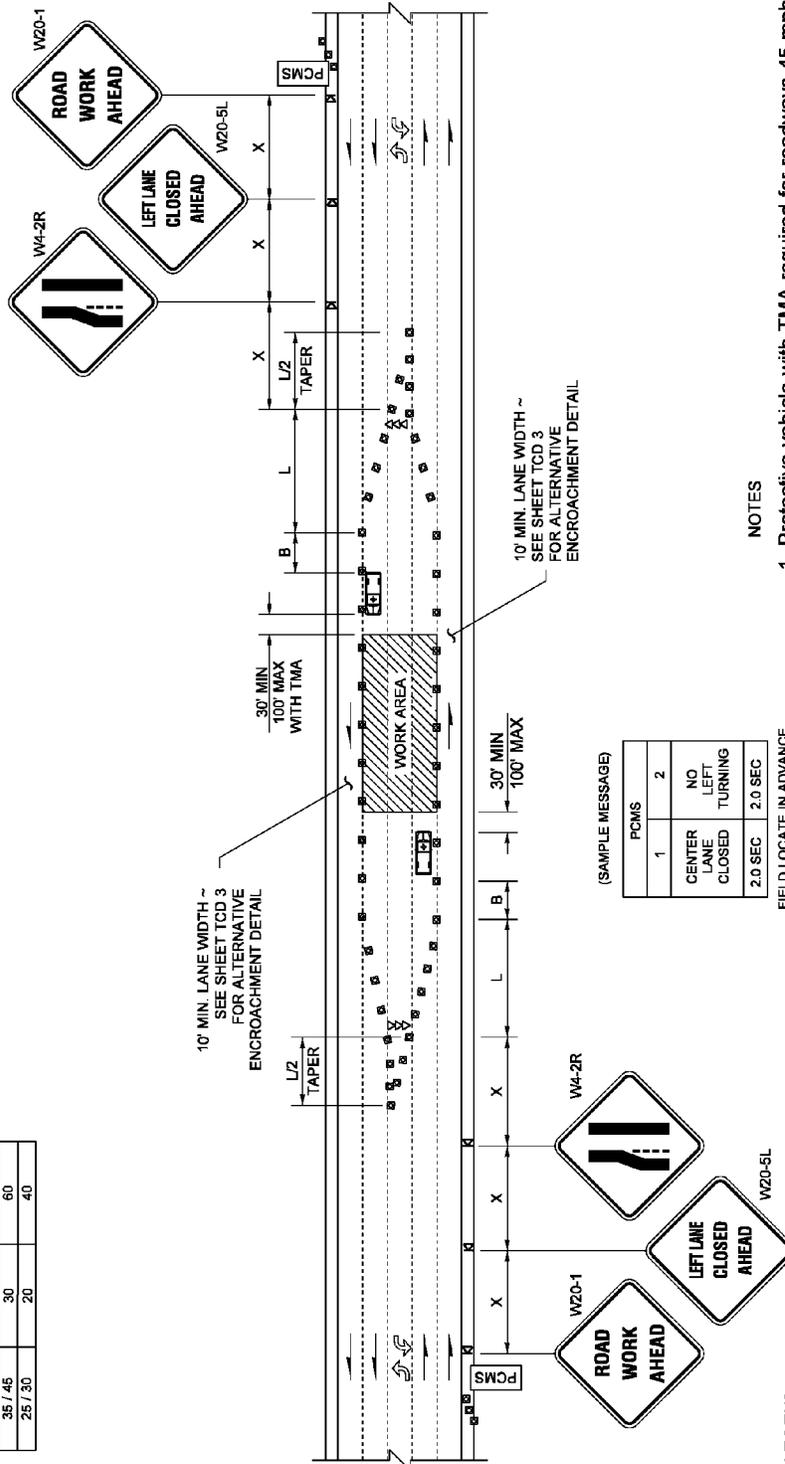
SIGN SPACING = X (FEET)		
RURAL ROADS	45 / 55 MPH	500±
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200±

ALL SIGNS ARE 48" x 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

BUFFER DATA										
LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50	40	80
35 / 45	30	60
25 / 30	20	40

All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.



NOTES

1. Protective vehicle with TMA required for roadways 45 mph or higher. For roads 40 MPH or less - shall be a work vehicle strategically located to shield work area.
2. Coordinate with the region traffic office for work hour restrictions.
3. PCMS recommended.

TYPICAL LEFT LANE AND CENTER TURN LANE CLOSURE - 5 LANE ROADWAY
TCP 11

TCP 11 Typical Left Lane and Center Turn Lane Closure – 5 Lane Roadway

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B	
SPEED (MPH)	25 30 35 40 45 50 55 60 65 70
LENGTH (feet)	155 200 250 305 380 425 485 570 - -

MINIMUM TAPER LENGTH = L (feet)

Lane Width (feet)	Posted Speed (mph)										
	25	30	35	40	45	50	55	60	65	70	
-10	105	150	205	270	450	500	550	-	-	-	
-11	115	165	225	285	485	530	605	660	-	-	
-12	125	180	245	320	540	600	680	720	-	-	

SIGN SPACING = X (FEET) (1)

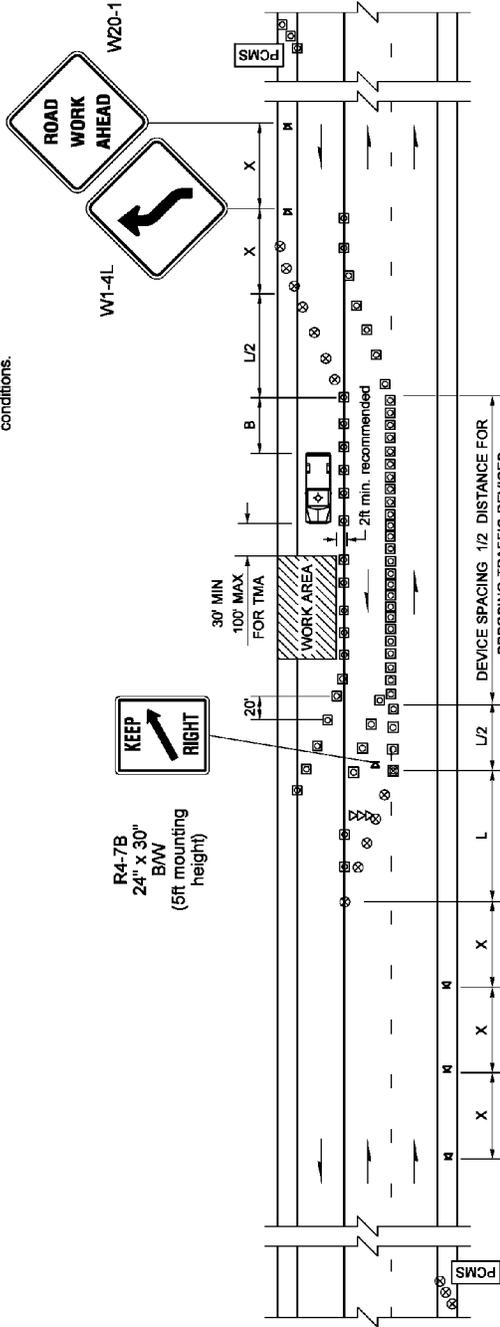
RURAL HIGHWAYS	60/65 MPH	800±
RURAL ROADS	45/55 MPH	500±
RURAL ROADS & URBAN ARTERIALS	35/40 MPH	350±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200± (2)
URBAN STREETS	25 MPH OR LESS	100± (2)

ALL SIGNS ARE 48" X 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

CHANNELIZING DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50/60	40	60
35/45	30	60
25/30	20	40

- (1) All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.
- (2) This spacing may be reduced in urban areas to fit roadway conditions.



LEGEND

- SIGN LOCATION
- ARROW BOARD
- TRAFFIC SAFETY DRUMS
- CHANNELIZING DEVICES
- PROTECTIVE VEHICLE ~ RECOMMENDED
- PORTABLE CHANGEABLE MESSAGE SIGN - RECOMMENDED
- PCMS

NOTES

- For long term projects, conflicting pavement markings no longer applicable must be removed or obliterated as soon as practicable. Temporary markings shall be used as necessary and signs shall be post mounted.
- For speed limits of 30 mph or less, use sign W1-3 in lieu of sign W1-4.
- Extend device taper across shoulder when 8ft or wider.
- PCMS recommended.
- Traffic safety drums required in lane closure tapers on roadways 45 mph or higher.
- Protective vehicle required on roadways 45 mph or higher ~ may be a work vehicle placed strategically to shield work area.

(SAMPLE MESSAGE)

PCMS	
1	2
LANE CLOSED AHEAD	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE ± IN ADVANCE OF LANE CLOSURE TAPER.

TYPICAL LANE SHIFT - THREE LANE ROADWAY
TCP 12

MINIMUM TAPER LENGTH = L (feet)

Lane Width (feet)	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	-	-	-
11	115	165	225	285	485	550	605	660	-	-
12	125	180	245	320	540	600	660	720	780	840

CHANNELIZING DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50 / 60	40	60
35 / 45	30	60
25 / 30	20	40

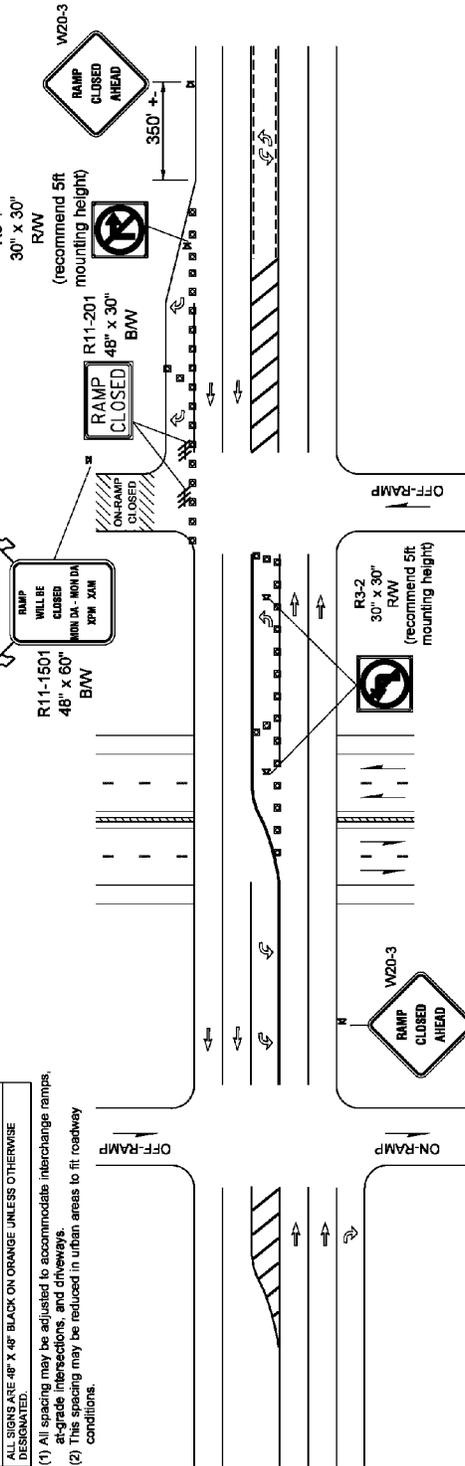
SIGN SPACING = X (FEET) (1)

FREeways & EXPRESSWAYS	5070 MPH	1002x
RURAL HIGHWAYS	6065 MPH	800x
RURAL ROADS	4565 MPH	500x
RURAL ROADS & URBAN ARTERIALS	3540 MPH	350x
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	2590 MPH	200x (2)
URBAN STREETS	25 MPH OR LESS	100x (2)

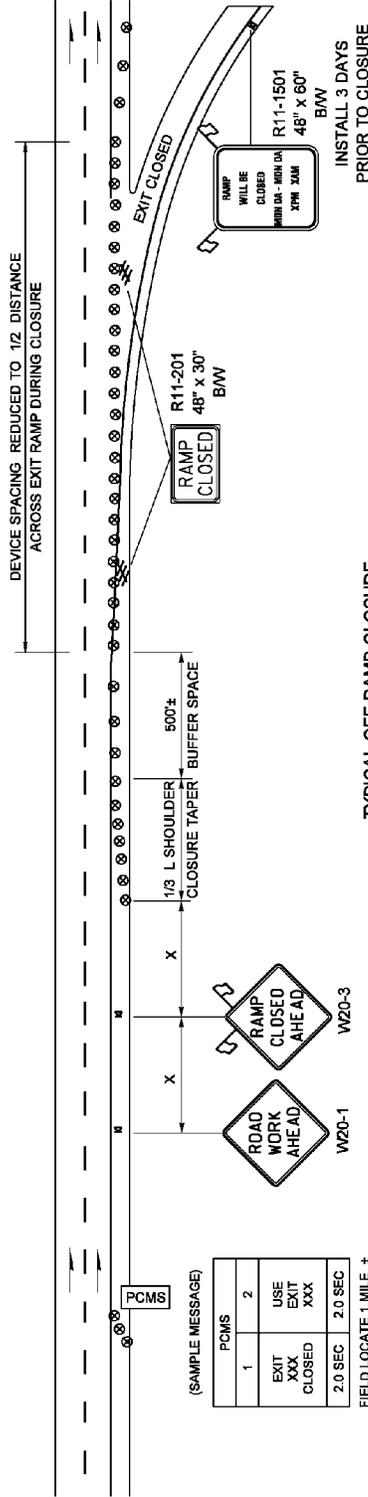
ALL SIGNS ARE 48" X 48" BLACK ON ORANGE UNLESS OTHERWISE DESIGNATED.

(1) All spacing may be adjusted to accommodate interchange ramps, at-grade interchanges, and driveways.
 (2) This spacing may be reduced in urban areas to fit roadway conditions.

INSTALL 3 DAYS PRIOR TO CLOSURE



TYPICAL ON-RAMP CLOSURE



TYPICAL OFF-RAMP CLOSURE

INSTALL 3 DAYS PRIOR TO CLOSURE

NOTES

- Coordinate with region traffic office for work hour restrictions.
- Typical application shown, adjust for specific location.

LEGEND

- TEMPORARY SIGN LOCATION
- CHANNELIZING DEVICES
- TRAFFIC SAFETY DRUM
- WARNING FLAG - FLUORESCENT RED/ORANGE
- PORTABLE CHANGEABLE MESSAGE SIGN
- TYPE 3 BARRICADE

TYPICAL SHORT TERM RAMP CLOSURES

TCP 13

TCP 13 Typical Short-Term Ramp Closure (On-Ramp and Off-Ramp)

