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

(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.

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305

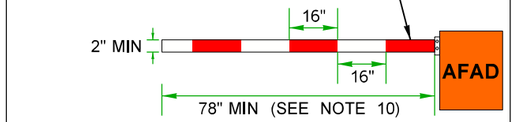
Buffer space may be adjusted (±) based on field conditions.

STOP CONDITION — SOLID RED, 12" LENS, ILLUMINATED; DULL BLACK SIGNAL BACKPLATE

SLOW CONDITION — FLASHING YELLOW, 12" LENS, ILLUMINATED

TRANSITION TO STOP — SOLID YELLOW, 12" LENS, ILLUMINATED FOR 5 SECONDS

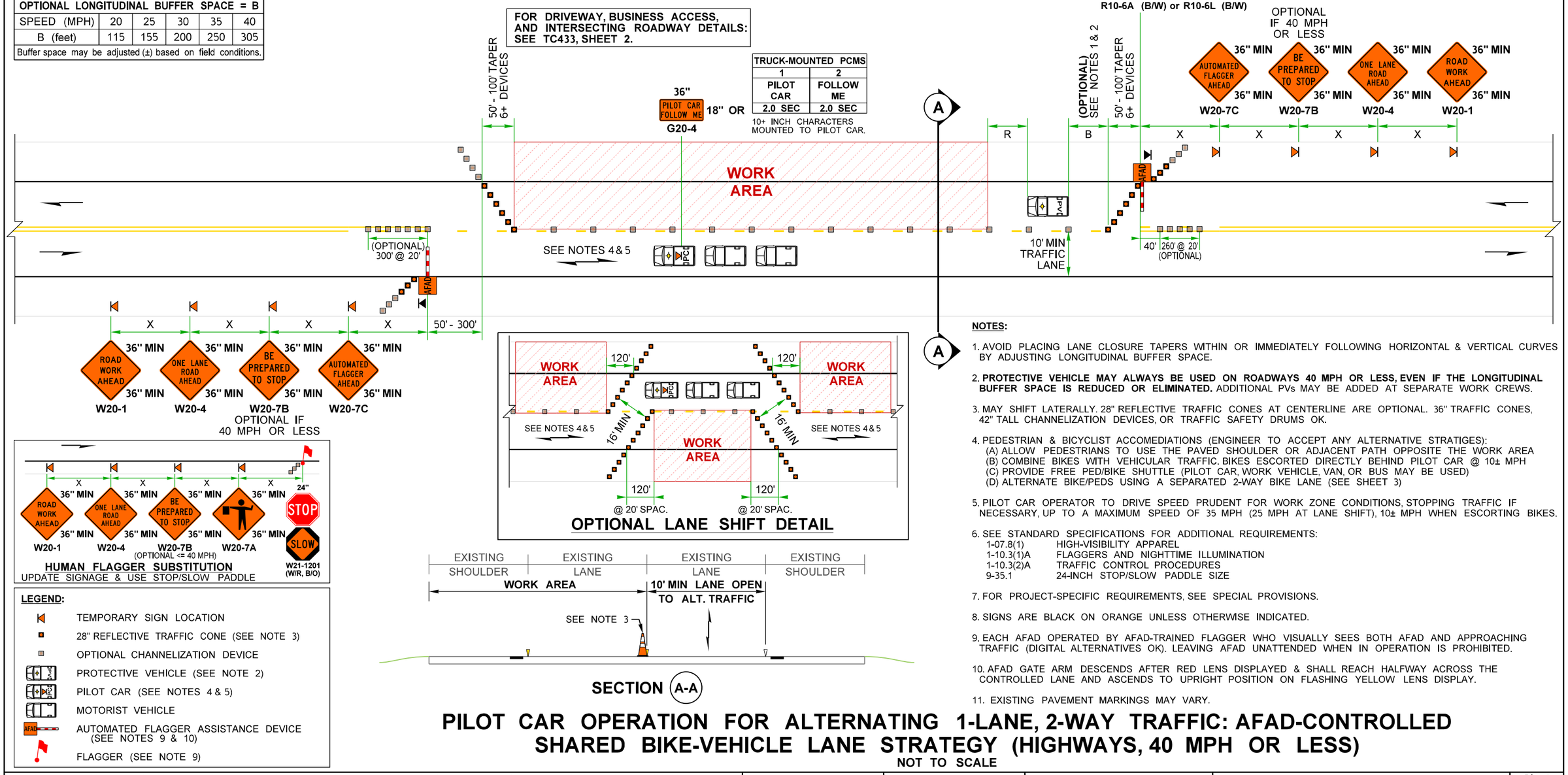
AFAD RED/YELLOW LENS DETAIL



AFAD GATE ARM DETAIL

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

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
35 - 40	10 to 20	60
20 - 30	10 to 20	40



LEGEND:

- TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
- OPTIONAL CHANNELIZATION DEVICE
- PROTECTIVE VEHICLE (SEE NOTE 2)
- PILOT CAR (SEE NOTES 4 & 5)
- MOTORIST VEHICLE
- AUTOMATED FLAGGER ASSISTANCE DEVICE (SEE NOTES 9 & 10)
- FLAGGER (SEE NOTE 9)

SECTION A-A

NOTES:

1. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
2. **PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED.** ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
3. MAY SHIFT LATERALLY. 28" REFLECTIVE TRAFFIC CONES AT CENTERLINE ARE OPTIONAL. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
4. PEDESTRIAN & BICYCLIST ACCOMEDIATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATIGES):
   (A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
   (B) COMBINE BIKES WITH VEHICULAR TRAFFIC. BIKES ESCORTED DIRECTLY BEHIND PILOT CAR @ 10± MPH
   (C) PROVIDE FREE PED/BIKE SHUTTLE (PILOT CAR, WORK VEHICLE, VAN, OR BUS MAY BE USED)
   (D) ALTERNATE BIKE/PEDS USING A SEPARATED 2-WAY BIKE LANE (SEE SHEET 3)
5. PILOT CAR OPERATOR TO DRIVE SPEED PRUDENT FOR WORK ZONE CONDITIONS, STOPPING TRAFFIC IF NECESSARY, UP TO A MAXIMUM SPEED OF 35 MPH (25 MPH AT LANE SHIFT), 10± MPH WHEN ESCORTING BIKES.
6. 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
7. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
8. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
9. EACH AFAD OPERATED BY AFAD-TRAINED FLAGGER WHO VISUALLY SEES BOTH AFAD AND APPROACHING TRAFFIC (DIGITAL ALTERNATIVES OK). LEAVING AFAD UNATTENDED WHEN IN OPERATION IS PROHIBITED.
10. AFAD GATE ARM DESCENDS AFTER RED LENS DISPLAYED & SHALL REACH HALFWAY ACROSS THE CONTROLLED LANE AND ASCENDS TO UPRIGHT POSITION ON FLASHING YELLOW LENS DISPLAY.
11. EXISTING PAVEMENT MARKINGS MAY VARY.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SHARED BIKE-VEHICLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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TIME	7:00:15 AM
DATE	7/18/2023
PLOTTED BY	LintzF
DESIGNED BY	
ENTERED BY	
CHECKED BY	
PROJ. ENGR.	
REGIONAL ADM.	

REVISION	DATE	BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER

CONTRACT NO. | LOCATION NO.

P.E. STAMP BOX — DATE

P.E. STAMP BOX — DATE

Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 1

PLAN REF NO TC433

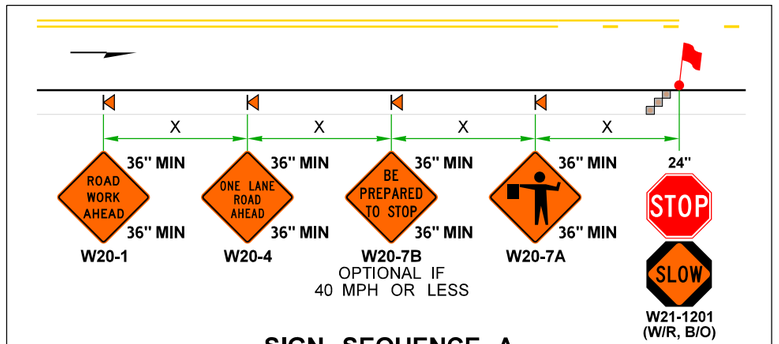
SHEET 1 OF 4 SHEETS

NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC433, SHEET 1.

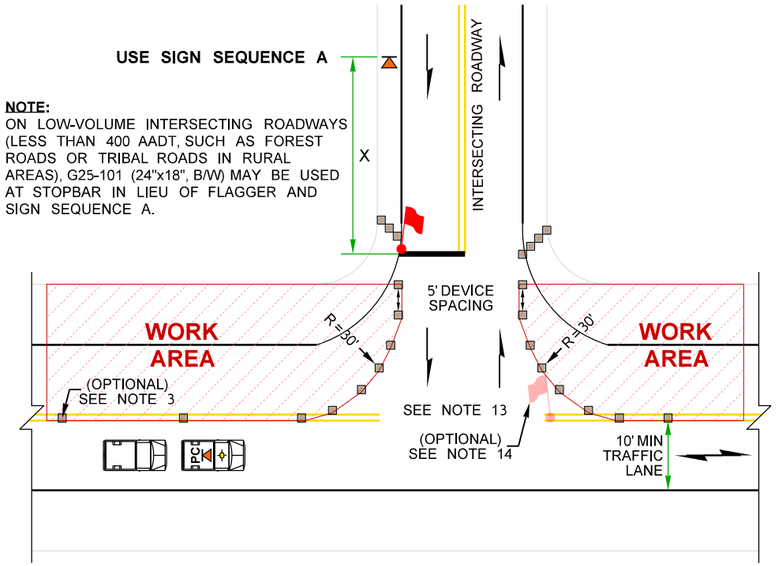
13. WORK MAY BRIEFLY OCCUR WITHIN LANE CLOSURE ACROSS INTERSECTING ROADWAY APPROACHES, BUSINESS ACCESSES, OR DRIVEWAYS. **MAY HOLD APPROACH OR ACCESS TRAFFIC FOR 5 MINUTES OR LESS** (ENGINEER MAY ACCEPT HOLDS UP TO 10 MINUTES) WHILE RESTRICTING TURNS FROM MAINLINE. CHANNELIZATION DEVICES DELINEATING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

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



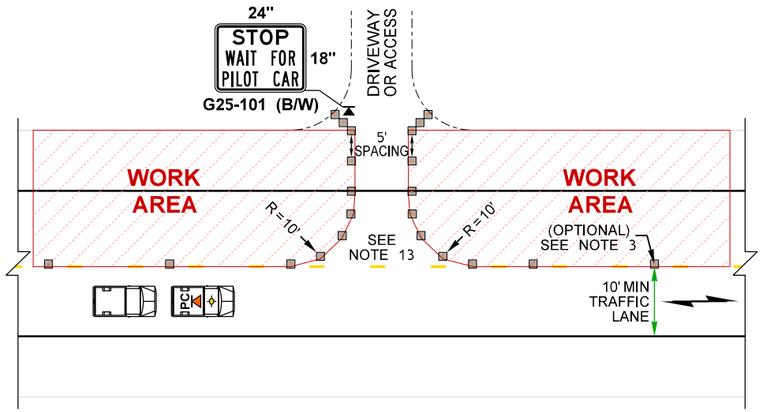
SIGN SEQUENCE A

48"x48" signs required on 45+ mph roadways

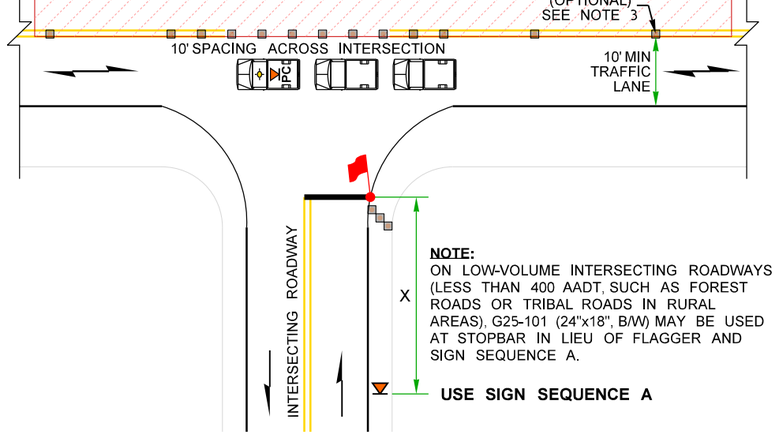


NOTE:
ON LOW-VOLUME INTERSECTING ROADWAYS (LESS THAN 400 AADT, SUCH AS FOREST ROADS OR TRIBAL ROADS IN RURAL AREAS), G25-101 (24"x18", B/W) MAY BE USED AT STOPBAR IN LIEU OF FLAGGER AND SIGN SEQUENCE A.

UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (TWO OPEN LANES)

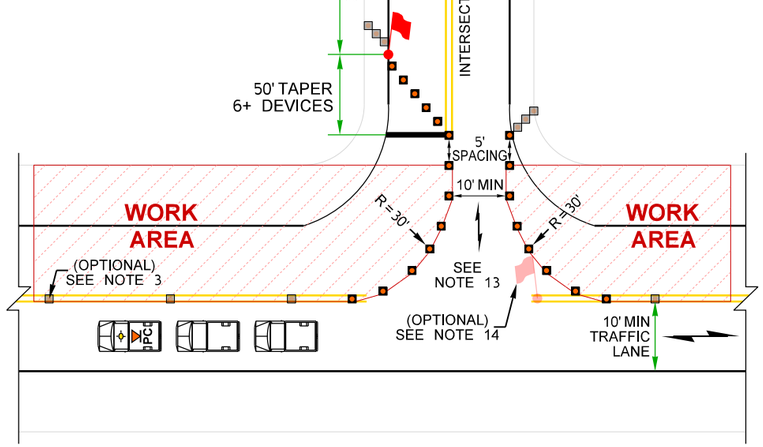


DRIVEWAY OR BUSINESS ACCESS DETAIL
SAME SIDE AS LANE CLOSURE

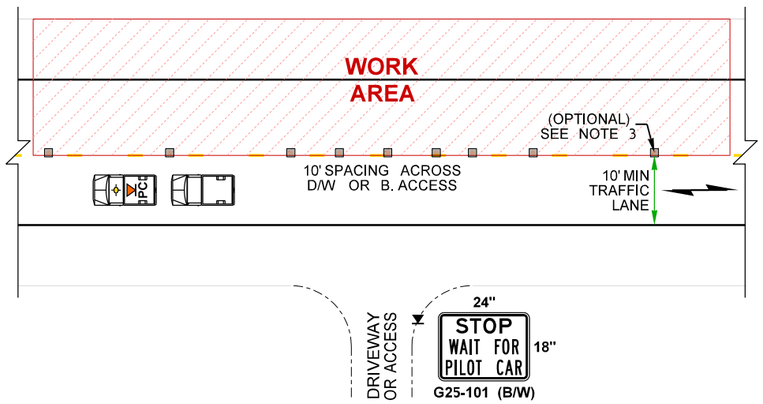


NOTE:
ON LOW-VOLUME INTERSECTING ROADWAYS (LESS THAN 400 AADT, SUCH AS FOREST ROADS OR TRIBAL ROADS IN RURAL AREAS), G25-101 (24"x18", B/W) MAY BE USED AT STOPBAR IN LIEU OF FLAGGER AND SIGN SEQUENCE A.

UNSIGNALIZED INTERSECTING ROADWAY DETAIL
OPPOSITE OF LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (SINGLE OPEN LANE)



DRIVEWAY OR BUSINESS ACCESS DETAIL
OPPOSITE OF LANE CLOSURE

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SHARED BIKE-VEHICLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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PLOTTED BY	LintzF						
DESIGNED BY					CONTRACT NO.	LOCATION NO.	
ENTERED BY							
CHECKED BY							
PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

P.E. STAMP BOX — DATE

P.E. STAMP BOX — DATE

Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 2

PLAN REF NO TC433

SHEET 2 OF 4 SHEETS

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

(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.

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305

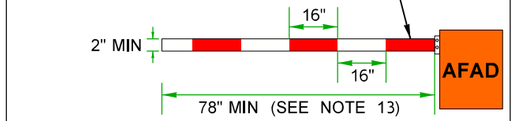
Buffer space may be adjusted (±) based on field conditions.

STOP CONDITION — SOLID RED, 12" LENS, ILLUMINATED; DULL BLACK SIGNAL BACKPLATE

SLOW CONDITION — FLASHING YELLOW, 12" LENS, ILLUMINATED

TRANSITION TO STOP — SOLID YELLOW, 12" LENS, ILLUMINATED FOR 5 SECONDS

AFAD RED/YELLOW LENS DETAIL



AFAD GATE ARM DETAIL

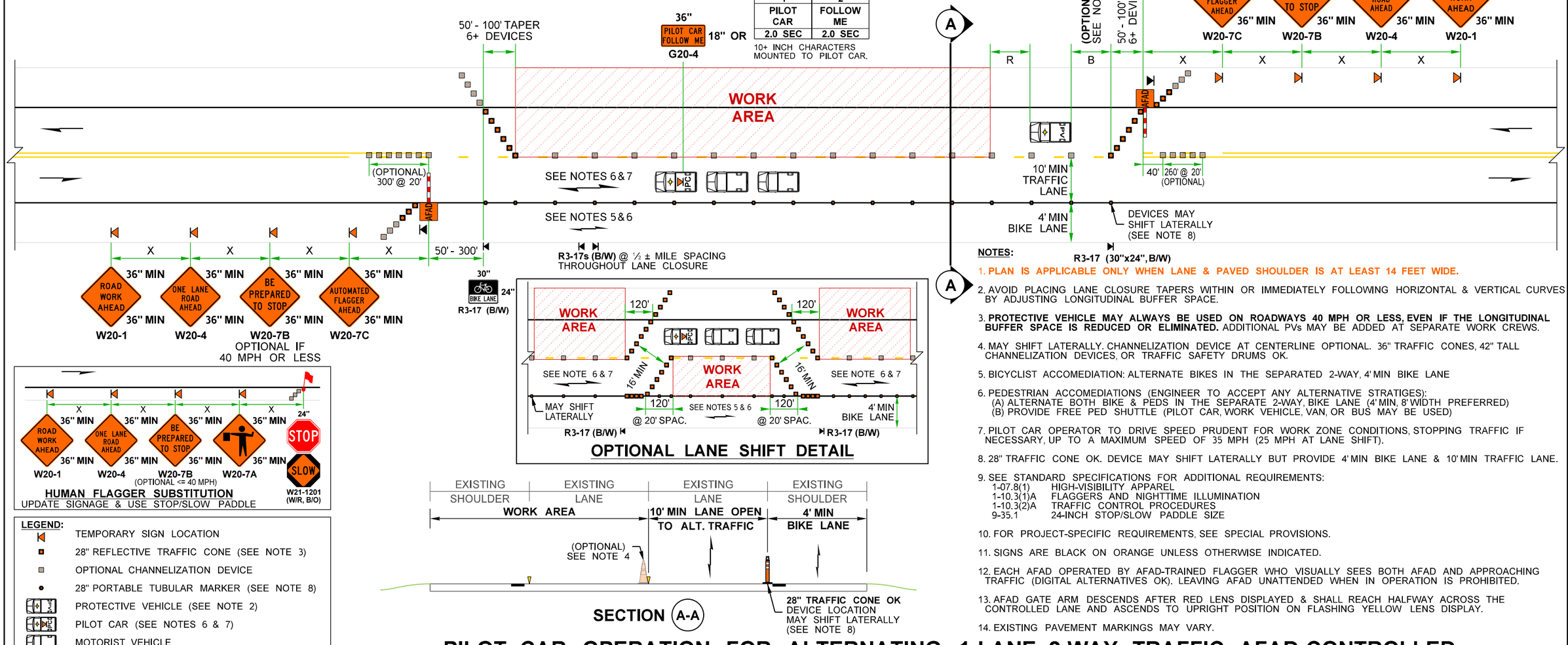
PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R
STRATEGICALLY POSITION WORK VEHICLE TO PROTECT WORK CREW. 40' - 80' RECOMMENDED.

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
35 - 40	10 to 20	60
20 - 30	10 to 20	40

FOR DRIVEWAY, BUSINESS ACCESS, AND INTERSECTING ROADWAY DETAILS: SEE TC433, SHEET 4.

TRUCK-MOUNTED PCMS	
1	2
PILOT CAR	FOLLOW ME
2.0 SEC	2.0 SEC

10+ INCH CHARACTERS MOUNTED TO PILOT CAR.



HUMAN FLAGGER SUBSTITUTION
UPDATE SIGNAGE & USE STOP/SLOW PADDLE

OPTIONAL LANE SHIFT DETAIL

SECTION A-A

LEGEND:

- TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
- OPTIONAL CHANNELIZATION DEVICE
- 28" PORTABLE TUBULAR MARKER (SEE NOTE 8)
- PROTECTIVE VEHICLE (SEE NOTE 2)
- PILOT CAR (SEE NOTES 6 & 7)
- MOTORIST VEHICLE
- AUTOMATED FLAGGER ASSISTANCE DEVICE (SEE NOTES 12 & 13)
- FLAGGER (SEE NOTE 12)

NOTES:

1. PLAN IS APPLICABLE ONLY WHEN LANE & PAVED SHOULDER IS AT LEAST 14 FEET WIDE.
2. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
3. **PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED.** ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
4. MAY SHIFT LATERALLY. CHANNELIZATION DEVICE AT CENTERLINE OPTIONAL. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
5. BICYCLIST ACCOMEDIATION: ALTERNATE BIKES IN THE SEPARATED 2-WAY, 4' MIN BIKE LANE
6. PEDESTRIAN ACCOMEDIATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATIGES):
   (A) ALTERNATE BOTH BIKE & PEDS IN THE SEPARATE 2-WAY, BIKE LANE (4' MIN, 8' WIDTH PREFERRED)
   (B) PROVIDE FREE PED SHUTTLE (PILOT CAR, WORK VEHICLE, VAN, OR BUS MAY BE USED)
7. PILOT CAR OPERATOR TO DRIVE SPEED PRUDENT FOR WORK ZONE CONDITIONS, STOPPING TRAFFIC IF NECESSARY, UP TO A MAXIMUM SPEED OF 35 MPH (25 MPH AT LANE SHIFT).
8. 28" TRAFFIC CONE OK. DEVICE MAY SHIFT LATERALLY BUT PROVIDE 4' MIN BIKE LANE & 10' MIN TRAFFIC LANE.
9. 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
10. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
11. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
12. EACH AFAD OPERATED BY AFAD-TRAINED FLAGGER WHO VISUALLY SEES BOTH AFAD AND APPROACHING TRAFFIC (DIGITAL ALTERNATIVES OK). LEAVING AFAD UNATTENDED WHEN IN OPERATION IS PROHIBITED.
13. AFAD GATE ARM DESCENDS AFTER RED LENS DISPLAYED & SHALL REACH HALFWAY ACROSS THE CONTROLLED LANE AND ASCENDS TO UPRIGHT POSITION ON FLASHING YELLOW LENS DISPLAY.
14. EXISTING PAVEMENT MARKINGS MAY VARY.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SEPARATED BICYCLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.	LOCATION NO.	

P.E. STAMP BOX — DATE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 3

PLAN REF NO TC433

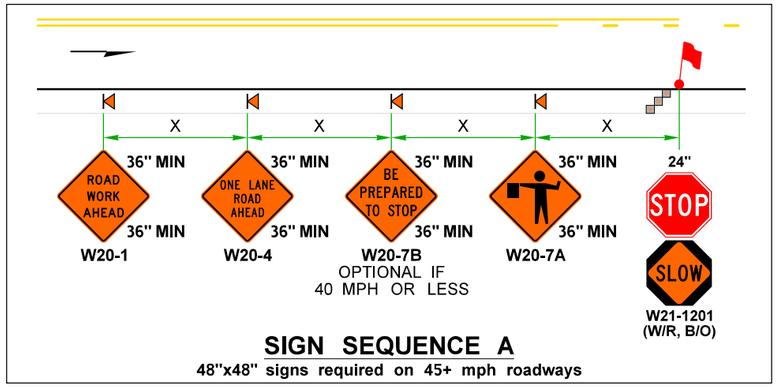
SHEET 3 OF 4 SHEETS

NOTES:

15. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC433, SHEET 3.

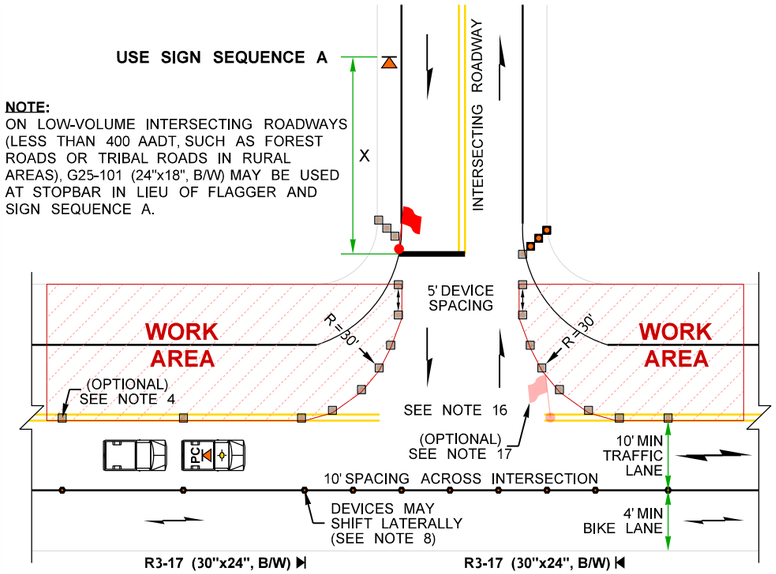
16. WORK MAY BRIEFLY OCCUR WITHIN LANE CLOSURE ACROSS INTERSECTING ROADWAY APPROACHES, BUSINESS ACCESSES, OR DRIVEWAYS. **MAY HOLD APPROACH OR ACCESS TRAFFIC FOR 5 MINUTES OR LESS** (ENGINEER MAY ACCEPT HOLDS UP TO 10 MINUTES) WHILE RESTRICTING TURNS FROM MAINLINE. CHANNELIZATION DEVICES DELINEATING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

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



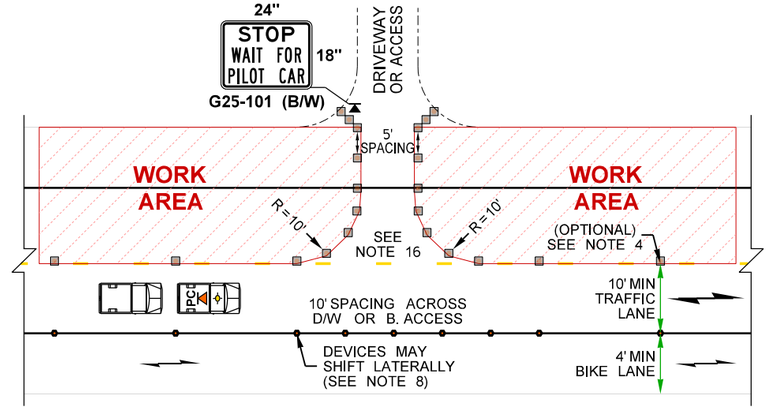
SIGN SEQUENCE A

48"x48" signs required on 45+ mph roadways

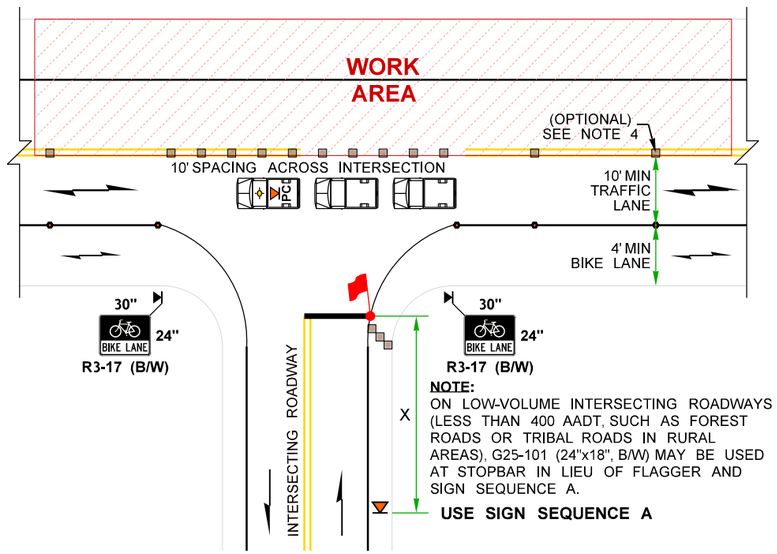


NOTE:
ON LOW-VOLUME INTERSECTING ROADWAYS (LESS THAN 400 AADT, SUCH AS FOREST ROADS OR TRIBAL ROADS IN RURAL AREAS), G25-101 (24"x18", B/W) MAY BE USED AT STOPBAR IN LIEU OF FLAGGER AND SIGN SEQUENCE A.

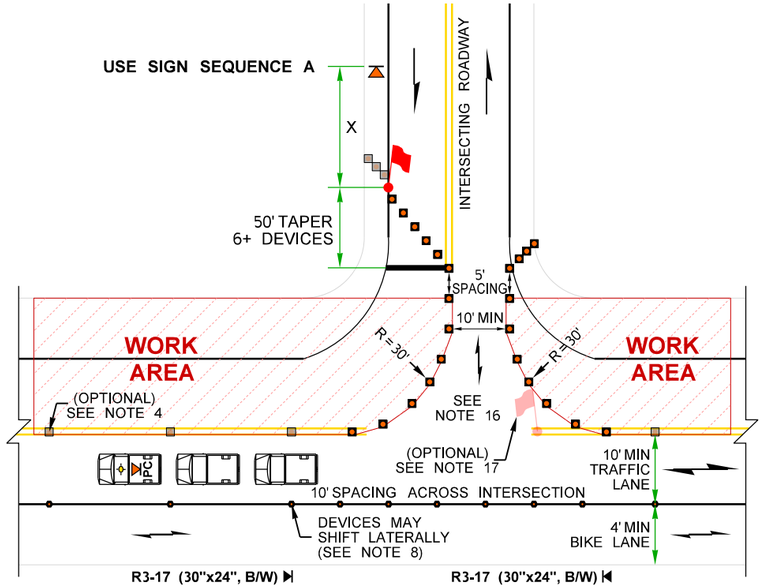
UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (TWO OPEN LANES)



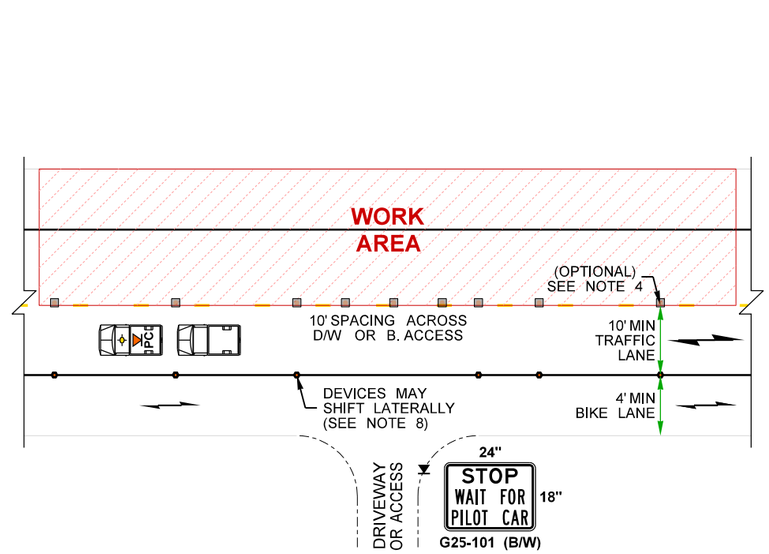
DRIVEWAY OR BUSINESS ACCESS DETAIL
SAME SIDE AS LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
OPPOSITE OF LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (SINGLE OPEN LANE)



DRIVEWAY OR BUSINESS ACCESS DETAIL
OPPOSITE OF LANE CLOSURE

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SEPARATED BICYCLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

P.E. STAMP BOX — DATE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 4

PLAN REF NO TC433

SHEET 4 OF 4 SHEETS

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

(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.

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305

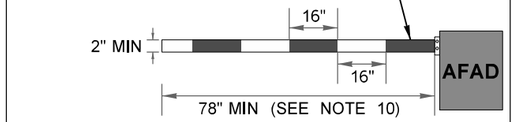
Buffer space may be adjusted (±) based on field conditions.

STOP CONDITION — SOLID RED, 12" LENS, ILLUMINATED; DULL BLACK SIGNAL BACKPLATE

SLOW CONDITION — FLASHING YELLOW, 12" LENS, ILLUMINATED

TRANSITION TO STOP — SOLID YELLOW, 12" LENS, ILLUMINATED FOR 5 SECONDS

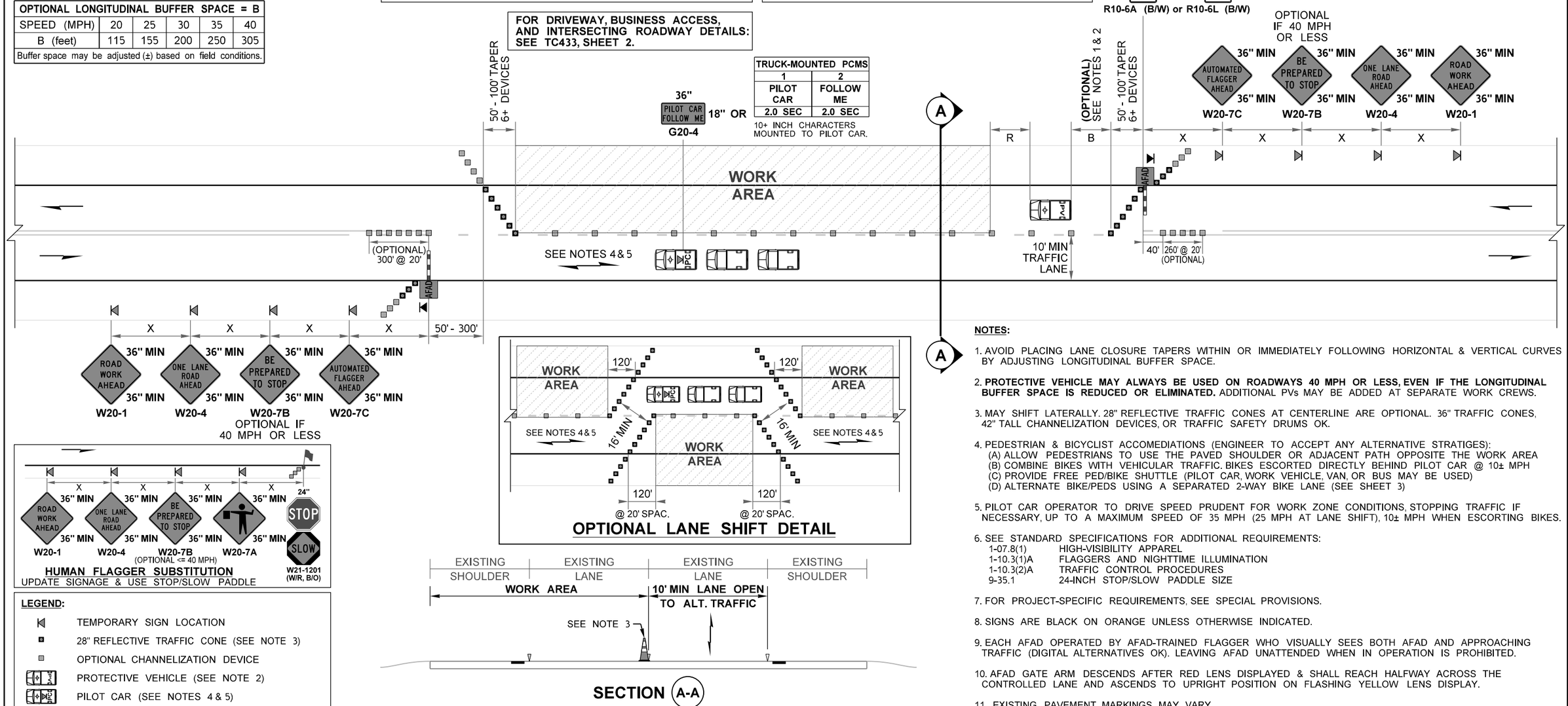
AFAD RED/YELLOW LENS DETAIL



AFAD GATE ARM DETAIL

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

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
35 - 40	10 to 20	60
20 - 30	10 to 20	40



LEGEND:

- TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
- OPTIONAL CHANNELIZATION DEVICE
- PROTECTIVE VEHICLE (SEE NOTE 2)
- PILOT CAR (SEE NOTES 4 & 5)
- MOTORIST VEHICLE
- AUTOMATED FLAGGER ASSISTANCE DEVICE (SEE NOTES 9 & 10)
- FLAGGER (SEE NOTE 9)

NOTES:

1. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
2. **PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED.** ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
3. MAY SHIFT LATERALLY. 28" REFLECTIVE TRAFFIC CONES AT CENTERLINE ARE OPTIONAL. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
4. PEDESTRIAN & BICYCLIST ACCOMEDIATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATIGES):
   (A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
   (B) COMBINE BIKES WITH VEHICULAR TRAFFIC. BIKES ESCORTED DIRECTLY BEHIND PILOT CAR @ 10± MPH
   (C) PROVIDE FREE PED/BIKE SHUTTLE (PILOT CAR, WORK VEHICLE, VAN, OR BUS MAY BE USED)
   (D) ALTERNATE BIKE/PEDS USING A SEPARATED 2-WAY BIKE LANE (SEE SHEET 3)
5. PILOT CAR OPERATOR TO DRIVE SPEED PRUDENT FOR WORK ZONE CONDITIONS, STOPPING TRAFFIC IF NECESSARY, UP TO A MAXIMUM SPEED OF 35 MPH (25 MPH AT LANE SHIFT), 10± MPH WHEN ESCORTING BIKES.
6. 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
7. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
8. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
9. EACH AFAD OPERATED BY AFAD-TRAINED FLAGGER WHO VISUALLY SEES BOTH AFAD AND APPROACHING TRAFFIC (DIGITAL ALTERNATIVES OK). LEAVING AFAD UNATTENDED WHEN IN OPERATION IS PROHIBITED.
10. AFAD GATE ARM DESCENDS AFTER RED LENS DISPLAYED & SHALL REACH HALFWAY ACROSS THE CONTROLLED LANE AND ASCENDS TO UPRIGHT POSITION ON FLASHING YELLOW LENS DISPLAY.
11. EXISTING PAVEMENT MARKINGS MAY VARY.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SHARED BIKE-VEHICLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrIve - WashIngton State Department of TransportatIon\Desktop\Work Zone TCPs\433Hwy40-AltTrafficAFADPIlotCarOp.dgn				REGION NO.	STATE	FED.AID PROJ.NO.
TIME	7:00:17 AM				10	WASH	
DATE	7/18/2023				JOB NUMBER		
PLOTTED BY	LintzF						
DESIGNED BY							
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CHECKED BY					CONTRACT NO.		LOCATION NO.
PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

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DATE P.E. STAMP BOX

Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 1

PLAN REF NO TC433

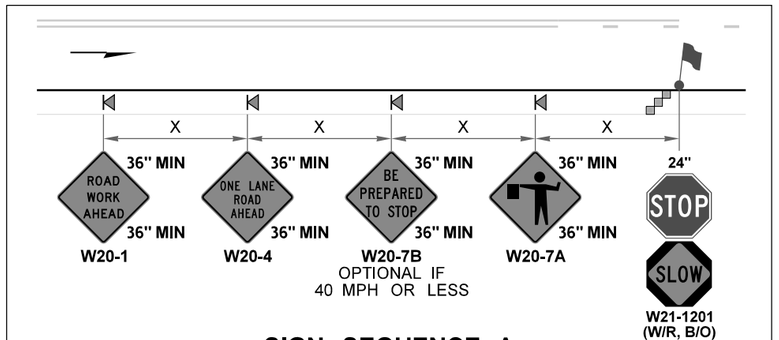
SHEET 1 OF 4 SHEETS

NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC433, SHEET 1.

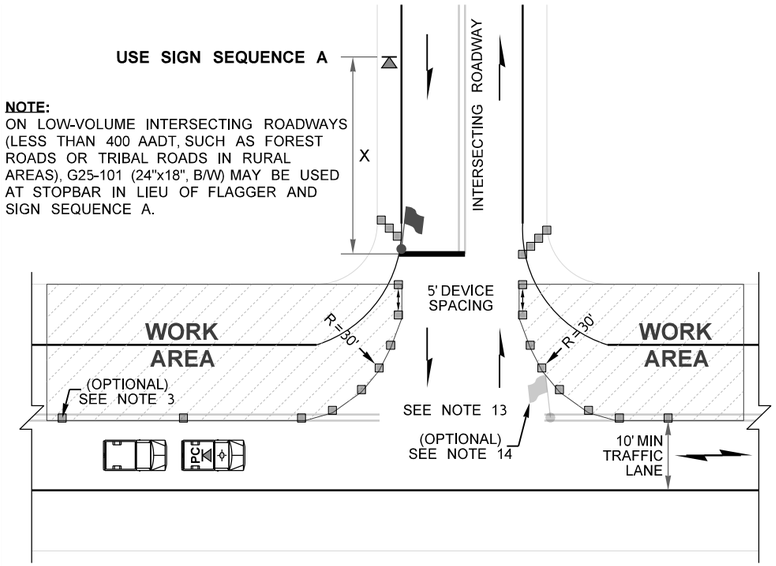
13. WORK MAY BRIEFLY OCCUR WITHIN LANE CLOSURE ACROSS INTERSECTING ROADWAY APPROACHES, BUSINESS ACCESSES, OR DRIVEWAYS. **MAY HOLD APPROACH OR ACCESS TRAFFIC FOR 5 MINUTES OR LESS** (ENGINEER MAY ACCEPT HOLDS UP TO 10 MINUTES) WHILE RESTRICTING TURNS FROM MAINLINE. CHANNELIZATION DEVICES DELINEATING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

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

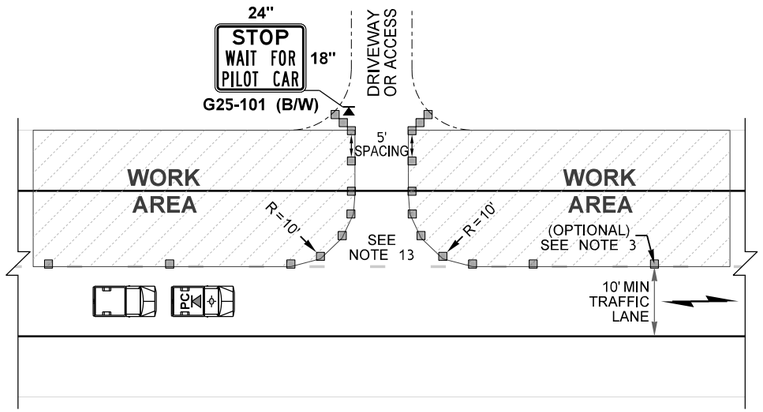


SIGN SEQUENCE A

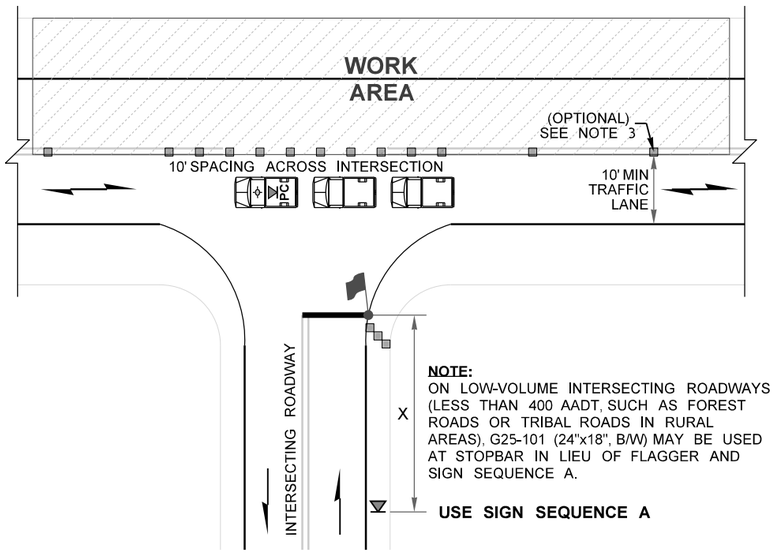
48"x48" signs required on 45+ mph roadways



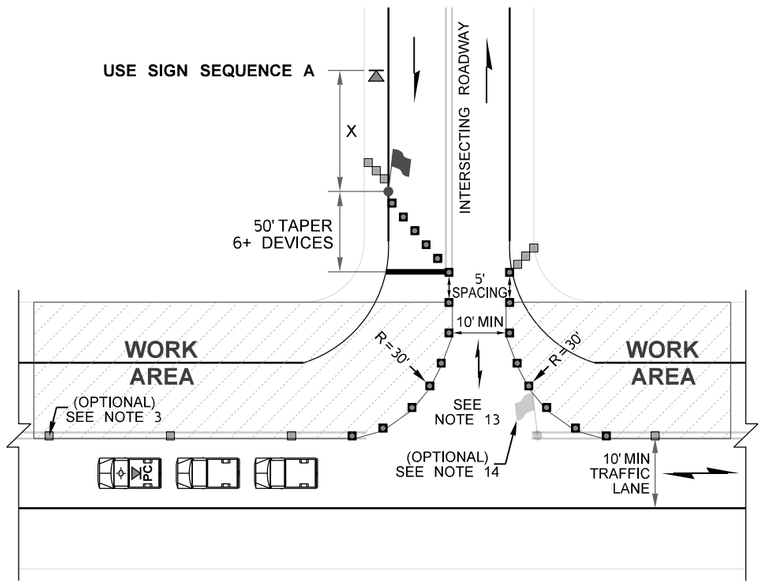
UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (TWO OPEN LANES)



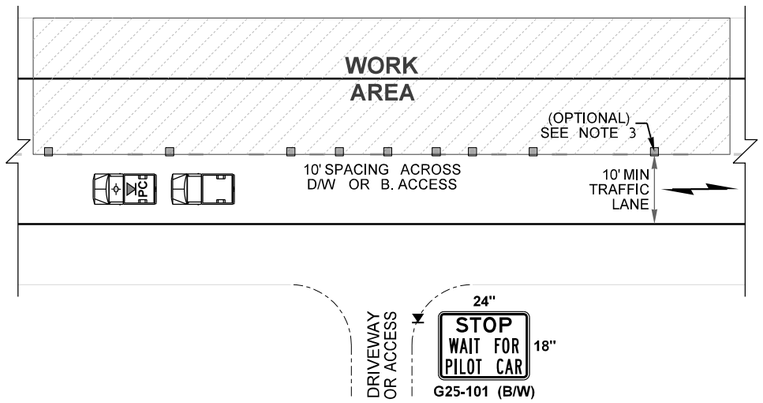
DRIVEWAY OR BUSINESS ACCESS DETAIL
SAME SIDE AS LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
OPPOSITE OF LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (SINGLE OPEN LANE)



DRIVEWAY OR BUSINESS ACCESS DETAIL
OPPOSITE OF LANE CLOSURE

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SHARED BIKE-VEHICLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\433Hwy40-AltTrafficAFADPilotCarOp.dgn				REGION NO.	STATE	FED.AID PROJ.NO.
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PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

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TYPICAL TRAFFIC CONTROL PLANS

Plot 2

PLAN REF NO TC433

SHEET 2 OF 4 SHEETS

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

(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.

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305

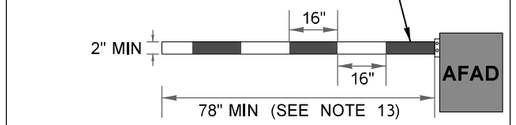
Buffer space may be adjusted (±) based on field conditions.

STOP CONDITION — SOLID RED, 12" LENS ILLUMINATED; DULL BLACK SIGNAL BACKPLATE

SLOW CONDITION — FLASHING YELLOW, 12" LENS ILLUMINATED

TRANSITION TO STOP — SOLID YELLOW, 12" LENS ILLUMINATED FOR 5 SECONDS

AFAD RED/YELLOW LENS DETAIL

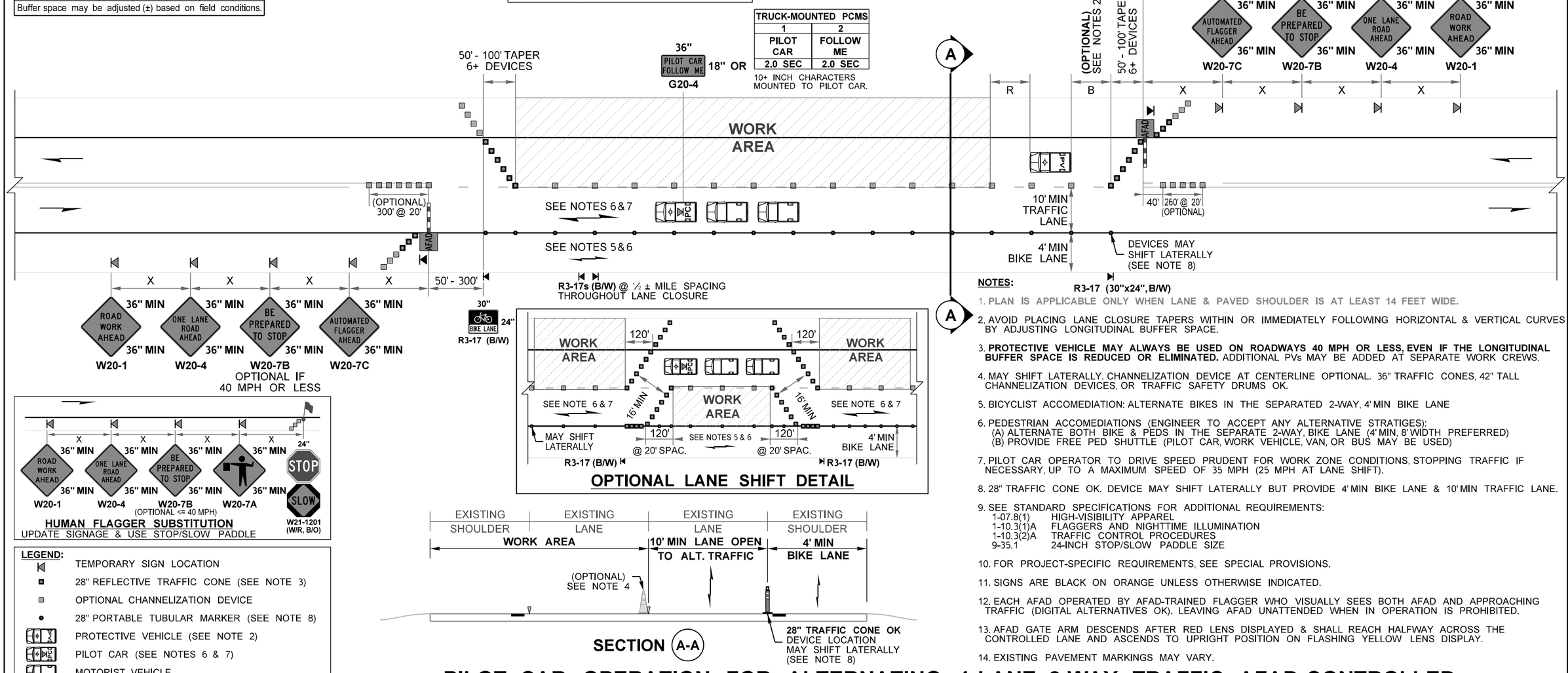


AFAD GATE ARM DETAIL

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

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
35 - 40	10 to 20	60
20 - 30	10 to 20	40

FOR DRIVEWAY, BUSINESS ACCESS, AND INTERSECTING ROADWAY DETAILS: SEE TC433, SHEET 4.



LEGEND:

- TEMPORARY SIGN LOCATION
- 28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
- OPTIONAL CHANNELIZATION DEVICE
- 28" PORTABLE TUBULAR MARKER (SEE NOTE 8)
- PROTECTIVE VEHICLE (SEE NOTE 2)
- PILOT CAR (SEE NOTES 6 & 7)
- MOTORIST VEHICLE
- AUTOMATED FLAGGER ASSISTANCE DEVICE (SEE NOTES 12 & 13)
- FLAGGER (SEE NOTE 12)

NOTES:

1. PLAN IS APPLICABLE ONLY WHEN LANE & PAVED SHOULDER IS AT LEAST 14 FEET WIDE.
2. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
3. **PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED.** ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
4. MAY SHIFT LATERALLY. CHANNELIZATION DEVICE AT CENTERLINE OPTIONAL. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
5. BICYCLIST ACCOMEDIATION: ALTERNATE BIKES IN THE SEPARATED 2-WAY, 4' MIN BIKE LANE
6. PEDESTRIAN ACCOMEDIATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATIGES):
   (A) ALTERNATE BOTH BIKE & PEDS IN THE SEPARATE 2-WAY, BIKE LANE (4' MIN, 8' WIDTH PREFERRED)
   (B) PROVIDE FREE PED SHUTTLE (PILOT CAR, WORK VEHICLE, VAN, OR BUS MAY BE USED)
7. PILOT CAR OPERATOR TO DRIVE SPEED PRUDENT FOR WORK ZONE CONDITIONS, STOPPING TRAFFIC IF NECESSARY, UP TO A MAXIMUM SPEED OF 35 MPH (25 MPH AT LANE SHIFT).
8. 28" TRAFFIC CONE OK. DEVICE MAY SHIFT LATERALLY BUT PROVIDE 4' MIN BIKE LANE & 10' MIN TRAFFIC LANE.
9. 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
10. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
11. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
12. EACH AFAD OPERATED BY AFAD-TRAINED FLAGGER WHO VISUALLY SEES BOTH AFAD AND APPROACHING TRAFFIC (DIGITAL ALTERNATIVES OK). LEAVING AFAD UNATTENDED WHEN IN OPERATION IS PROHIBITED.
13. AFAD GATE ARM DESCENDS AFTER RED LENS DISPLAYED & SHALL REACH HALFWAY ACROSS THE CONTROLLED LANE AND ASCENDS TO UPRIGHT POSITION ON FLASHING YELLOW LENS DISPLAY.
14. EXISTING PAVEMENT MARKINGS MAY VARY.

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SEPARATED BICYCLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.	LOCATION NO.	

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 3

PLAN REF NO TC433

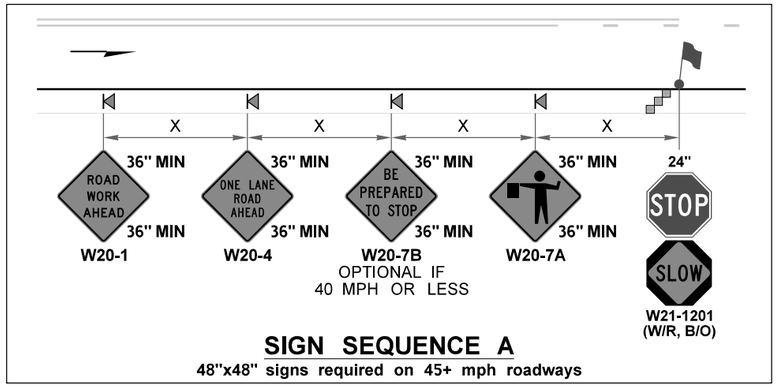
SHEET 3 OF 4 SHEETS

NOTES:

15. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC433, SHEET 3.

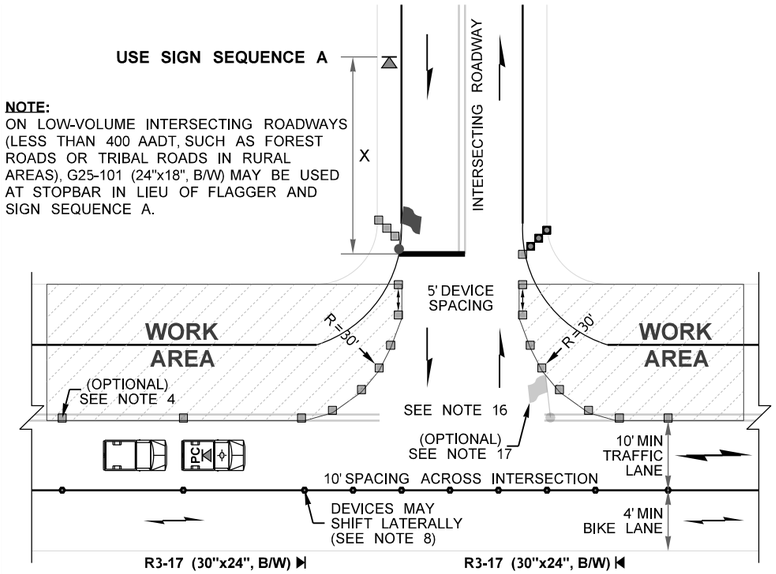
16. WORK MAY BRIEFLY OCCUR WITHIN LANE CLOSURE ACROSS INTERSECTING ROADWAY APPROACHES, BUSINESS ACCESSES, OR DRIVEWAYS. **MAY HOLD APPROACH OR ACCESS TRAFFIC FOR 5 MINUTES OR LESS** (ENGINEER MAY ACCEPT HOLDS UP TO 10 MINUTES) WHILE RESTRICTING TURNS FROM MAINLINE. CHANNELIZATION DEVICES DELINEATING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

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



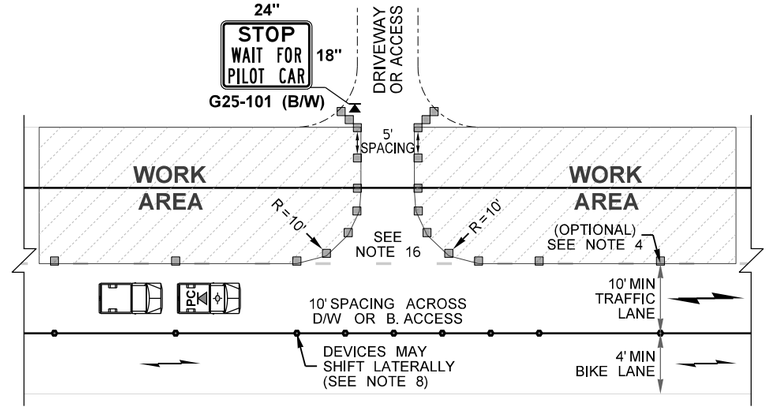
SIGN SEQUENCE A

48"x48" signs required on 45+ mph roadways

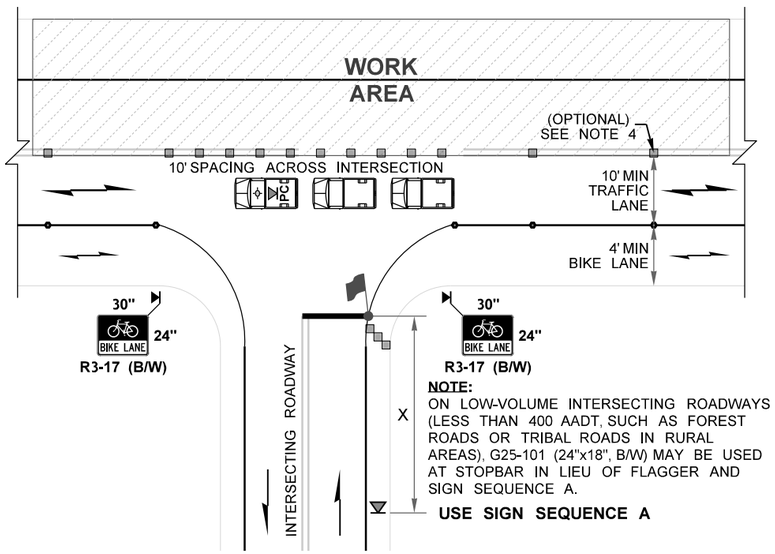


NOTE:
ON LOW-VOLUME INTERSECTING ROADWAYS (LESS THAN 400 AADT, SUCH AS FOREST ROADS OR TRIBAL ROADS IN RURAL AREAS), G25-101 (24"x18", B/W) MAY BE USED AT STOPBAR IN LIEU OF FLAGGER AND SIGN SEQUENCE A.

UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (TWO OPEN LANES)

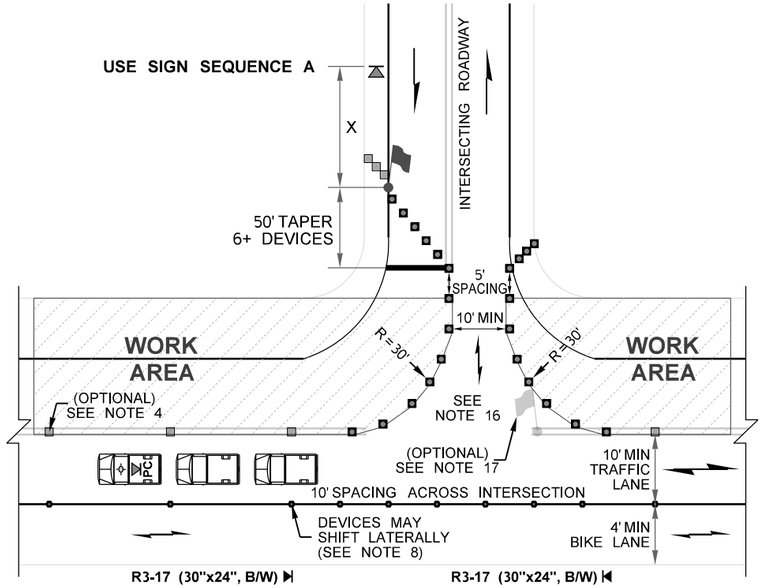


DRIVEWAY OR BUSINESS ACCESS DETAIL
SAME SIDE AS LANE CLOSURE

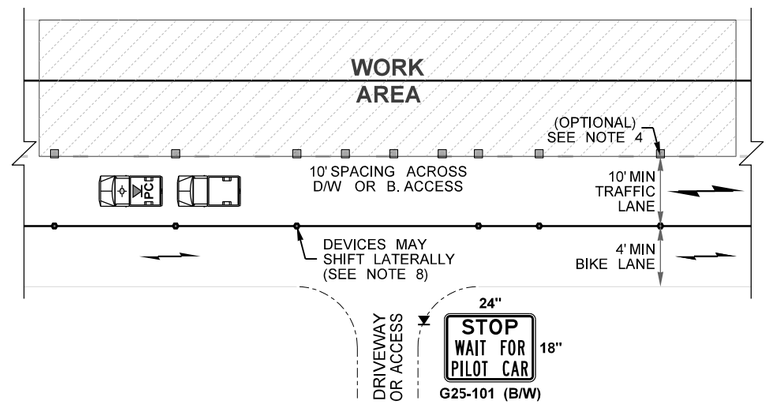


NOTE:
ON LOW-VOLUME INTERSECTING ROADWAYS (LESS THAN 400 AADT, SUCH AS FOREST ROADS OR TRIBAL ROADS IN RURAL AREAS), G25-101 (24"x18", B/W) MAY BE USED AT STOPBAR IN LIEU OF FLAGGER AND SIGN SEQUENCE A.

UNSIGNALIZED INTERSECTING ROADWAY DETAIL
OPPOSITE OF LANE CLOSURE



UNSIGNALIZED INTERSECTING ROADWAY DETAIL
SAME SIDE AS LANE CLOSURE (SINGLE OPEN LANE)



DRIVEWAY OR BUSINESS ACCESS DETAIL
OPPOSITE OF LANE CLOSURE

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED SEPARATED BICYCLE LANE STRATEGY (HIGHWAYS, 40 MPH OR LESS)

NOT TO SCALE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 4

PLAN REF NO
TC433

SHEET 4 OF 4 SHEETS

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 HQCAEHelpDesk@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: Pilot Car Operation for AFAD-controlled 1-lane, 2-way alternating traffic on the mainline for 2-lane highways 40 mph or less with a shared bicycle-vehicle lane.

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

Plot 3: Pilot Car Operation for AFAD-controlled 1-lane, 2-way alternating traffic on the mainline for 2-lane highways 40 mph or less with a separated bicycle lane. Separated bike lanes maximize vehicle capacity (minimizing queue & delays) especially when high bicycle volumes are expected and mainline flaggers are 1500'+ apart.

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

Note: For temporary rumble strip versions of these plans, see Typical TC334.

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 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 other variations of 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 their 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 À) 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. 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 AFAD-controlled alternating traffic (especially for access delineation to maintain visiblity 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 longtitudinal 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 (tranverse 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. On roadways 40 mph or less, WSDOT best practice is to place a protective vehicle (PV) in the closed lane in advance of the work area with a full longitudinal buffer space to provide errant vehicles an opportunity to stop before impacting the PV. On roadways 40 mph or less, the longnitudinal buffer is optional and may be eliminated (still okay to use PV, upgrading to transportable attenuator is not required). 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.

R. When utilizing AFADs in Contracts, include the three Section 1-10 General Special Provisions for Specification, Measurement, and Payment. https://wsdot.wa.gov/publications/fulltext/projectdev/gspspdf/egsp1.pdf
* 1-10.1(1).OPT1.GR1 (AFAD Materials GSP)
* 1-10.3(3).OPT1.GR1 (AFAD Specifications GSP)
* 1-10.4(2).OPT2.GR1 (AFAD Measurement GSP)
* 1-10.5(2).OPT1.GR1 (AFAD Payment GSP)

PILOT CAR OPERATION FOR ALTERNATING 1-LANE, 2-WAY TRAFFIC: AFAD-CONTROLLED (HIGHWAYS, 40 MPH OR LESS)

INFORMATIONAL USE ONLY

DO NOT INCLUDE THIS SHEET IN CONTRACT PS&Es or TCP SUBMITTALs.

DESIGNER GUIDANCE

Plot 5

TC433