

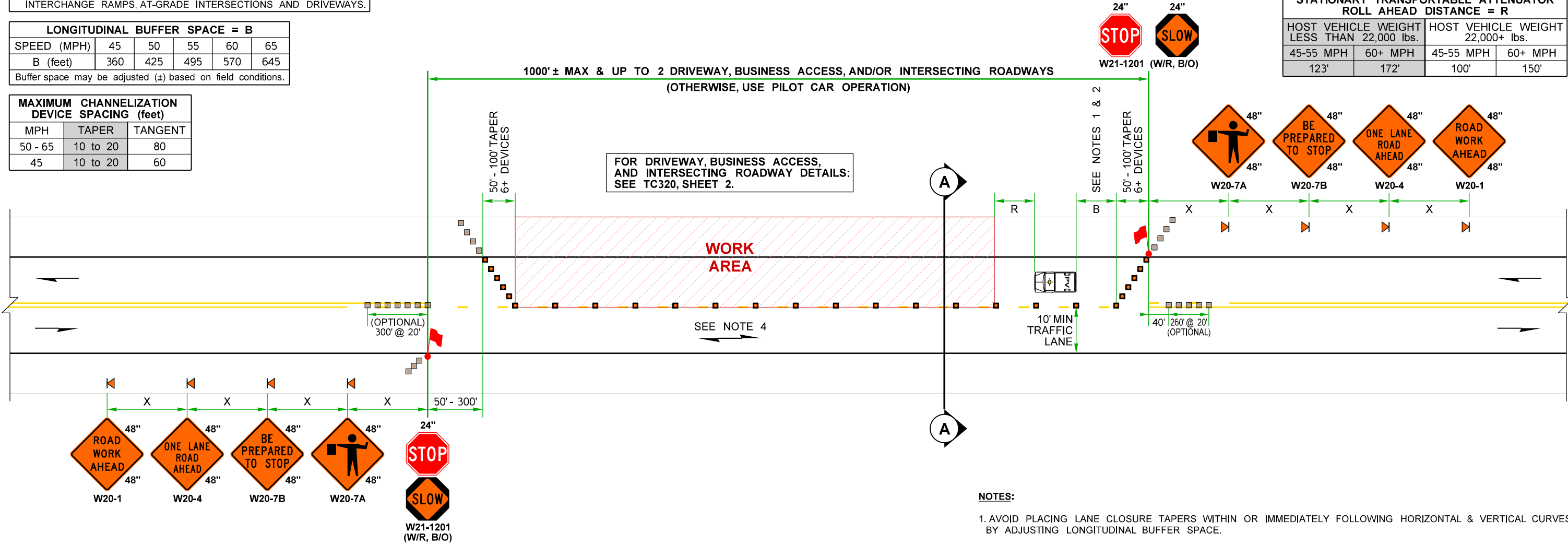
RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800' ±
RURAL ROADS	45-55 MPH	500' ±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	45	50	55	60	65
B (feet)	360	425	495	570	645
Buffer space may be adjusted (±) based on field conditions.					

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 65	10 to 20	80
45	10 to 20	60

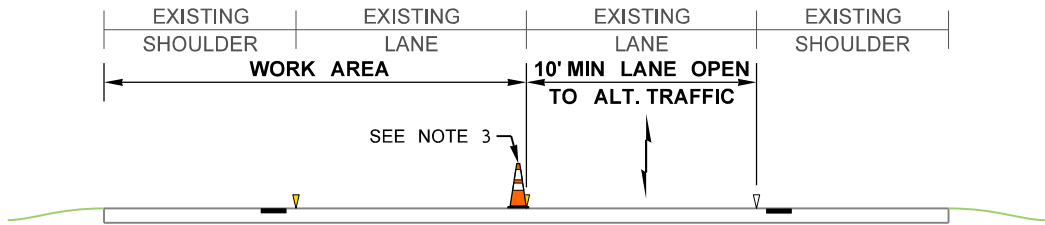
PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R	
STRATEGICALLY POSITION WORK VEHICLE TO PROTECT WORK CREW. 40' - 80' RECOMMENDED.	

STATIONARY TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R			
HOST VEHICLE WEIGHT LESS THAN 22,000 lbs.		HOST VEHICLE WEIGHT 22,000+ lbs.	
45-55 MPH	60+ MPH	45-55 MPH	60+ MPH
123'	172'	100'	150'




LEGEND:	
	TEMPORARY SIGN LOCATION
	28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
	OPTIONAL CHANNELIZATION DEVICE
	PROTECTIVE VEHICLE (SEE NOTE 2)
	FLAGGER

- NOTES:**
- AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
 - IF LONGITUDINAL BUFFER SPACE REDUCED FROM DISTANCES LISTED IN TABLE, UPGRADE PROTECTIVE VEHICLE (PV) TO A TRANSPORTABLE ATTENUATOR (TA). ADDITIONAL PVTAs MAY BE ADDED AT SEPARATE WORK CREWS.
 - MAY SHIFT LATERALLY. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
 - PEDESTRIAN & BICYCLIST ACCOMMODATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES):
(A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
(B) COMBINE BIKES & VEHICULAR TRAFFIC. BIKES TO CLEAR PRIOR TO RELEASING ONCOMING TRAFFIC
(C) PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS MAY BE USED)
 - SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
1-07.8(1) HIGH-VISIBILITY APPAREL
1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION
1-10.3(2)A TRAFFIC CONTROL PROCEDURES
9-35.1 24-INCH STOP/SLOW PADDLE SIZE
 - FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
 - SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
 - EXISTING PAVEMENT MARKINGS MAY VARY.



SECTION A-A

ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED
(45+ MPH HIGHWAYS)
NOT TO SCALE

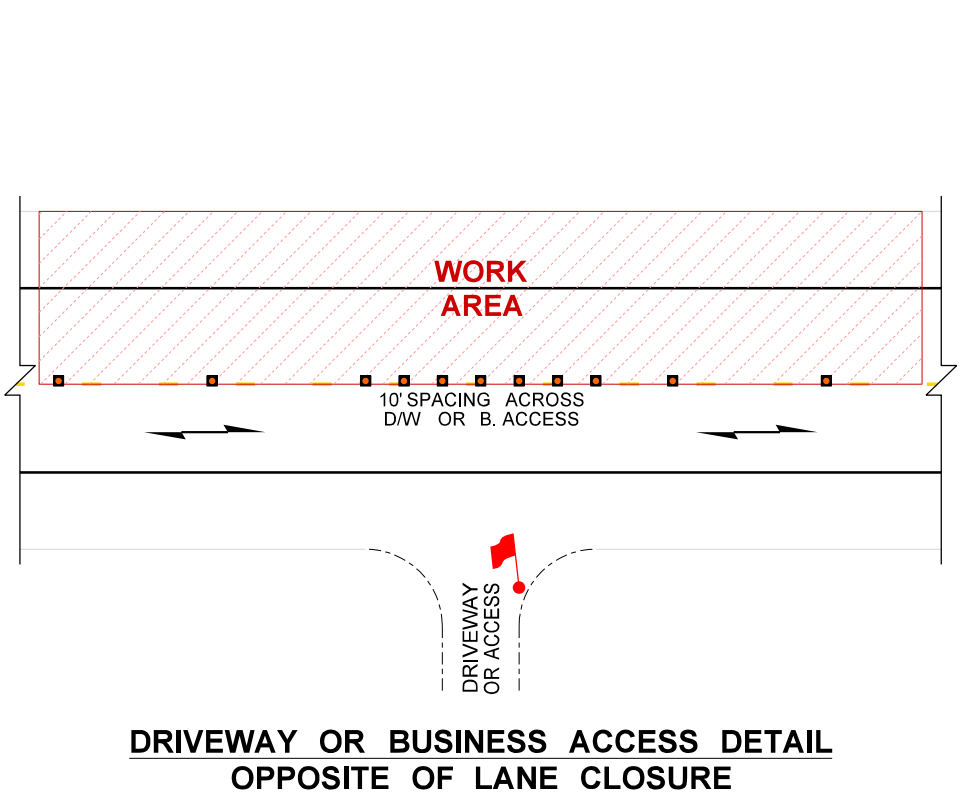
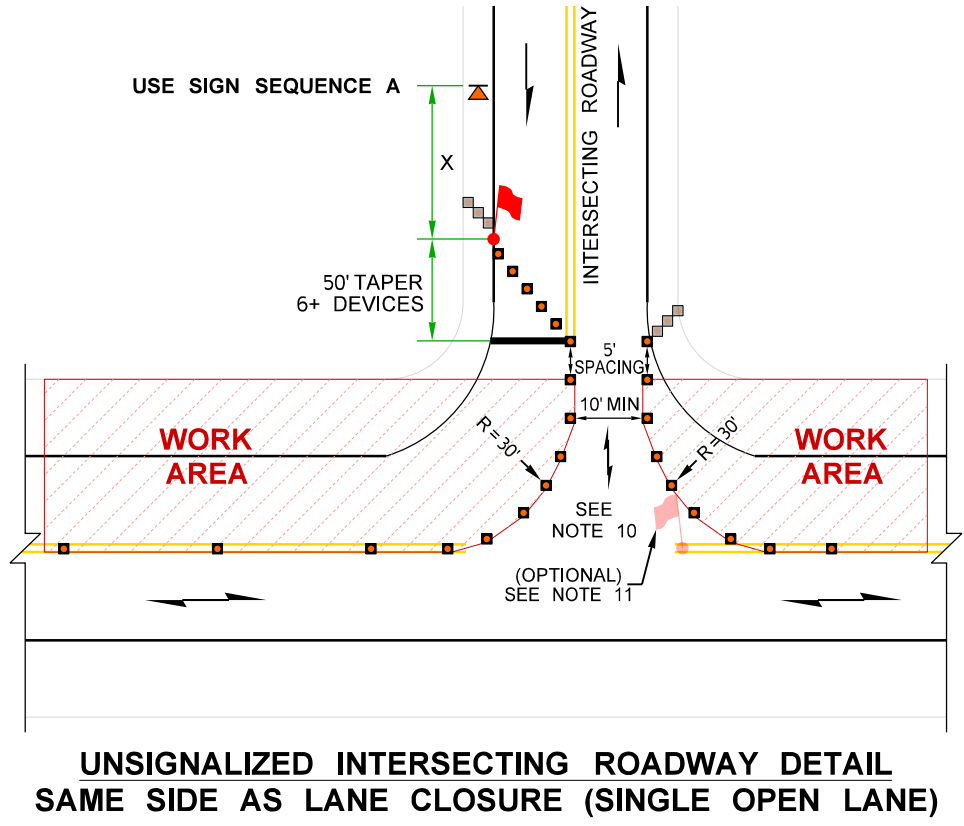
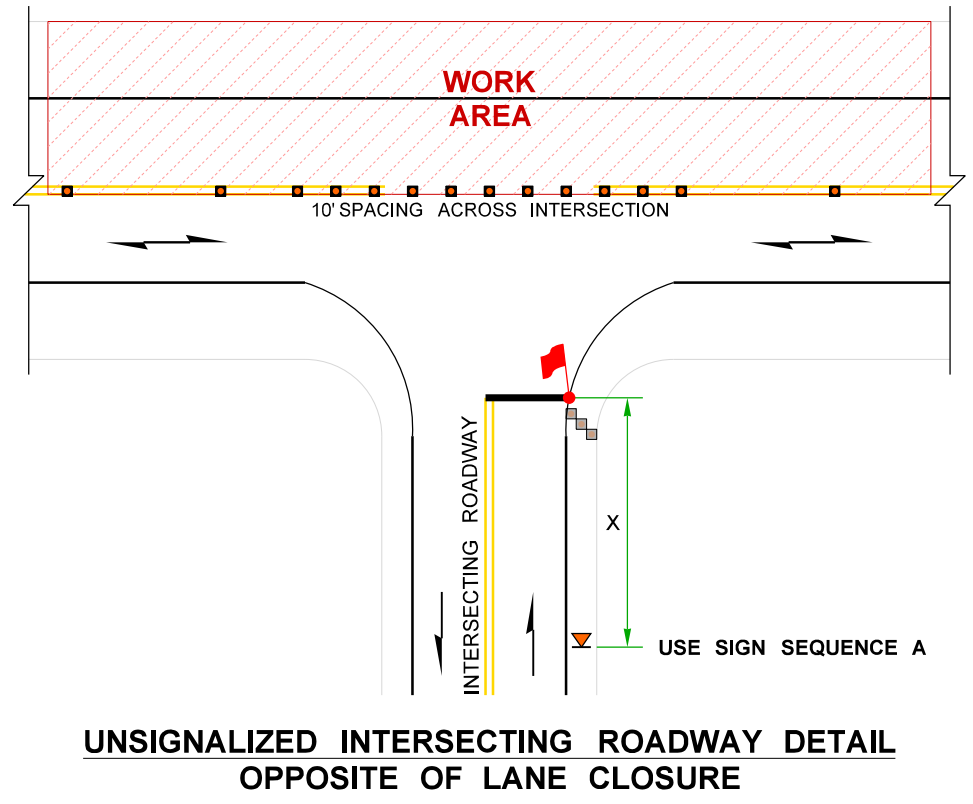
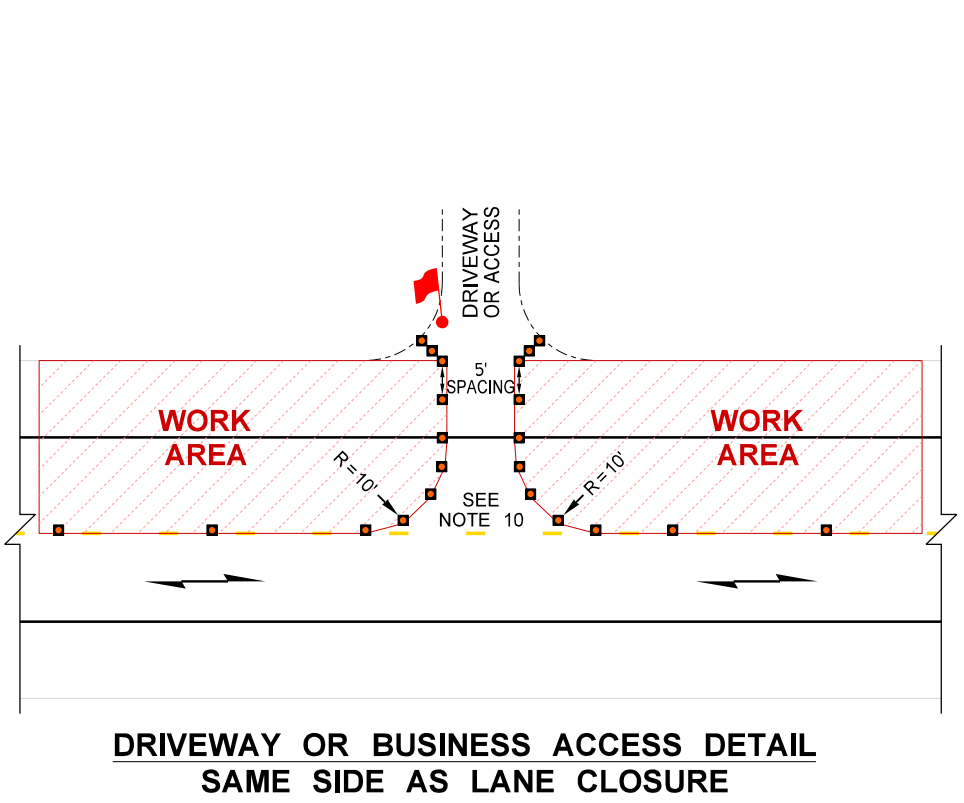
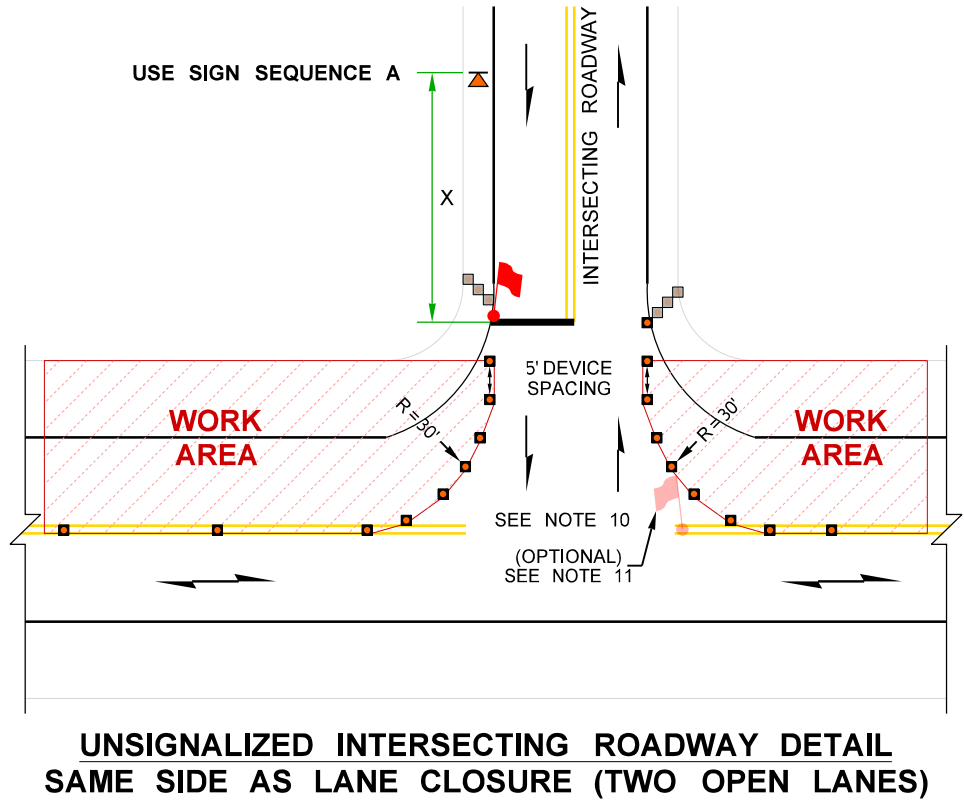
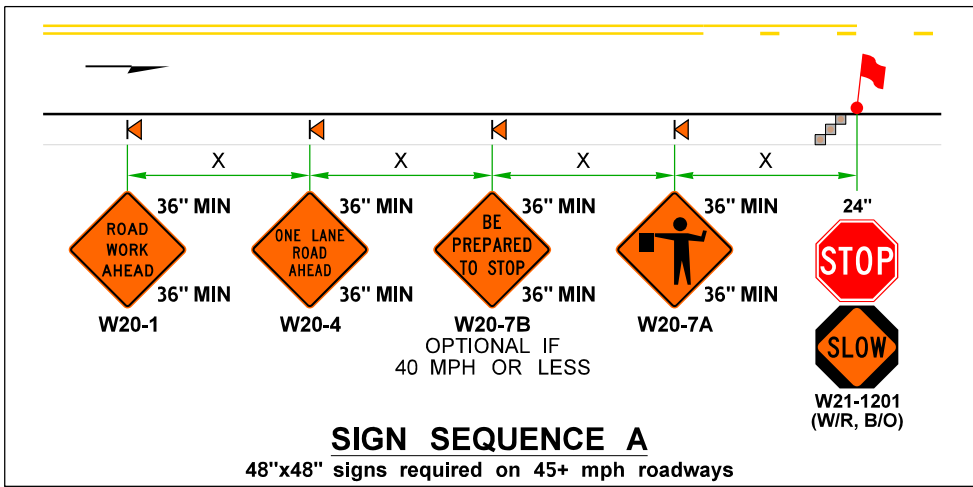
FILE NAME C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\320Hwy45+AltTrafficFlagger.dgn														 Washington State Department of Transportation		Plot 1	
TIME 6:56:01 AM								REGION NO. STATE		FED.AID PROJ.NO.		PLAN REF NO					
DATE 7/18/2023								10 WASH				TC320					
PLOTTED BY LintzF								JOB NUMBER									
DESIGNED BY								CONTRACT NO.		LOCATION NO.				TYPICAL TRAFFIC CONTROL PLANS		SHEET 1 OF 4 SHEETS	
ENTERED BY																	
CHECKED BY																	
PROJ. ENGR.																	
REGIONAL ADM.		REVISION		DATE		BY						DATE		P.E. STAMP BOX			

NOTES:

9. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC320, SHEET 1.

10. WORK MAY BRIEFLY OCCUR WITHIN LANE CLOSURE ACROSS INTERSECTING ROADWAY APPROACHES, BUSINESS ACCESSES, OR DRIVEWAYS. **MAY HOLD APPROACH OR ACCESS TRAFFIC FOR 5 MINUTES OR LESS** (ENGINEER MAY ACCEPT HOLDS UP TO 10 MINUTES) WHILE RESTRICTING TURNS FROM MAINLINE. CHANNELIZATION DEVICES DELINEATING APPROACH OR ACCESS MAY BE REMOVED OR RELOCATED AS NEEDED.

11. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.



ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (45+ MPH HIGHWAYS)
NOT TO SCALE

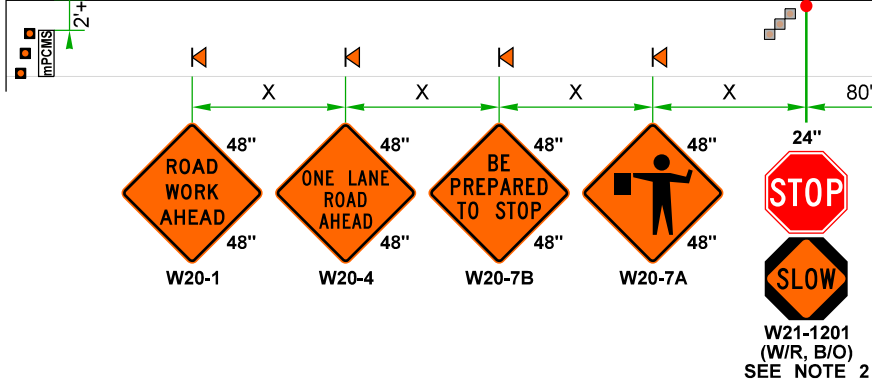
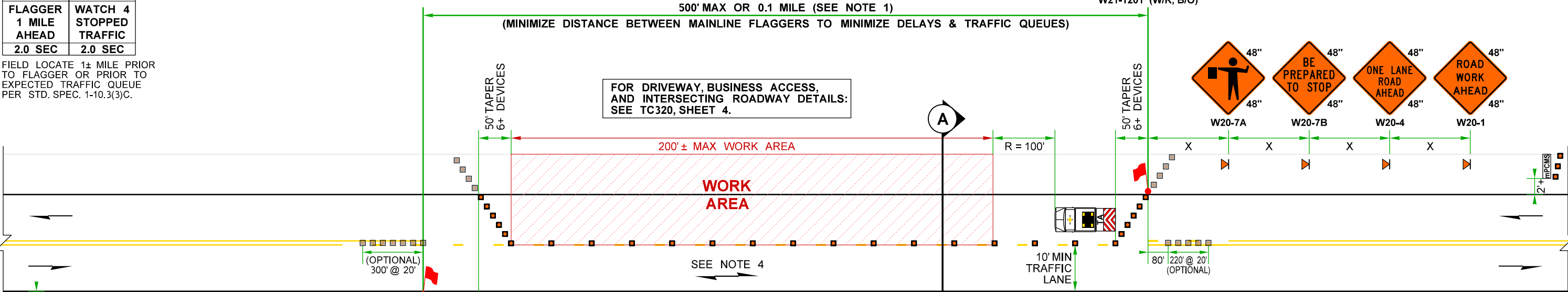
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DATE	7/18/2023							TC320
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DESIGNED BY								
ENTERED BY								
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.								
	REVISION	DATE	BY	CONTRACT NO.	LOCATION NO.	P.E. STAMP BOX	DATE	SHEET 2 OF 4 SHEETS
								TYPICAL TRAFFIC CONTROL PLANS

RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800' ±
RURAL ROADS	45-55 MPH	500' ±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

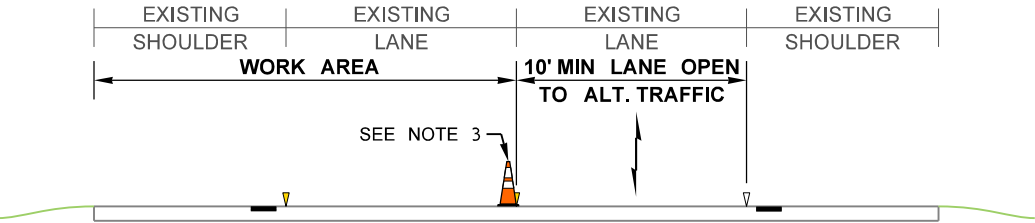
MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 65	10	80
45	10	60

mPCMS	
1	2
FLAGGER 1 MILE AHEAD 2.0 SEC	WATCH 4 STOPPED TRAFFIC 2.0 SEC

FIELD LOCATE 1± MILE PRIOR TO FLAGGER OR PRIOR TO EXPECTED TRAFFIC QUEUE PER STD. SPEC. 1-10.3(3)C.



LEGEND:	
	TEMPORARY SIGN LOCATION
	28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
	OPTIONAL CHANNELIZATION DEVICE
	TRANSPORTABLE ATTENUATOR (TL-3)
	FLAGGER
	mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 8)



- NOTES:
- DISTANCE GREATER THAN 500' BETWEEN MAINLINE FLAGGERS REQUIRES ACCEPTANCE FROM REGION TRANSPORTATION OPERATIONS. THIS ENHANCED PLAN IS APPLICABLE TO HIGH VOLUME HIGHWAYS WITH 800+ VEHICLES/HOUR IN ALL DIRECTIONS. WORK AREA LENGTH ADJUSTS ACCORDINGLY.
 - FLAGGERS' GOAL IS TO MAXIMIZE TRAFFIC CAPACITY BY MINIMIZING TRAFFIC GAPS & LOST TIME. STRATEGIES:
(A) WAVE SLOWER DRIVERS THRU TO "CLOSE THE GAP"
(B) DON'T WAIT FOR APPROACHING TRAFFIC AFTER QUEUE RELEASED. LET THEM WAIT FOR THE NEXT TURN
(C) EFFECTIVELY USE 2-WAY RADIOS TO MINIMIZE LOST TIME WHEN CHANGING TRAFFIC RELEASE DIRECTIONS
 - MAY SHIFT LATERALLY. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
 - PEDESTRIAN & BICYCLIST ACCOMMODATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES):
(A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
(B) COMBINE BIKES & VEHICULAR TRAFFIC. BIKES TO CLEAR PRIOR TO RELEASING ONCOMING TRAFFIC
(C) PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS MAY BE USED)
 - SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
1-07.8(1) HIGH-VISIBILITY APPAREL
1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION
1-10.3(2)A TRAFFIC CONTROL PROCEDURES
9-35.1 24-INCH STOP/SLOW PADDLE SIZE
 - FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
 - SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
 - FULL-SIZE PCMS (11'x 6'DISPLAY) MAY BE USED IN LIEU OF mPCMSs. PCMS MESSAGES MAY BE MODIFIED.
 - EXISTING PAVEMENT MARKINGS MAY VARY.

ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (HIGH VOLUME 45+ MPH HIGHWAYS)

NOT TO SCALE

FILE NAME	C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\320Hwy45+AltTrafficFlagger.dgn	REGION NO.		STATE	FED.AID PROJ.NO.		Plot 3	
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DATE	7/18/2023						TC320	
PLOTTED BY	LintzF							
DESIGNED BY								
ENTERED BY								
CHECKED BY								
PROJ. ENGR.								
REGIONAL ADM.								
REVISION		DATE		BY	LOCATION NO.		SHEET 3 OF 4 SHEETS	
							TYPICAL TRAFFIC CONTROL PLANS	

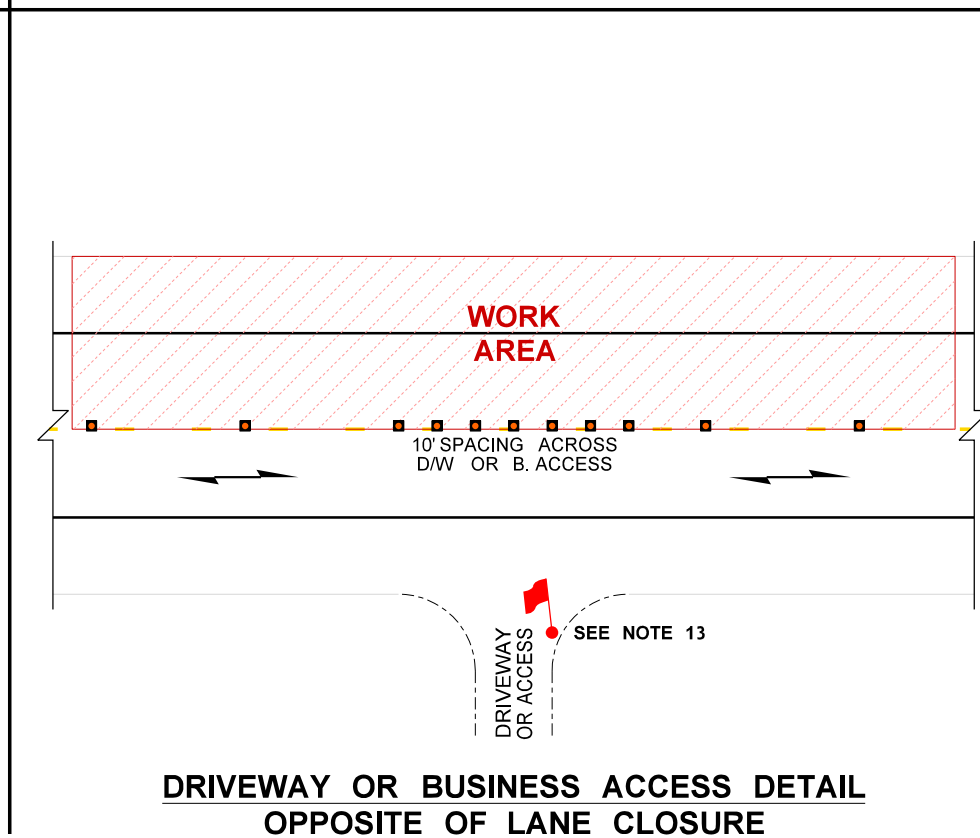
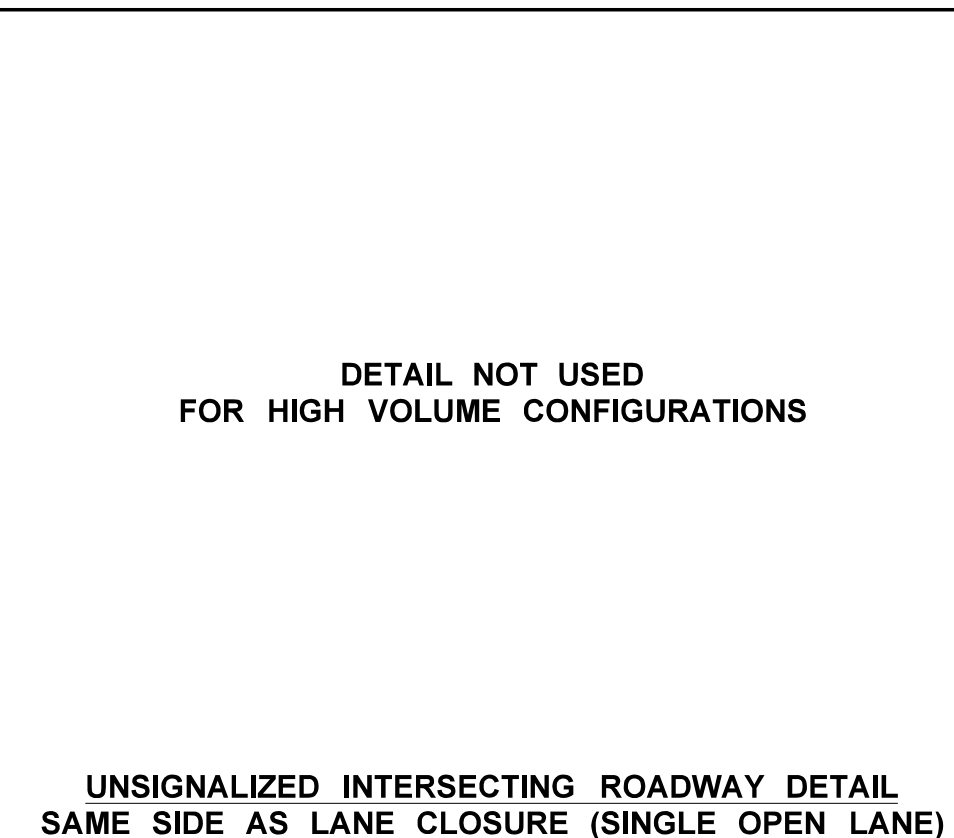
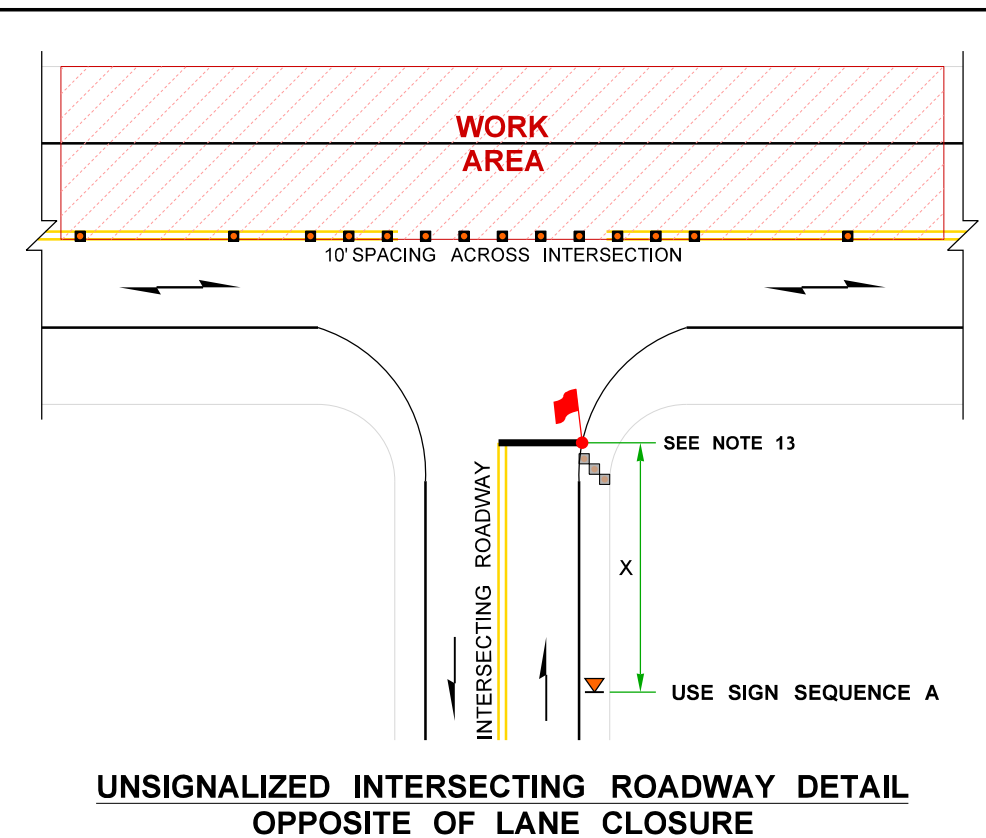
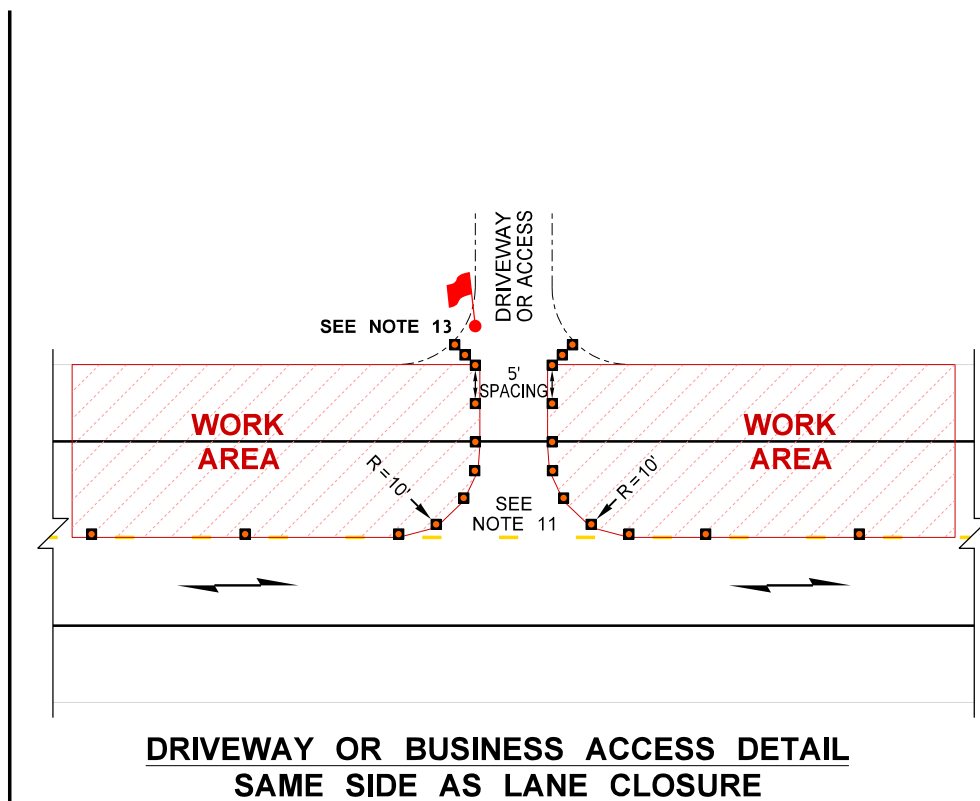
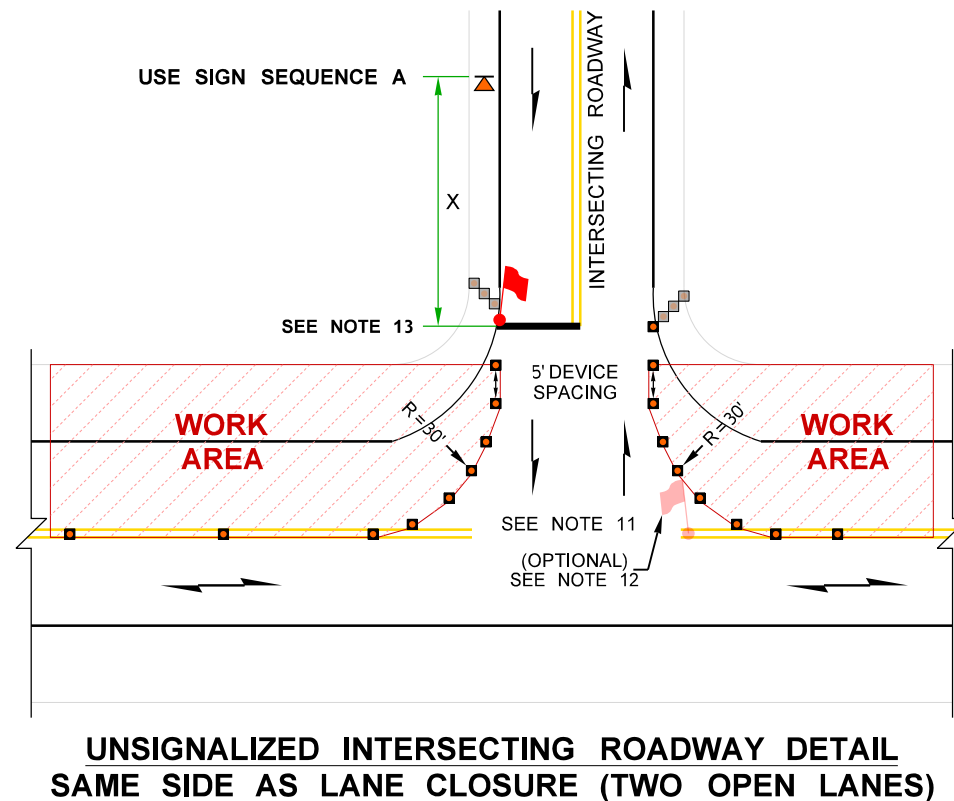
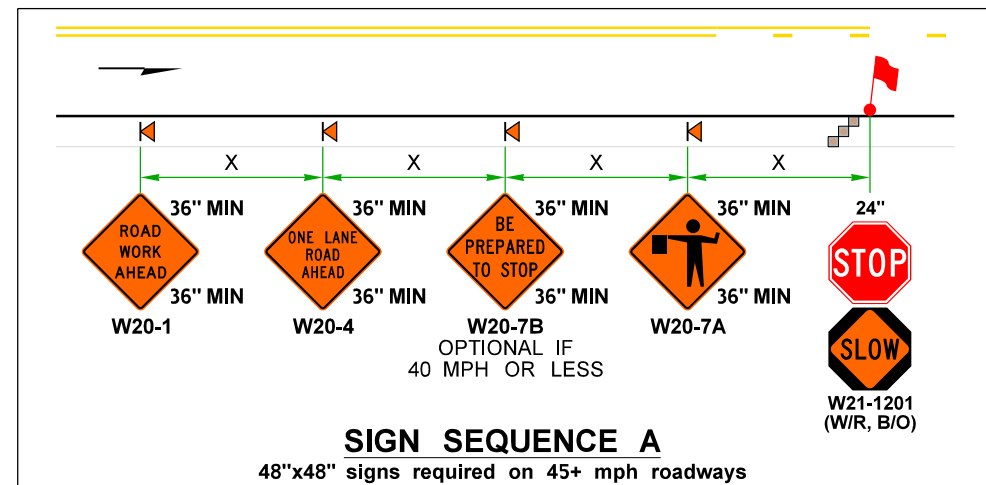
10. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC320, SHEET 3.

12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

SIGN SEQUENCE A
 48"x48" signs required on 45+ mph roadways


12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

13. FLAGGERS MAY COLLABORATE TO RELEASE APPROACH/ACCESS AND MAINLINE TRAFFIC TRAVELING IN THE SAME DIRECTION CONCURRENTLY.



ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (HIGH VOLUME 45+ MPH HIGHWAYS)

NOT TO SCALE

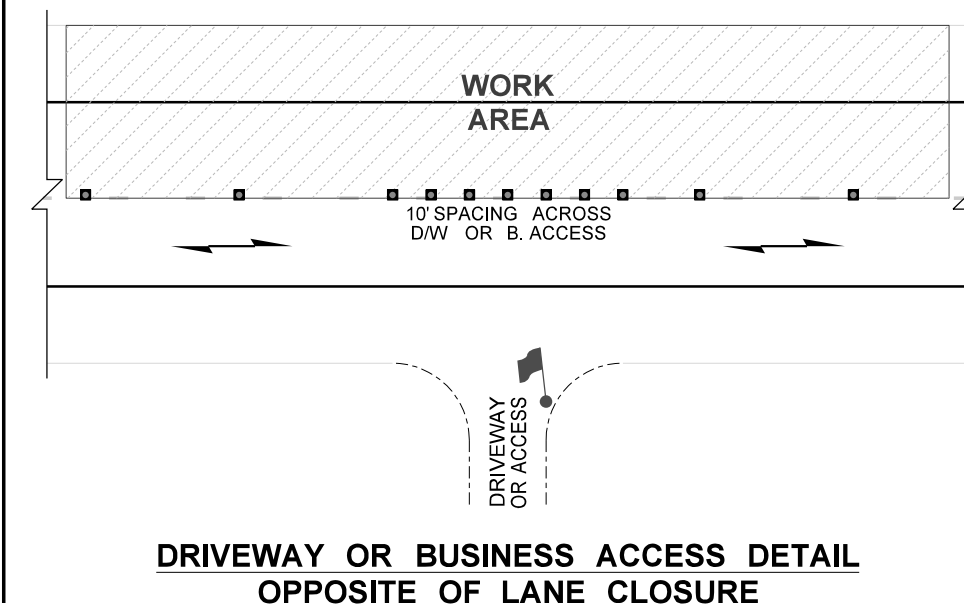
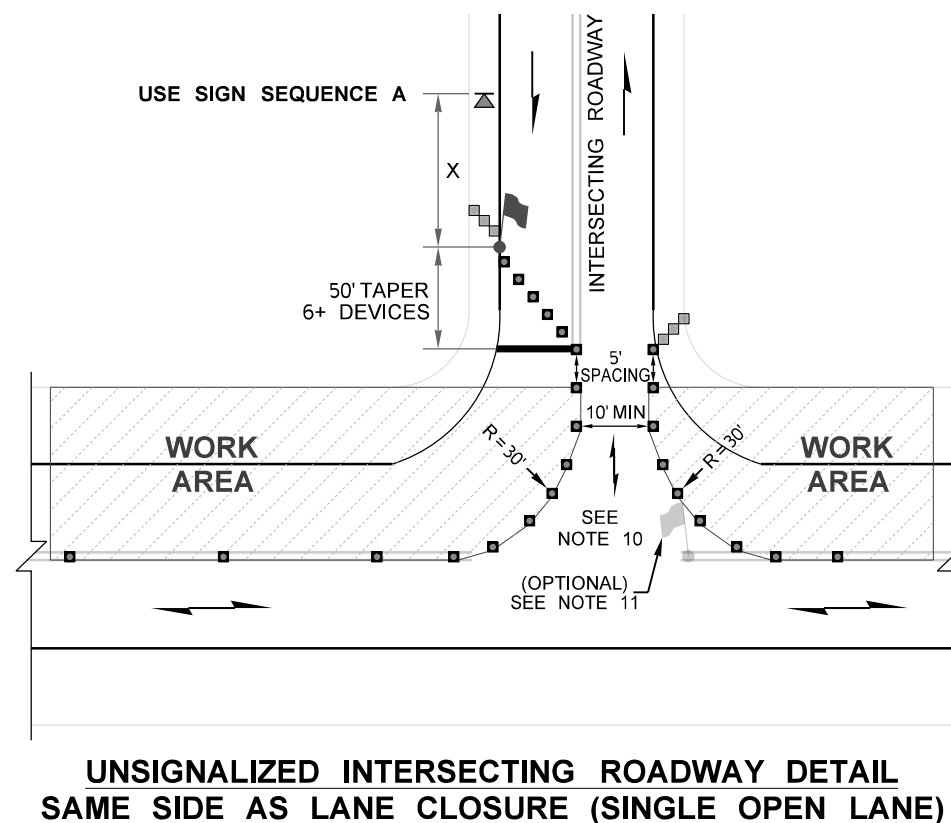
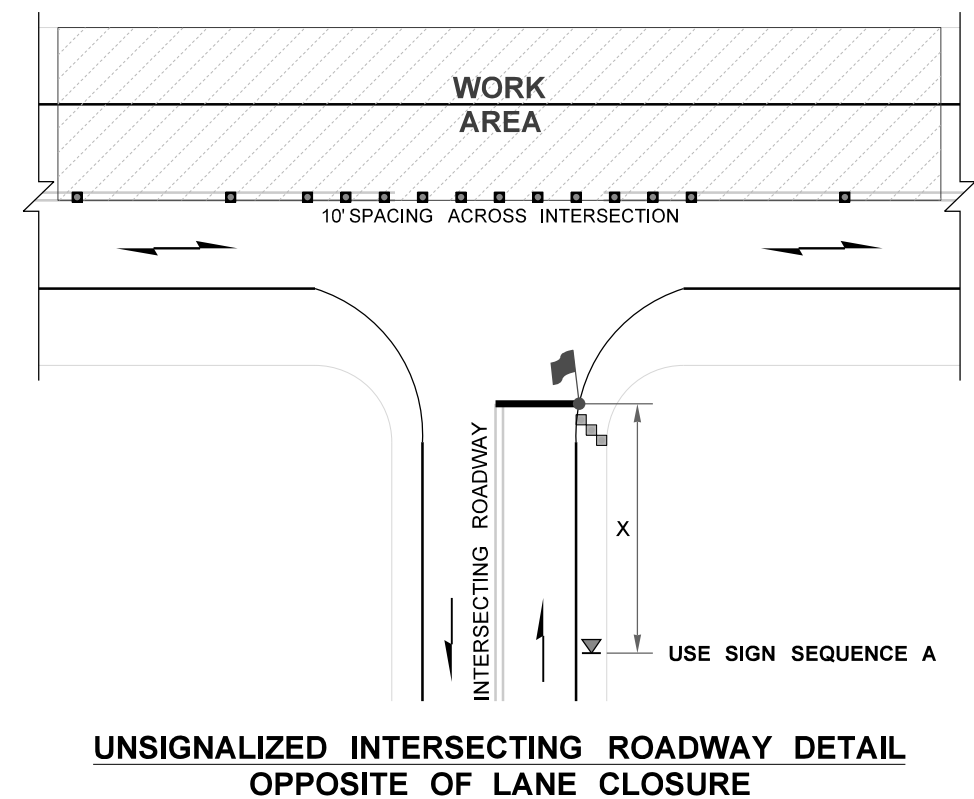
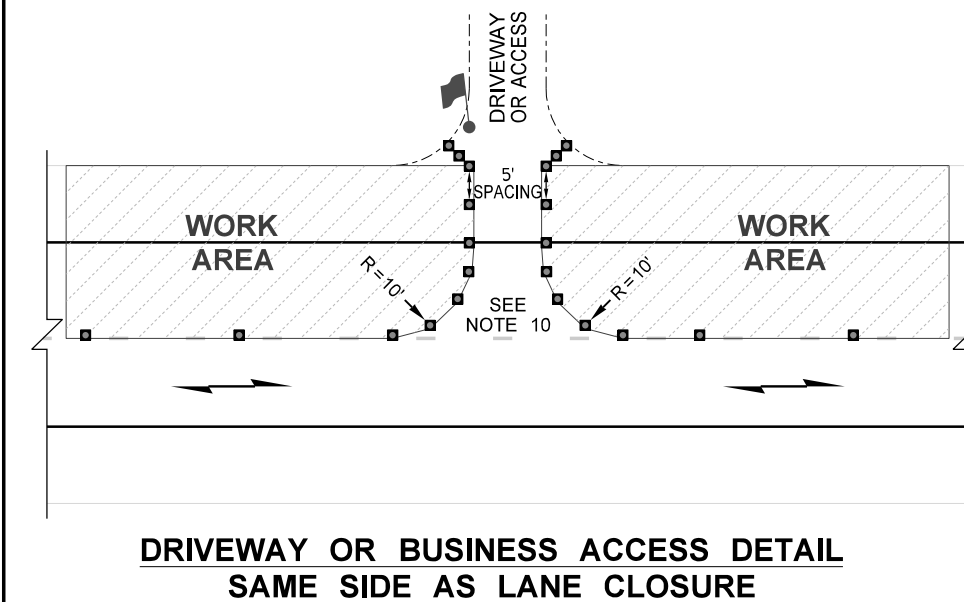
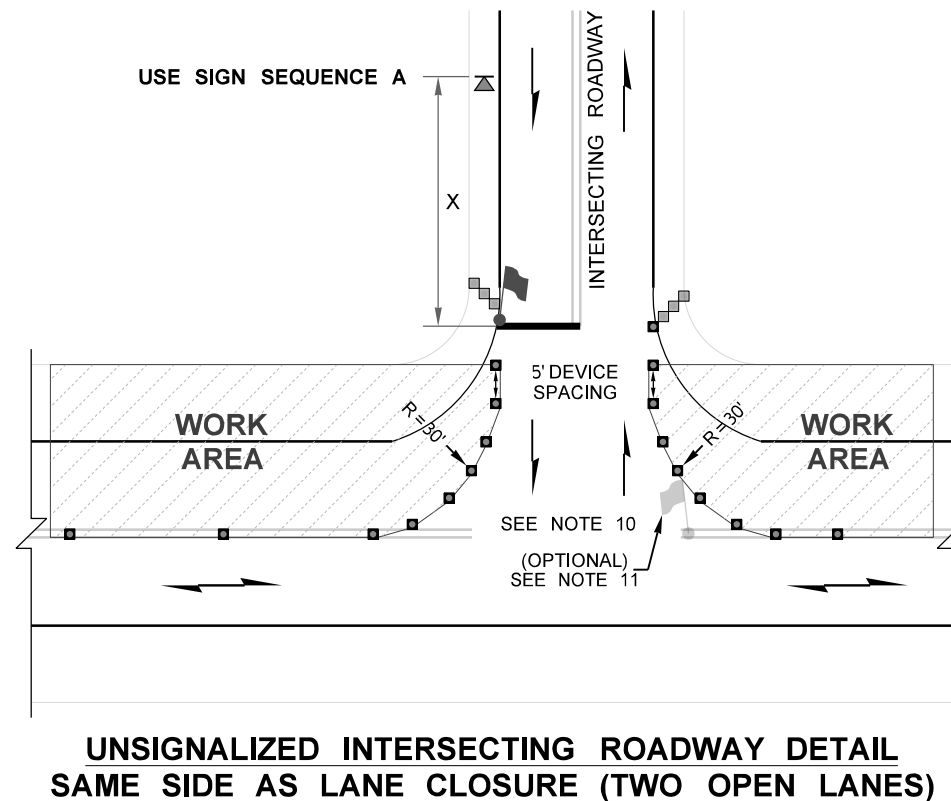
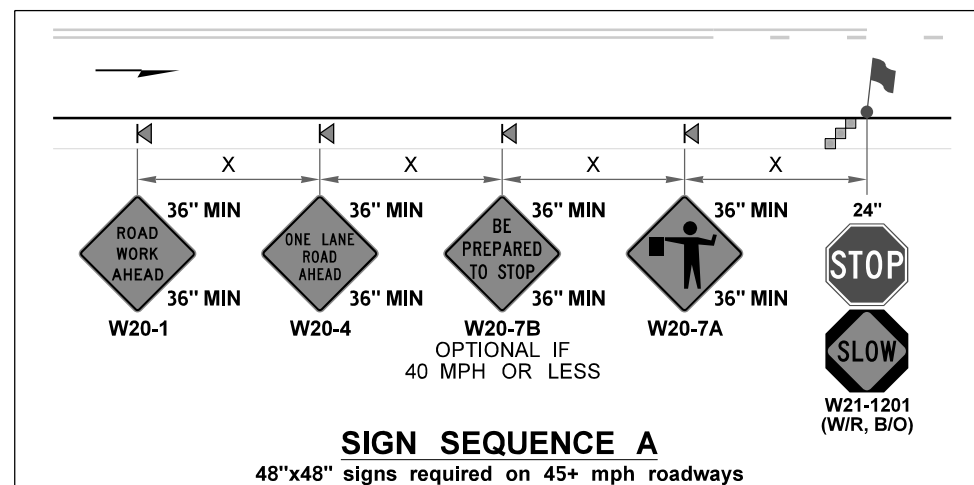
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DATE	7/18/2023				10	WASH						TC320	
PLOTTED BY	LintzF				JOB NUMBER			CONTRACT NO.	LOCATION NO.			SHEET 4 OF 4 SHEETS	
DESIGNED BY													
ENTERED BY													
CHECKED BY													
PROJ. ENGR.													
REGIONAL ADM.		REVISION	DATE	BY				P.E. STAMP BOX _____ DATE _____		P.E. STAMP BOX _____ DATE _____		TYPICAL TRAFFIC CONTROL PLANS	

9. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC320, SHEET 1.

11. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

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ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (45+ MPH HIGHWAYS)

NOT TO SCALE

[illegible]

10. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC320, SHEET 3.

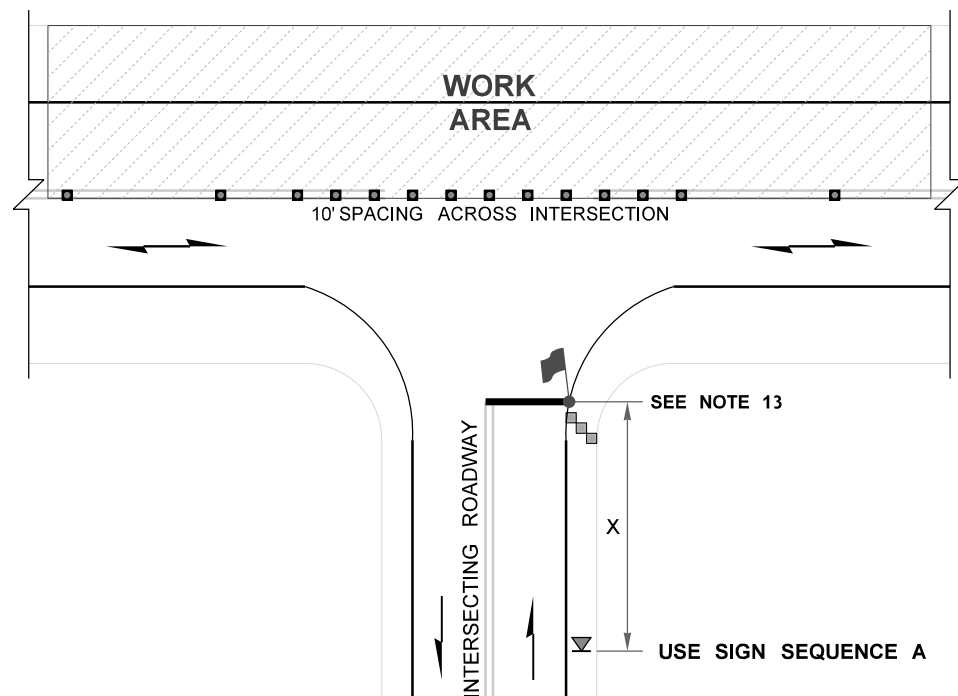
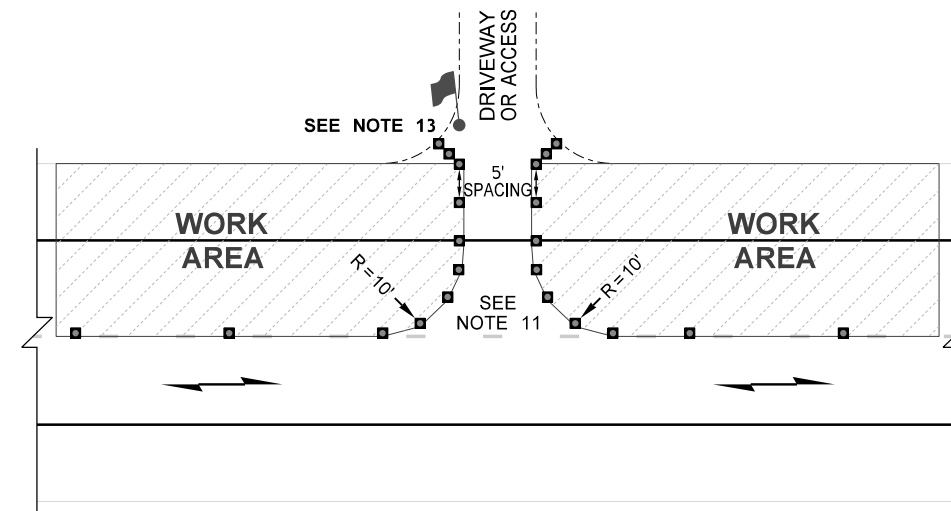
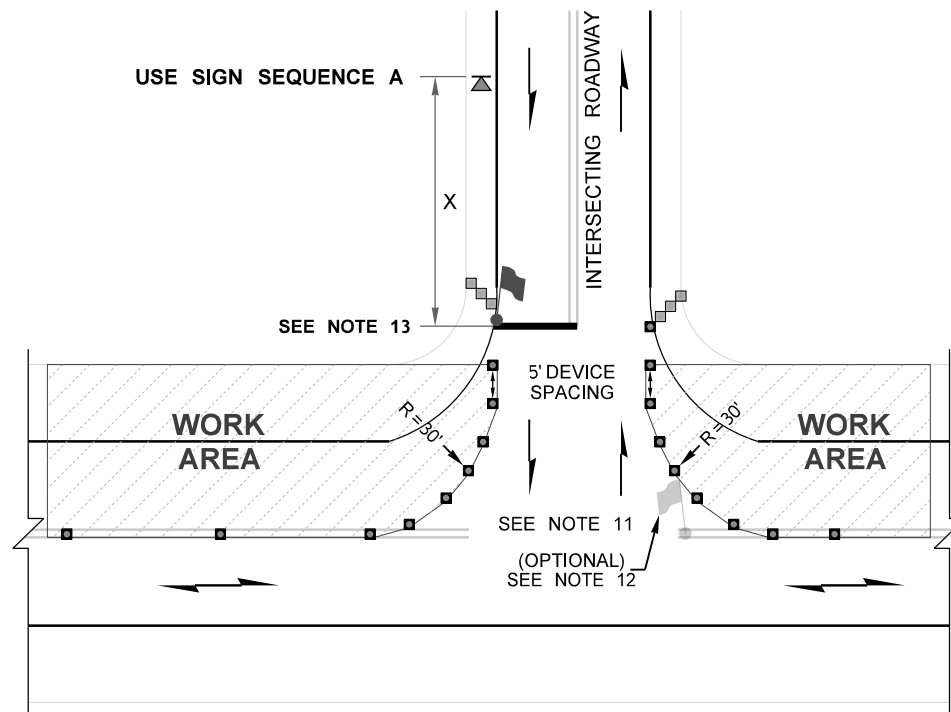
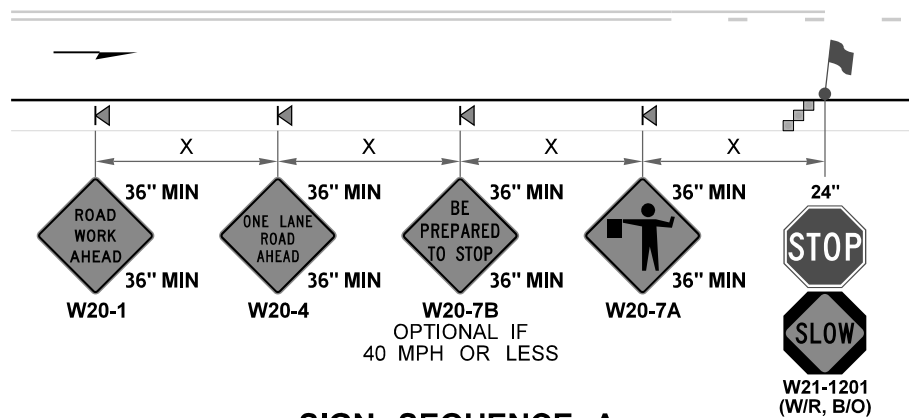
12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

SIGN SEQUENCE A

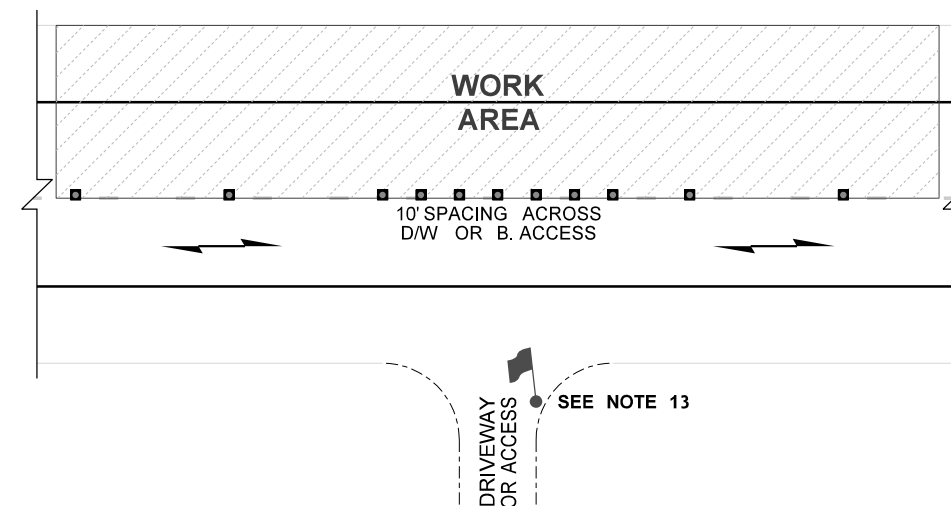
48"x48" signs required on 45+ mph roadways

12. SINGLE FLAGGER (WITH RED FLAG/RED GLOW CONE FLASHLIGHT) MAY BE ADDED TO THE INTERSECTING ROADWAY APPROACH TO HELP GUIDE ALTERNATING & TURNING TRAFFIC.

13. FLAGGERS MAY COLLABORATE TO RELEASE APPROACH/ACCESS AND MAINLINE TRAFFIC TRAVELING IN THE SAME DIRECTION CONCURRENTLY.




**DETAIL NOT USED
FOR HIGH VOLUME CONFIGURATIONS**



ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (HIGH VOLUME 45+ MPH HIGHWAYS)

NOT TO SCALE

FILE NAME C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\320Hwy45+AltTrafficFlagger.dgn										<div><p>Washington State Department of Transportation</p></div>		Plot 4	
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DATE	7/18/2023				10	WASH						TC320	
PLOTTED BY	LintzF				JOB NUMBER								
DESIGNED BY					CONTRACT NO.			LOCATION NO.	SHEET 4 OF 4 SHEETS				
ENTERED BY													
CHECKED BY													
PROJ. ENGR.								TYPICAL TRAFFIC CONTROL PLANS					
REGIONAL ADM.		REVISION	DATE	BY									

DATE		DATE	
P.E. STAMP BOX		P.E. STAMP BOX	

WORK ZONE MICROSTATION CELLS: Updated work zone cells incorporated (July 2023).

WSDOT CAE automatically updates cell libraries on WSDOT and on-site consultant staff computers (no action needed); however, external users or off-site consultants must manually install them. For additional information email HQCAEHlpDesk@wsdot.wa.gov.

Division 4 in WSDOT Plans Preparation Manual, Section 400.06(29), provides updated work zone cell library policy and information for PS&Es. See <https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/plans-preparation-manual>

TYPICAL TCP USAGE EXPLANATION:

Plot 1: Flagger-controlled 1-lane, 2-way alternating traffic on the mainline for 45+ mph 2-lane highways with a shared bicycle-vehicle lane.

Plot 2: Details for intersecting roadways and driveway/business access for Plot 1.

Plot 3: Flagger-controlled 1-lane, 2-way alternating traffic on the mainline for 45+ mph 2-lane highways with a shared bicycle-vehicle lane for high traffic volumes (800+ vehicles/hour in all directions) by minimizing the distance between mainline flaggers.

Plot 4: Details for intersecting roadways and driveway/business access for Plot 3.

Other Alternating Traffic TCPs (45+ mph): See Typical Traffic Control Plan Library (<https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/plan-sheet-library/work-zone-typical-traffic-control-plans-tcp>)

- * TC320s for other variations of flagger-controlled alternating traffic plans
- * TC330s for AFAD-controlled alternating traffic plans
- * TC340s for temporary signal-controlled alternating traffic plans
- * TC350s for traffic holds

If not published yet, they will be added in the future.

Other Alternating Traffic TCPs (40 mph or less): See Typical Traffic Control Plan Library (<https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/plan-sheet-library/work-zone-typical-traffic-control-plans-tcp>)

- * TC420s for flagger-controlled alternating traffic
- * TC430s for AFAD-controlled alternating traffic
- * TC440s for temporary signal-controlled alternating traffic plans
- * TC450s for traffic holds

If not published yet, they will be added in the future.

DESIGNER NOTES:

A. Contact Region Transportation Operations to determine which Typical TCP(s) to utilize, as there are several variations available (or soon will be).

B. These typical traffic control plans may be modified for site specific situations and/or WSDOT Region Transportation Operations standard practices.
Typical TCPs are not "Standard Plans".

C. **Do not use intermittent (old: "variable") regulatory work zone speed limit reductions for flagging or AFAD operations.** Instead, maintain the existing speed limit (or continuous regulatory work zone speed limit reduction, if applicable). See WSDOT Traffic Manual Section 5-18 and Executive Order E1060 regulatory speed limit reductions & advisory speed approval policy for work zones thru Region Transportation Operations.

D. See MUTCD Table 6F-1 for additional temporary sign size information. Work zone signs are usually smaller than those used permanently.

E. WAC 468-95-300 modifies MUTCD Table 6-1 "Recommended Advance Warning Sign Minimum Spacing". Sign spacing may be adjusted for field conditions based on engineering judgement. The Sign Spacing table is acceptable to use in Typical TCPs; however, site-specific traffic control plans should include actual sign spacing values (with Å) that have been verified in the field, on SR view, or via Google Maps.

F. When positioned behind channelization devices, temporary signs should be mounted at 5' minimum.

G. The work zone design speed is typically the posted speed limit (or the work zone speed limit when in effect). For split speed limits (SPEED LIMIT 65 TRUCKS 60), use the higher 65 mph for work zone design. For this Typical TCP, the work zone design speed is based on the existing posted speed limit for sign spacing, channelization device spacing, buffer, and roll ahead distances.

H. "Flagger tapers" are always 50'-100' per closed lane with 6 devices minimum (10'-20' spacing on the taper), regardless of the posted speed limit or lane width per MUTCD 6C.08, Paragraph 15. Never use "L" for these tapers.

I. Channelization devices types may be modified (vertical panel channelization devices prohibited). 28" reflective traffic cones are recommended on flagger-controlled alternating traffic (especially for access delineation to maintain visibility for turning motorists). 36" reflective traffic cones, 42" tall channelization devices, or traffic safety drums may be used. Warning lights on channelization devices is being phased out in Washington. Contact Region Transportation Operations for information regarding their standard practices.

J. Maximum channelization device spacing table for tangents is based on WAC 468-95-301 and may ALWAYS be reduced.

K. Sequential arrow boards are prohibited at flagger tapers per WSDOT standard practice and per MUTCD Guidance TA-10.

L. Per MUTCD Section 6C.06, longitudinal buffer spaces are optional. Using longitudinal buffer spaces listed in MUTCD Table 6C-2 is recommended as best practice when feasible, but may be adjusted based on engineering judgement. The Longitudinal Buffer Space table is acceptable in Typical TCPs; however, site-specific traffic control plans should include actual buffer distances that have been verified in the field, on SR view, or via Google Maps.

M. The lateral buffer (transverse distance between open travel lanes and work area) is optional. No lateral buffer has been provided in these Typical TCPs due to the low speeds of alternating traffic. Actual work area limits may be modified.

N. WSDOT best practice is to place a protective vehicle (PV) in the closed lane in advance of the work area for flagger-controlled alternating traffic, but provide a full longitudinal buffer space to provide errant vehicles an opportunity to stop at the posted speed limit on 45+ mph roadways before impacting the PV. If the longitudinal buffer distance must be reduced or eliminated on 45+ mph roadways with flagger-controlled alternating traffic, then upgrade the PV to a transportable attenuator (TA). Additional PVs (or TAs) may be added prior to multiple work crews within a work area. Contact Region Transportation Operations for their standard practice.

O. Placing channelization devices transversely (at 45° and 5-foot spacing) is an optional strategy to stop move errant drivers traveling within the closed lane(s) but is not shown in the Typical TCP.

P. The downstream taper of 50'-100' is required on 1-lane, 2-way traffic configurations.

Q. Duration of traffic holds for driveways, business accesses, and/or roadway approaches is listed as 5 minutes (1 minute on high volume highways) in this Typical Traffic Control Plan, but may be adjusted. Contact Region Transportation Operations for additional guidance.

ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED (45+ MPH HIGHWAYS)

	<p>INFORMATIONAL USE ONLY</p> <p>DO NOT INCLUDE THIS SHEET IN CONTRACT PS&Es or TCP SUBMITTALS.</p>	Plot 5
		TC320
	DESIGNER GUIDANCE	