mPCMS	
1	2
RIGHT LANE CLOSURE	1 MILE AHEAD
2.0 SEC	2.0 SEC

OR

mPCMS - ALT 1		
1	2	3
RIGHT LANE CLOSURE	WATCH FOR SLOW TRAFFIC	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

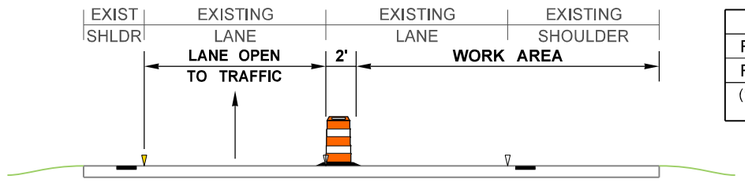
FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER PER STD. SPEC. 1-10.3(3)C.

USE IF TRAFFIC BACKUPS EXPECTED, BUT NOT VERIFIED HOURLY BY TCS.

mPCMS - ALT 2		
1	2	3
RIGHT LANE CLOSURE	SLOW TRAFFIC AHEAD	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

ONLY USED IF TCS VERIFIES HOURLY THAT TRAFFIC BACKUPS ARE PRESENT.

FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER OR UPSTREAM OF EXPECTED MAXIMUM TRAFFIC QUEUE PER STANDARD SPECIFICATION 1-10.3(3)C.



SECTION A-A

RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

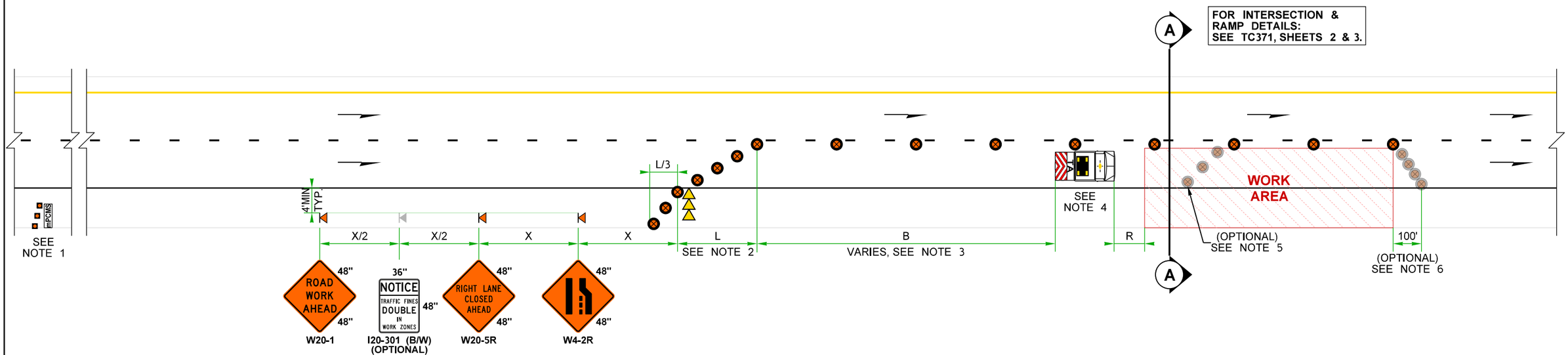
STATIONARY TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R			
HOST VEHICLE WEIGHT LESS THAN 22,000 lbs.		HOST VEHICLE WEIGHT 22,000+ lbs.	
45-55 MPH	60+ MPH	45-55 MPH	60+ MPH
123'	172'	100'	150'

LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

SHOULDER CLOSURE TAPER LENGTH = L/3							
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70
< 6'	L/3 (feet)	60	80	80	80	80	80
6'		90	120	120	120	160	160
10'		150	200	200	200	240	240

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

1. FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
3. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS OK.
8. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
9. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
10. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
11. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS, & ESCORT PEDESTRIANS THROUGH WORK AREA.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
12. BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
    (A) BICYCLES PROHIBITED VIA R5-601 & R5-6 SIGNS. PROVIDE SIGNED DETOUR OR ALTERNATIVE ROUTE.
    (B) BICYCLES PROHIBITED VIA R5-6 SIGNS. PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) STOP WORK OPS & ESCORT BICYCLISTS THROUGH CLOSURE.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

48" TRUCKS LEAVING HIGHWAY 48" — W21-30A

48" TRUCKS ENTERING HIGHWAY 48" — W21-30

48" TRUCKS ENTERING AND LEAVING HIGHWAY 48" — W21-30B

6C TEXT

24" 3C 4C MUST EXIT ¼ MILE 24" — R5-601 (B/W) STRATEGICALLY PLACED PRIOR TO LANE CLOSURE

24" 24" — R5-6 (R/B/W) STRATEGICALLY PLACED WITHIN LANE CLOSURE

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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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 1

PLAN REF NO TC371

SHEET 1A OF 3 SHEETS

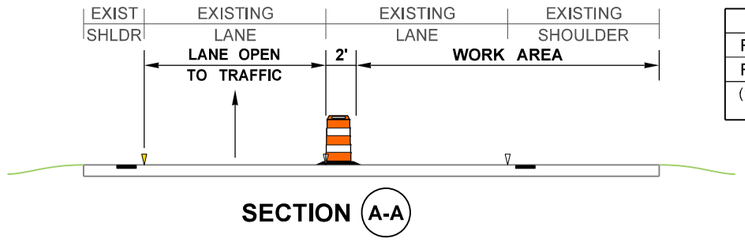
3-MILE QUEUE WARNING SYSTEM MESSAGES					
TRAFFIC SENSORS		mPCMS 2		mPCMS 1	
B	A	1	2	1	2
TRIGGER	SPEED	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
35+ MPH	35+ MPH	■ ■ ■ ■	(Blank)	RIGHT LANE CLOSURE	1.5 MILES AHEAD
35+ MPH	< 35 MPH	LANE CLOSURE 3 MILES	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES
< 35 MPH	< 35 MPH	SLOW OR STOPPED TRAFFIC	NEXT 3 MILES	USE ALL LANES	TAKE TURNS AT MERGE

SEE QUEUE WARNING SYSTEM SPECIAL PROVISION OR RFP FOR DETAILS.

LOCATE PCMSs PER STD. SPEC. 1-10.3(3)C. PCMS MAY BE PLACED ON OPPOSITE SHOULDER WHEN NEEDED, BUT AVOID RAMP GORES. WHEN PCMSs OR TRAFFIC SENSORS PLACED BEHIND BARRIER/GUARDRAIL OR WITHIN CLOSED LANE, TRANSVERSE TRAFFIC DRUMS ARE NOT REQUIRED.

ADJUST QWS COMPONENTS AS NEEDED TO AVOID CONFLICTS WITH TRAFFIC CONTROL DEVICES, NARROW SHOULDERS, RAMPS, OR TO MAINTAIN VISIBILITY OF SEQUENTIAL ARROW SIGN.

IN THE EVENT OF A SYSTEM FAILURE, SEE SPECIAL PROVISIONS OR RFP "QUEUE WARNING SYSTEM FAILURE PROTOCOL".



SECTION A-A

RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

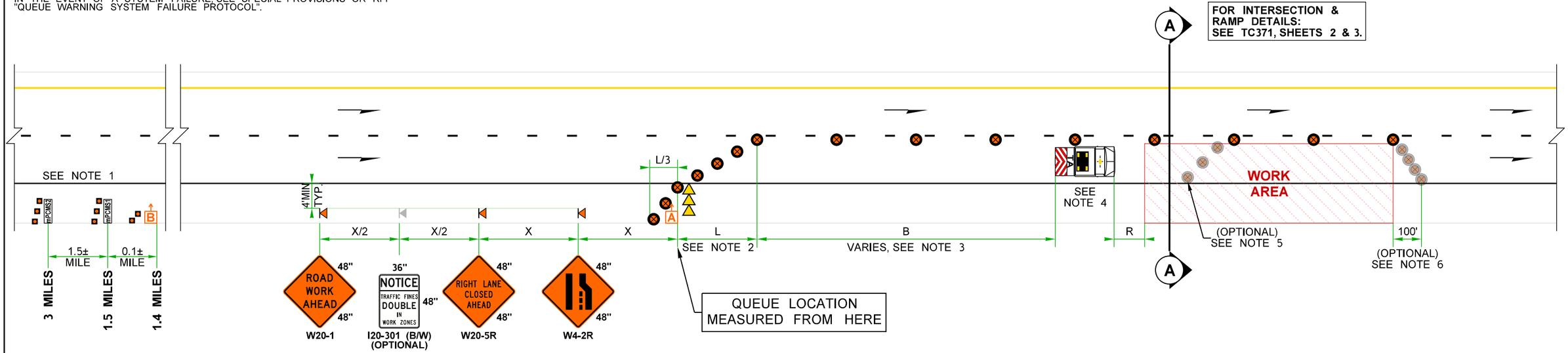
LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

SHOULDER CLOSURE TAPER LENGTH = L/3							
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70
< 6'	L/3 (feet)	60	80	80	80	80	80
6'		90	120	120	120	160	160
10'		150	200	200	200	240	240

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'

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- QWS TRAFFIC SENSOR
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS — mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

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4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS OK.
8. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
9. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
10. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
11. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS, & ESCORT PEDESTRIANS THROUGH WORK AREA.
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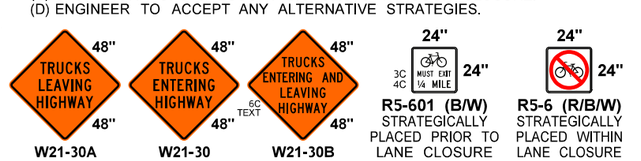
    (B) BICYCLES PROHIBITED VIA R5-6 SIGNS. PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) STOP WORK OPS & ESCORT BICYCLISTS THROUGH CLOSURE.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE + 3-MILE QWS (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 2

PLAN REF NO TC371

SHEET 1B OF 3 SHEETS

NOTES:

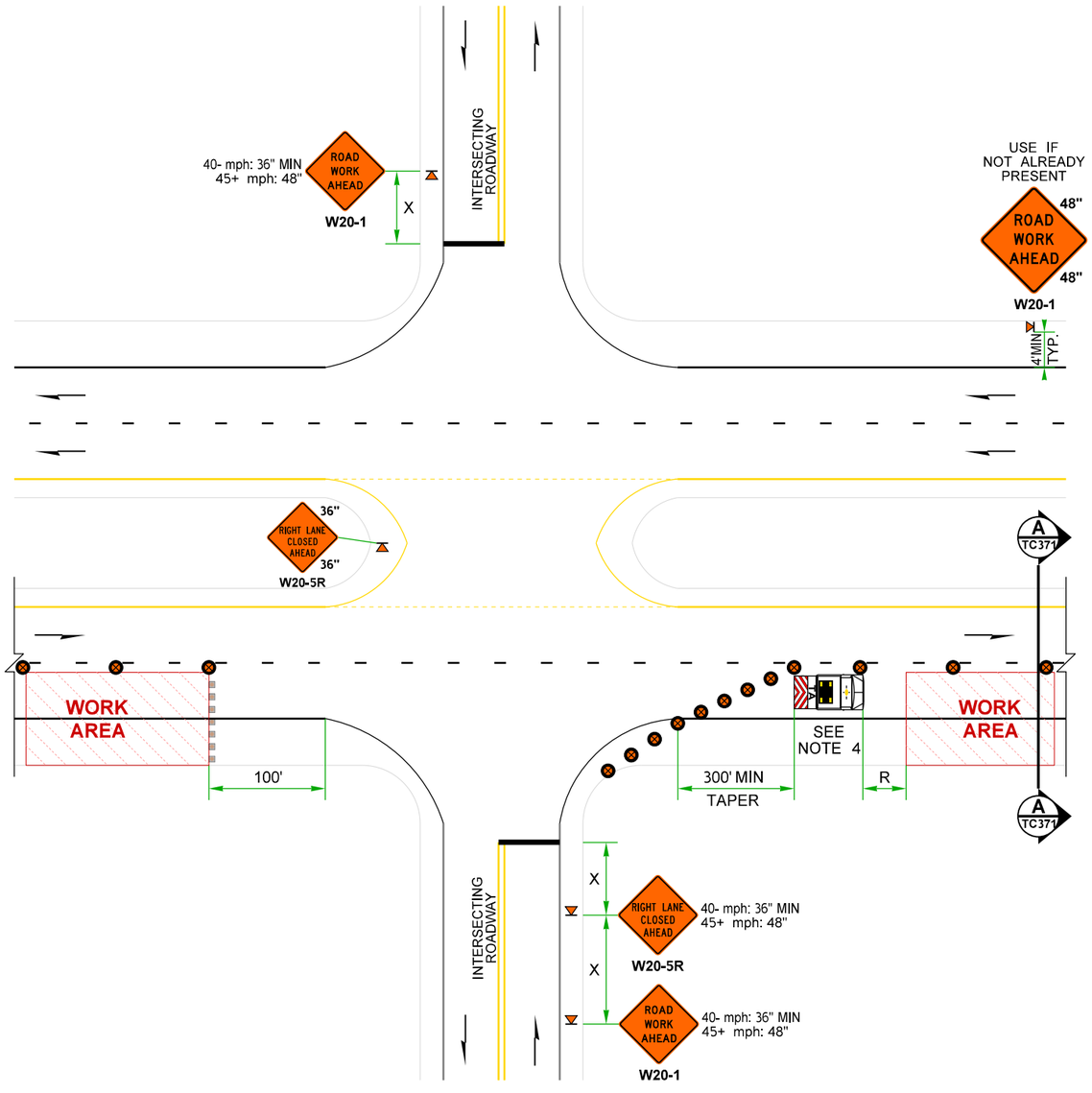
13. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1A OR 1B.

14. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

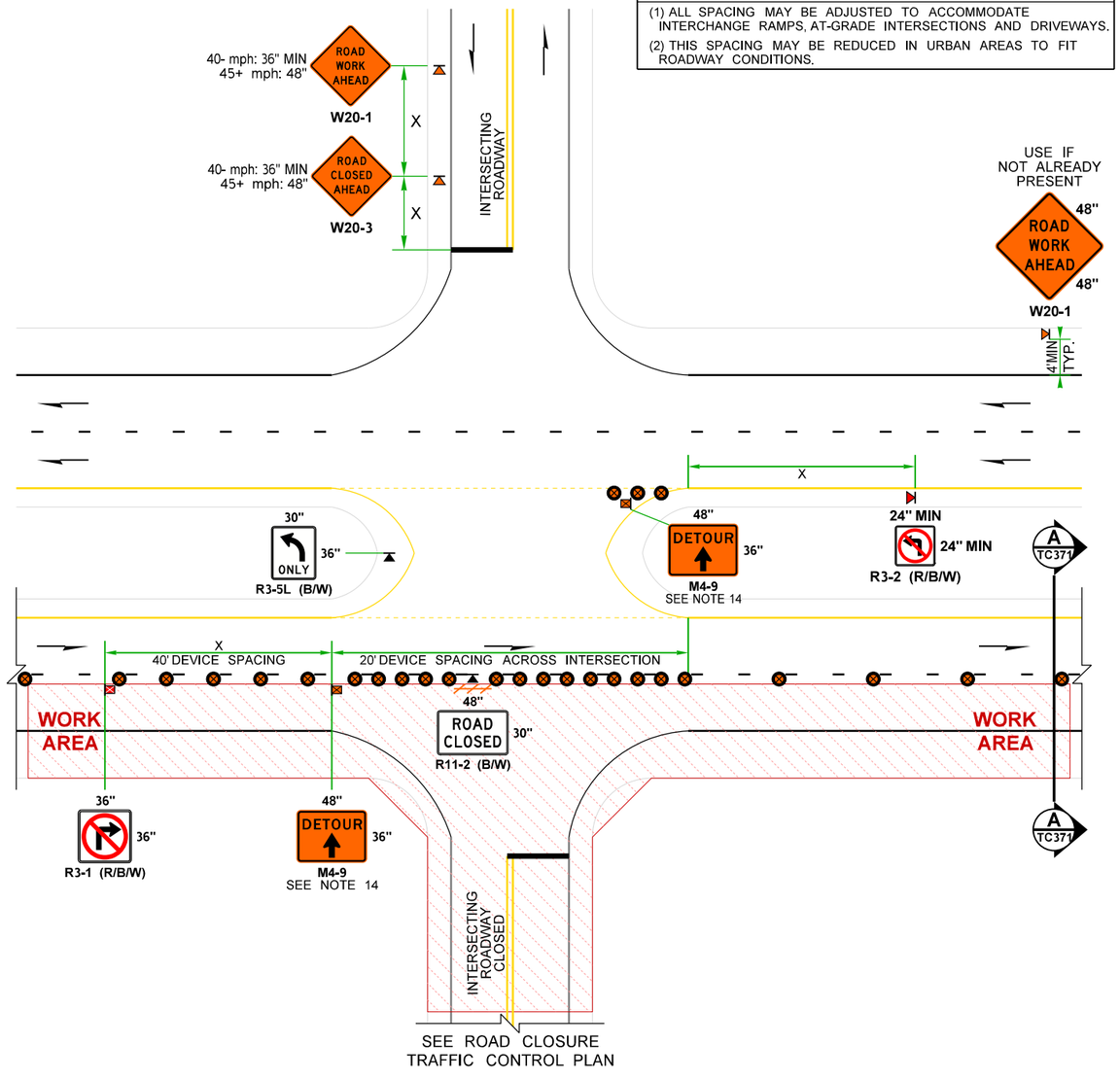
RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'±
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25-30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)

(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.



AT-GRADE INTERSECTION (NO TURN LANES): KEPT OPEN



AT-GRADE INTERSECTION (NO TURN LANES): PARTIAL CLOSURE

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

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TYPICAL TRAFFIC CONTROL PLANS

Plot 3

PLAN REF NO TC371

SHEET 2A OF 3 SHEETS

NOTES:

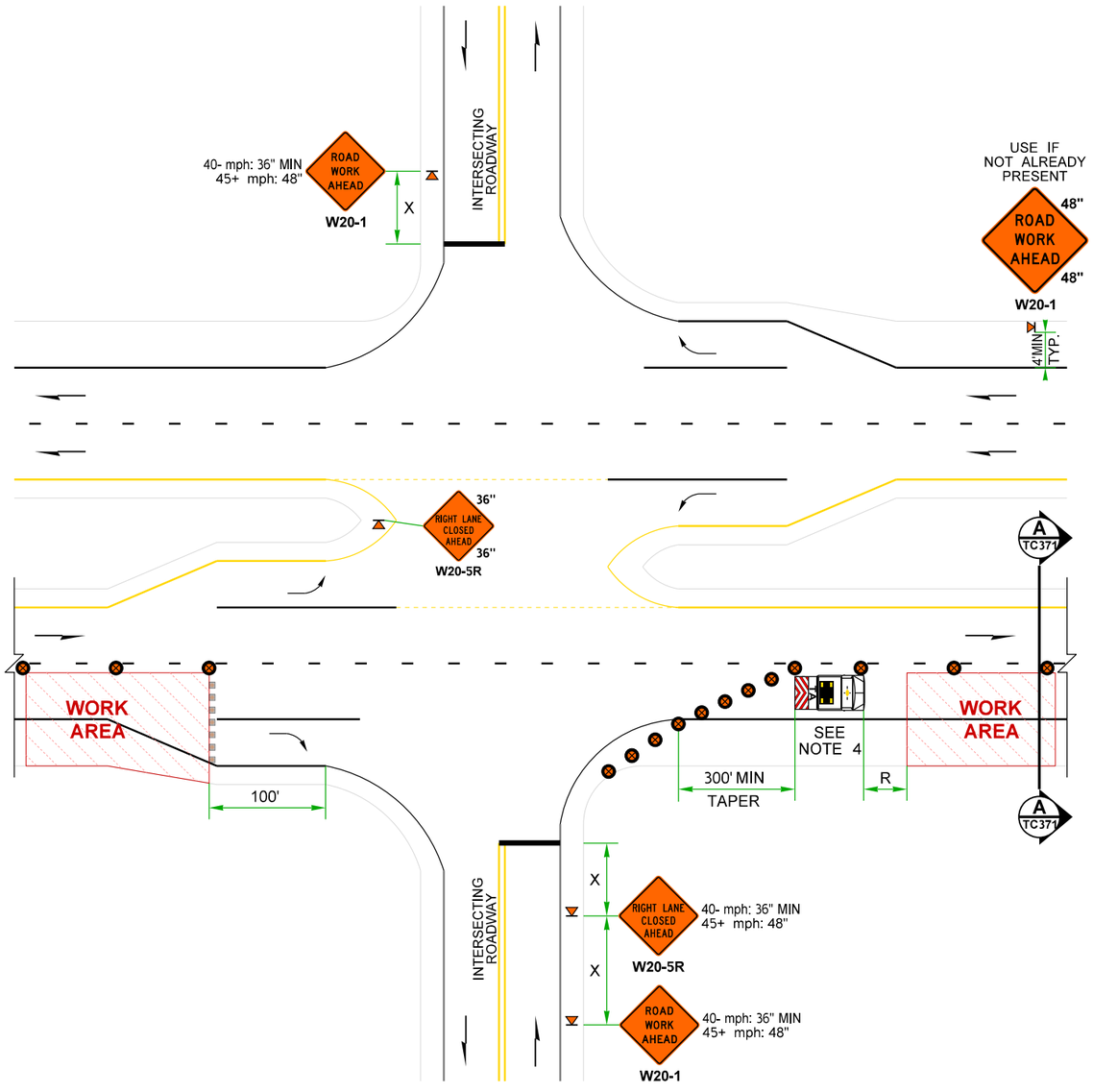
13. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1A OR 1B.

14. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

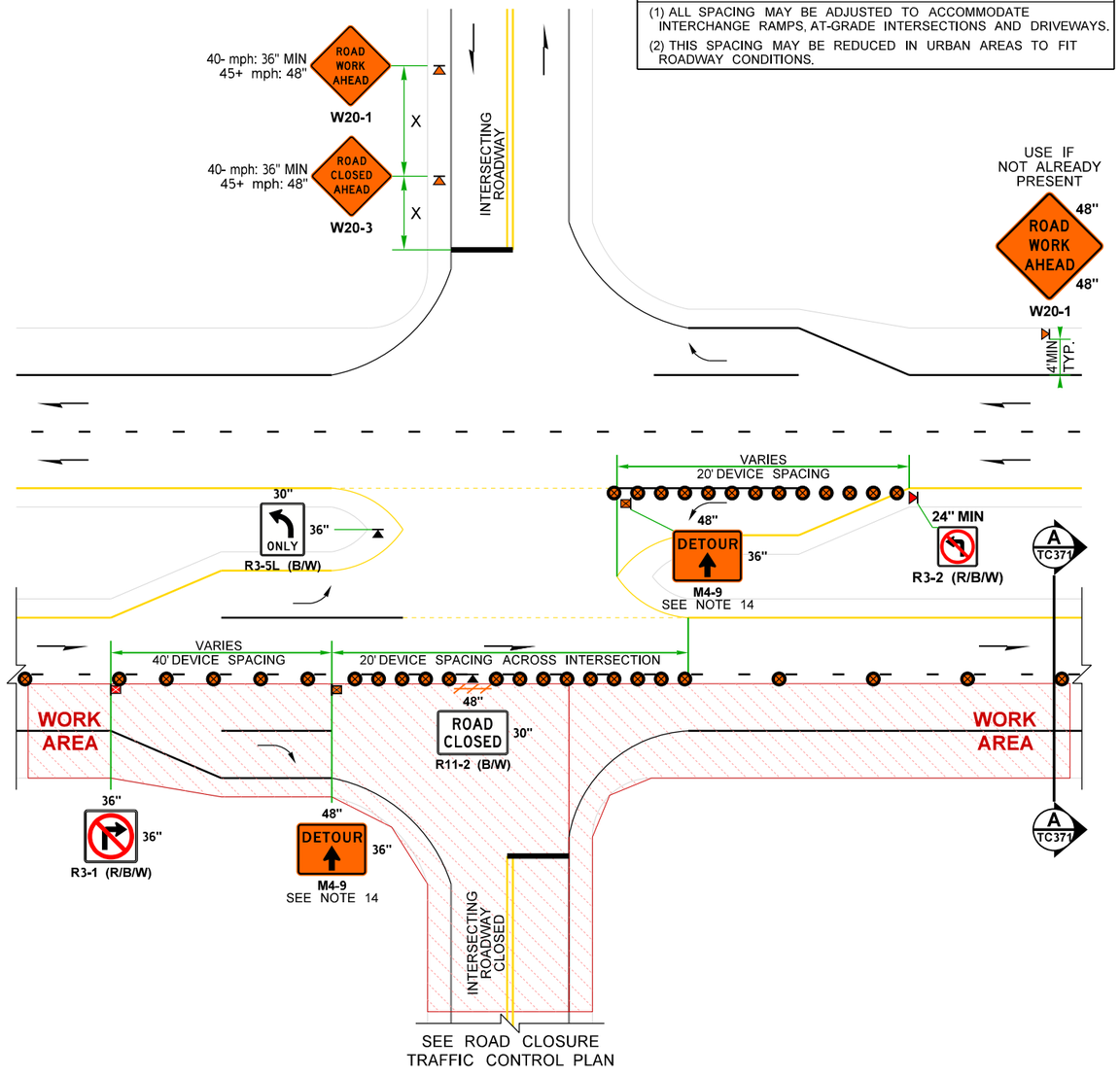
RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'±
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25-30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)

(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.



AT-GRADE INTERSECTION (WITH TURN LANES): KEPT OPEN



AT-GRADE INTERSECTION (WITH TURN LANES): PARTIAL CLOSURE

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 4

PLAN REF NO TC371

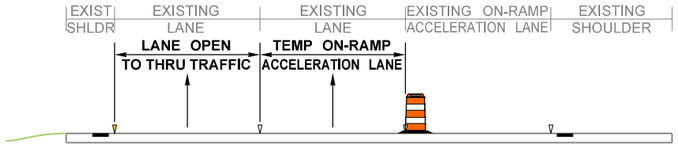
SHEET 2B OF 3 SHEETS

NOTES:

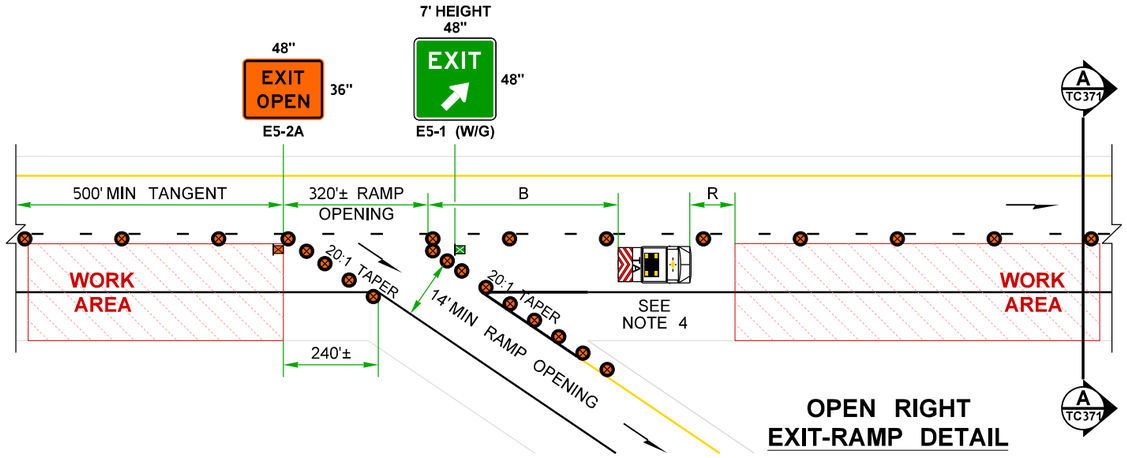
13. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1A OR 1B.

14. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.

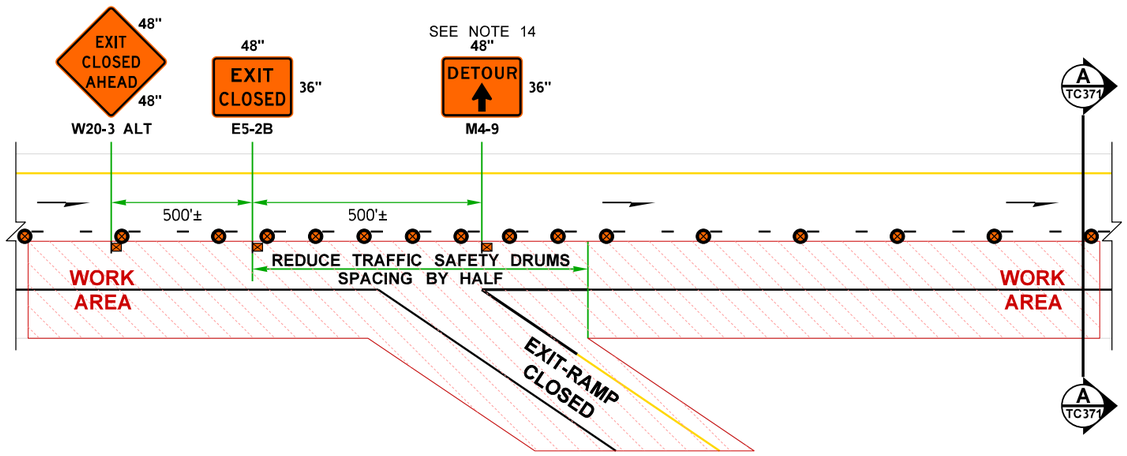
PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE)						
COMPONENT	SPEED (MPH)	50	55	60	65	70
Ramp Shift Taper	L/2 (feet)	320	360	360	400	440
Acceleration Tangent	L/2 (feet)	320	360	360	400	440
Merge Taper	L (feet)	600	680	720	800	840



B-B SECTION



OPEN RIGHT EXIT-RAMP DETAIL



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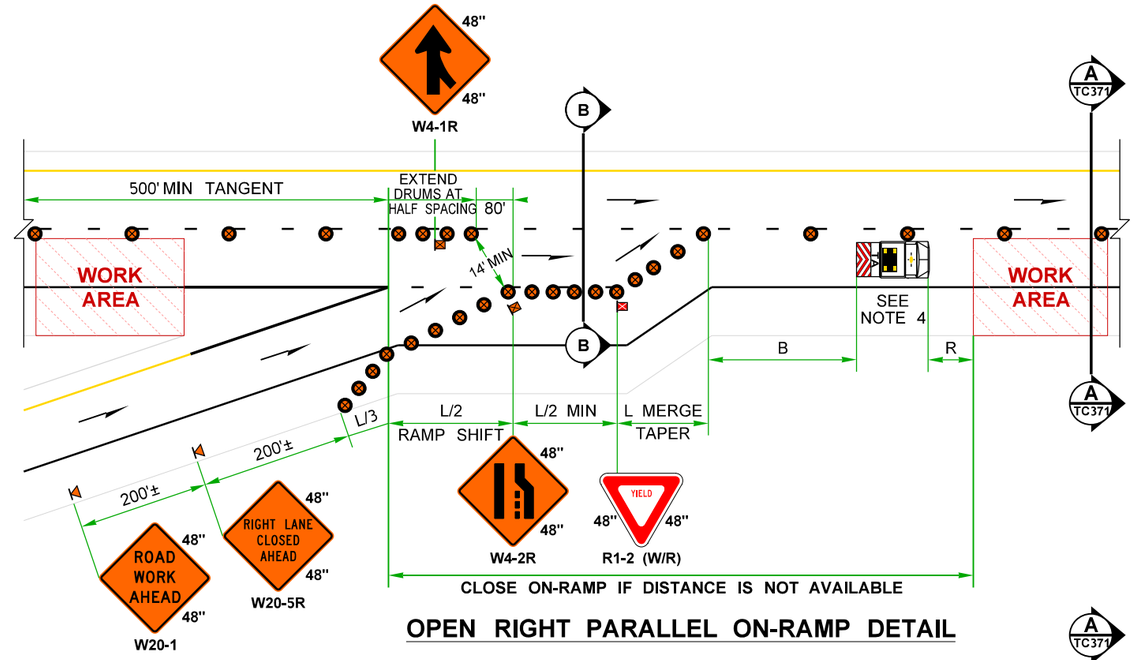
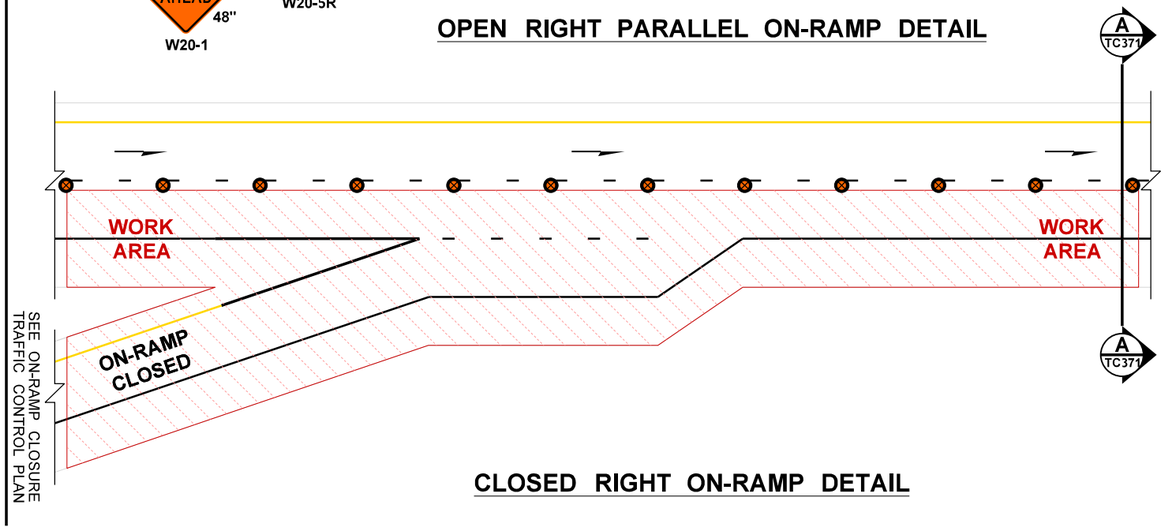


OPEN RIGHT PARALLEL ON-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 5

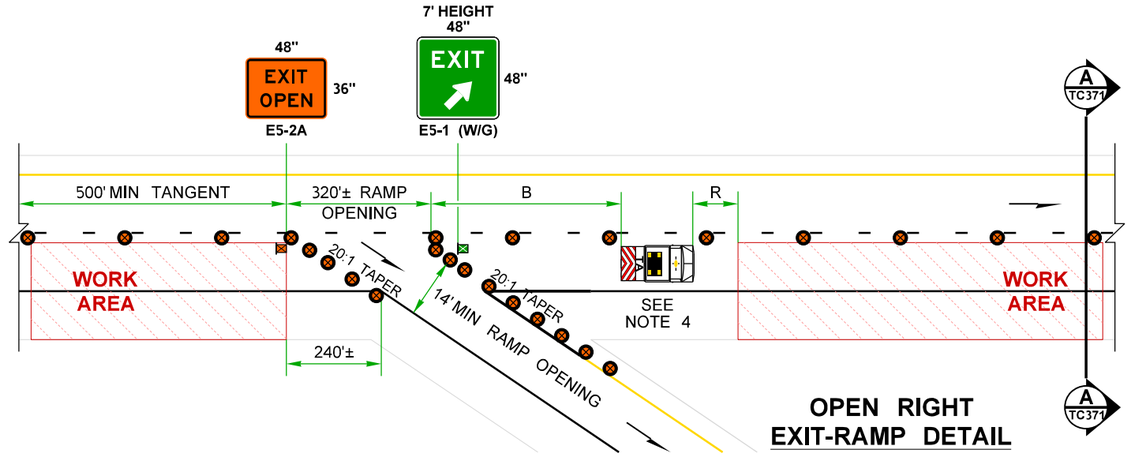
PLAN REF NO TC371

SHEET 3A OF 3 SHEETS

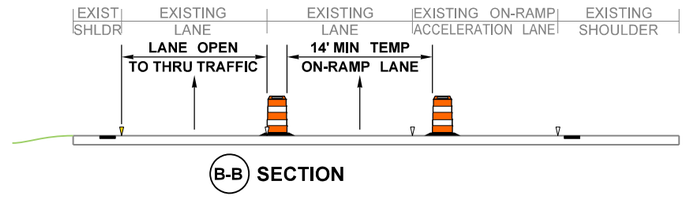
NOTES:

13. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1A OR 1B.

14. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.



OPEN RIGHT EXIT-RAMP DETAIL



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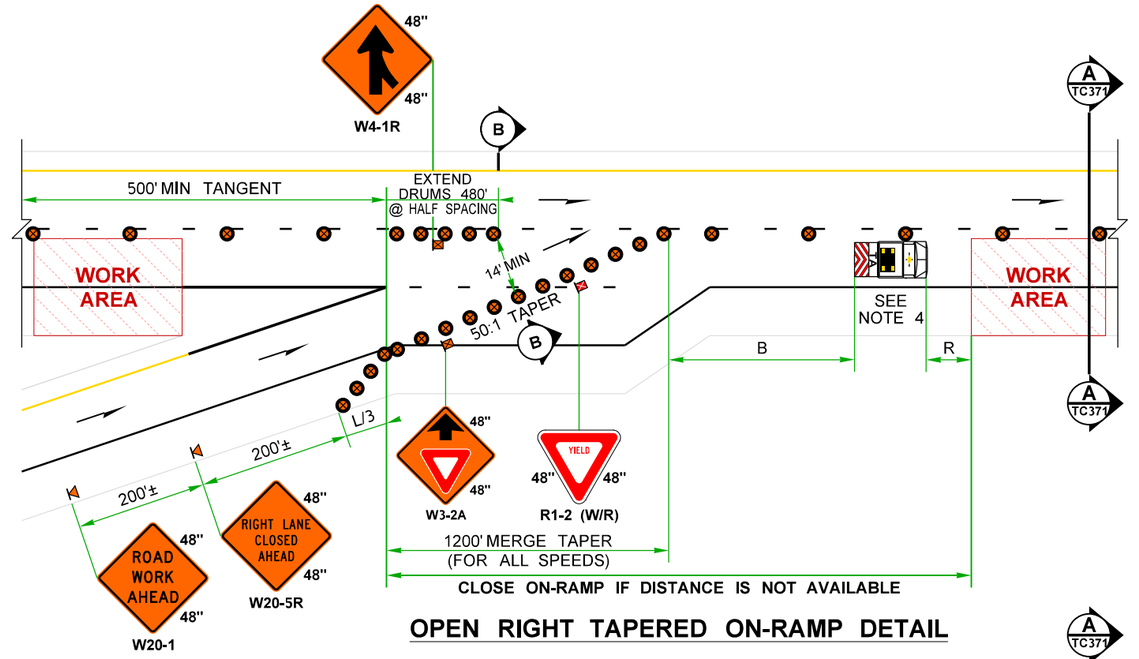
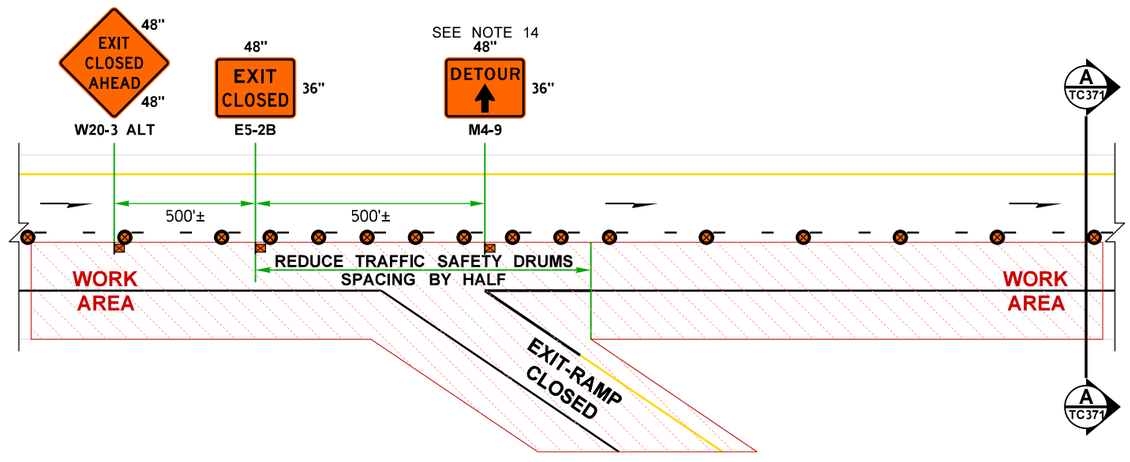
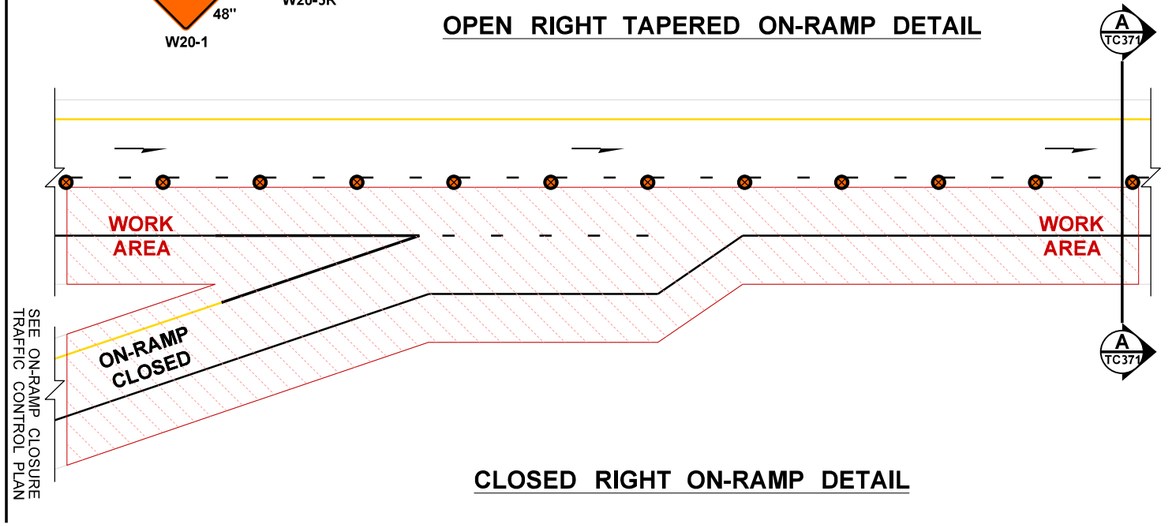


OPEN RIGHT TAPERED ON-RAMP DETAIL



CLOSED RIGHT EXIT-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\371DMLHwy45+1RtLane.dgn				REGION NO. 10	STATE WASH	FED.AID PROJ.NO.	Plot 6
TIME	10:36:41 AM							PLAN REF NO TC371
DATE	9/24/2024				JOB NUMBER			
PLOTTED BY	LintzF							SHEET 3B OF 3 SHEETS
DESIGNED BY								
ENTERED BY								
CHECKED BY					CONTRACT NO.		LOCATION NO.	
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

mPCMS	
1	2
RIGHT LANE CLOSURE	1 MILE AHEAD
2.0 SEC	2.0 SEC

OR

mPCMS - ALT 1		
1	2	3
RIGHT LANE CLOSURE	WATCH FOR SLOW TRAFFIC	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

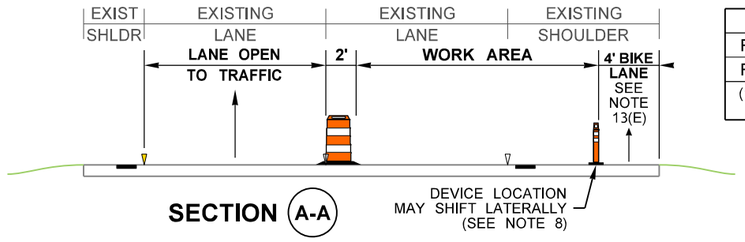
FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER PER STD. SPEC. 1-10.3(3)C.

USE IF TRAFFIC BACKUPS EXPECTED, BUT NOT VERIFIED HOURLY BY TCS.

mPCMS - ALT 2		
1	2	3
RIGHT LANE CLOSURE	SLOW TRAFFIC AHEAD	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

ONLY USED IF TCS VERIFIES HOURLY THAT TRAFFIC BACKUPS ARE PRESENT.

FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER OR UPSTREAM OF EXPECTED MAXIMUM TRAFFIC QUEUE PER STANDARD SPECIFICATION 1-10.3(3)C.



RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

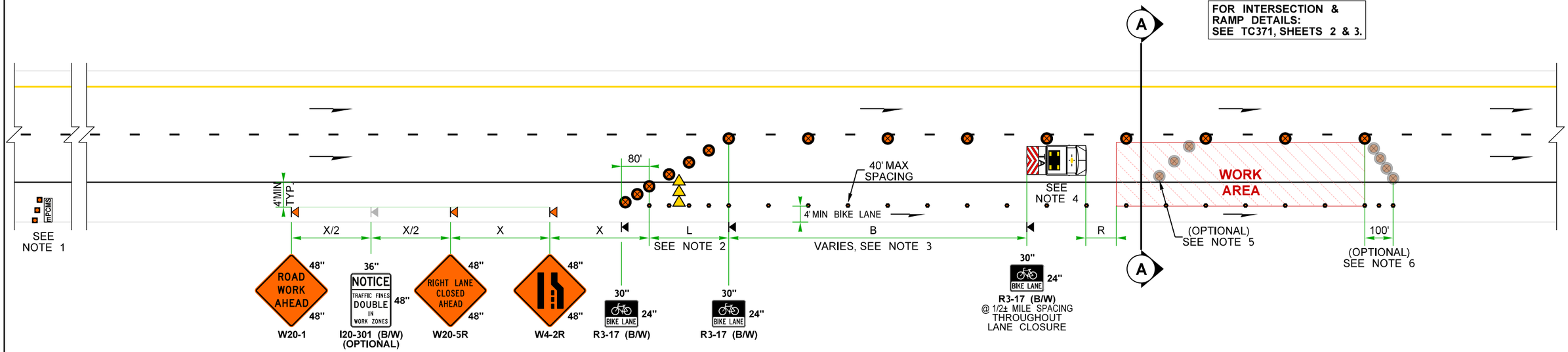
LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

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'

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60

FOR INTERSECTION & RAMP DETAILS: SEE TC371, SHEETS 2 & 3.



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- PORTABLE TUBULAR MARKER (SEE NOTE 8)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

1. FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
3. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
8. 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
9. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
10. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
11. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
12. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
13. BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
    (E) PROVIDE TEMP. 4' MIN BIKE LANE ON EDGE OF PAVED SHOULDER THROUGH CLOSURE.

48" TRUCKS LEAVING HIGHWAY 48" W21-30A
48" TRUCKS ENTERING HIGHWAY 48" W21-30
48" TRUCKS ENTERING AND LEAVING HIGHWAY 48" W21-30B
6C TEXT

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\371DMLHwy45+1RtLane.dgn						
TIME	10:36:41 AM						
DATE	9/24/2024						
PLOTTED BY	LintzF						
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CHECKED BY							
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 11

PLAN REF NO TC371

SHEET 1C OF 3 SHEETS

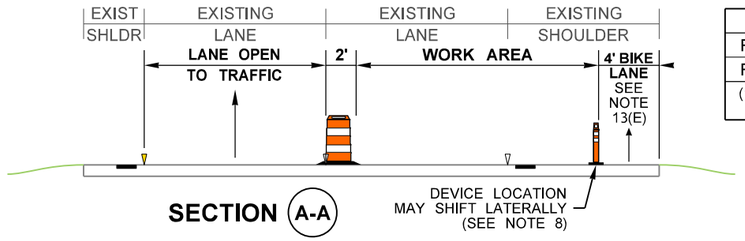
3-MILE QUEUE WARNING SYSTEM MESSAGES					
TRAFFIC SENSORS		mPCMS 2		mPCMS 1	
B	A	1	2	1	2
TRIGGER	SPEED	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
35+ MPH	35+ MPH	■ ■ ■ ■	(Blank)	RIGHT LANE CLOSURE	1.5 MILES AHEAD
35+ MPH	< 35 MPH	LANE CLOSURE 3 MILES	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES
< 35 MPH	< 35 MPH	SLOW OR STOPPED TRAFFIC	NEXT 3 MILES	USE ALL LANES	TAKE TURNS AT MERGE

SEE QUEUE WARNING SYSTEM SPECIAL PROVISION OR RFP FOR DETAILS.

LOCATE PCMSs PER STD. SPEC 1-10.3(3)C. PCMS MAY BE PLACED ON OPPOSITE SHOULDER WHEN NEEDED, BUT AVOID RAMP GORES. WHEN PCMSs OR TRAFFIC SENSORS PLACED BEHIND BARRIER/GUARDRAIL OR WITHIN CLOSED LANE, TRANSVERSE TRAFFIC DRUMS ARE NOT REQUIRED.

ADJUST QWS COMPONENTS AS NEEDED TO AVOID CONFLICTS WITH TRAFFIC CONTROL DEVICES, NARROW SHOULDERS, RAMPS, OR TO MAINTAIN VISIBILITY OF SEQUENTIAL ARROW SIGN.

IN THE EVENT OF A SYSTEM FAILURE, SEE SPECIAL PROVISIONS OR RFP "QUEUE WARNING SYSTEM FAILURE PROTOCOL".



RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

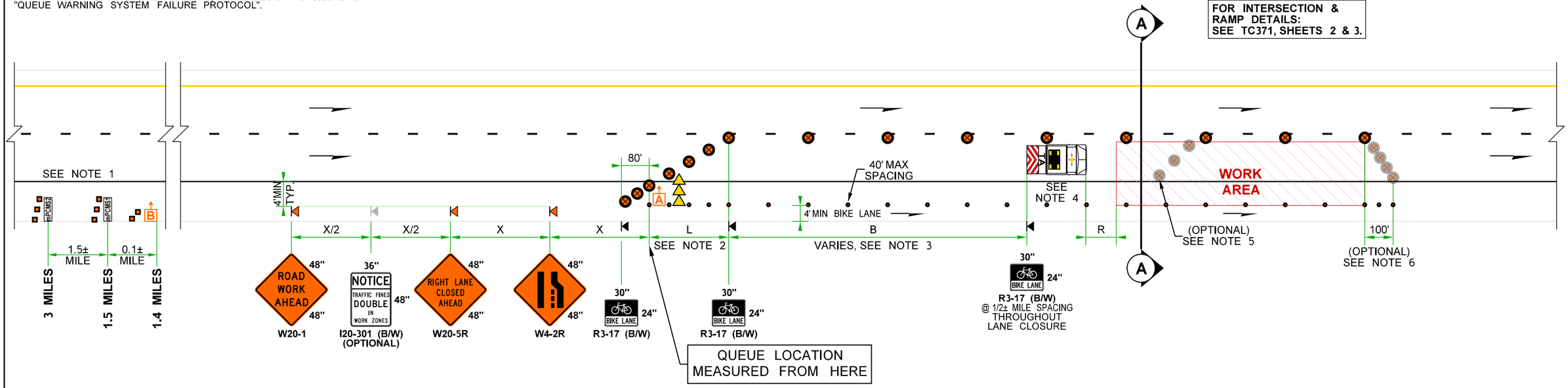
LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

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'

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60

FOR INTERSECTION & RAMP DETAILS: SEE TC371, SHEETS 2 & 3.



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- PORTABLE TUBULAR MARKER (SEE NOTE 8)
- QWS TRAFFIC SENSOR
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

1. FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
3. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
8. 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
9. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
10. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
11. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
12. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
13. BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
    (E) PROVIDE TEMP. 4' MIN BIKE LANE ON EDGE OF PAVED SHOULDER THROUGH CLOSURE.

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE + 3-MILE QWS (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrive - WashIngton State Department of TransportatIon\Desktop\Work Zone TCPs\371DMLHwy45+1RtLane.dgn						Plot 12
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DATE	9/24/2024						
PLOTTED BY	LintzF				REGION NO. 10 / STATE WASH	FED.AID PROJ.NO.	
DESIGNED BY					JOB NUMBER		
ENTERED BY							
CHECKED BY					CONTRACT NO.	LOCATION NO.	
PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

SHEET 1D OF 3 SHEETS

NOTES:

14. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1C OR 1D.

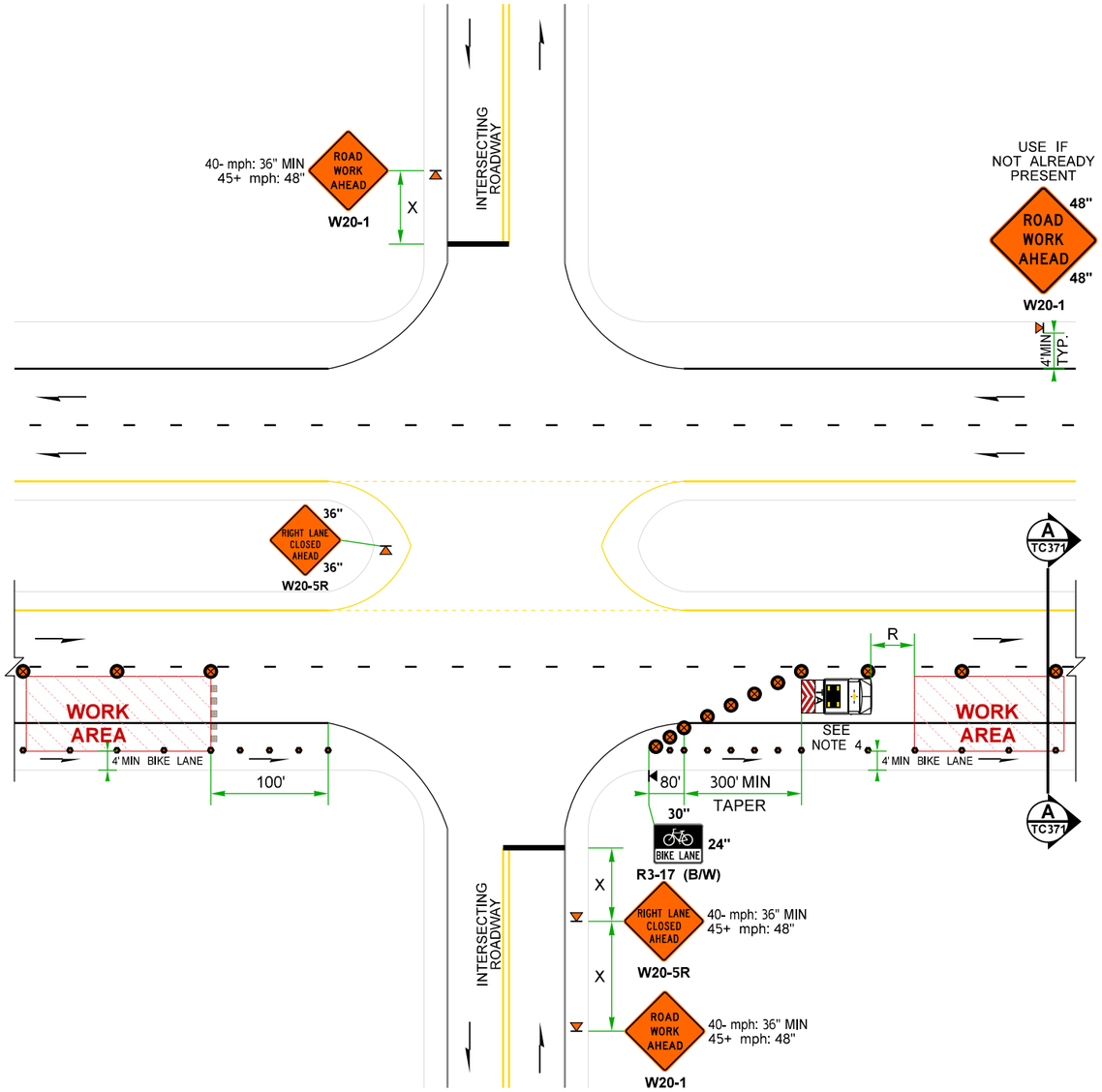
15. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

16. TEMP BIKE LANE ACROSS PARTIAL CLOSURE MAY BE REMOVED. IF SO, ESCORT BICYCLISTS THROUGH WORK AREA AFTER STOPPING WORK OPERATIONS WHEN FEASIBLE.

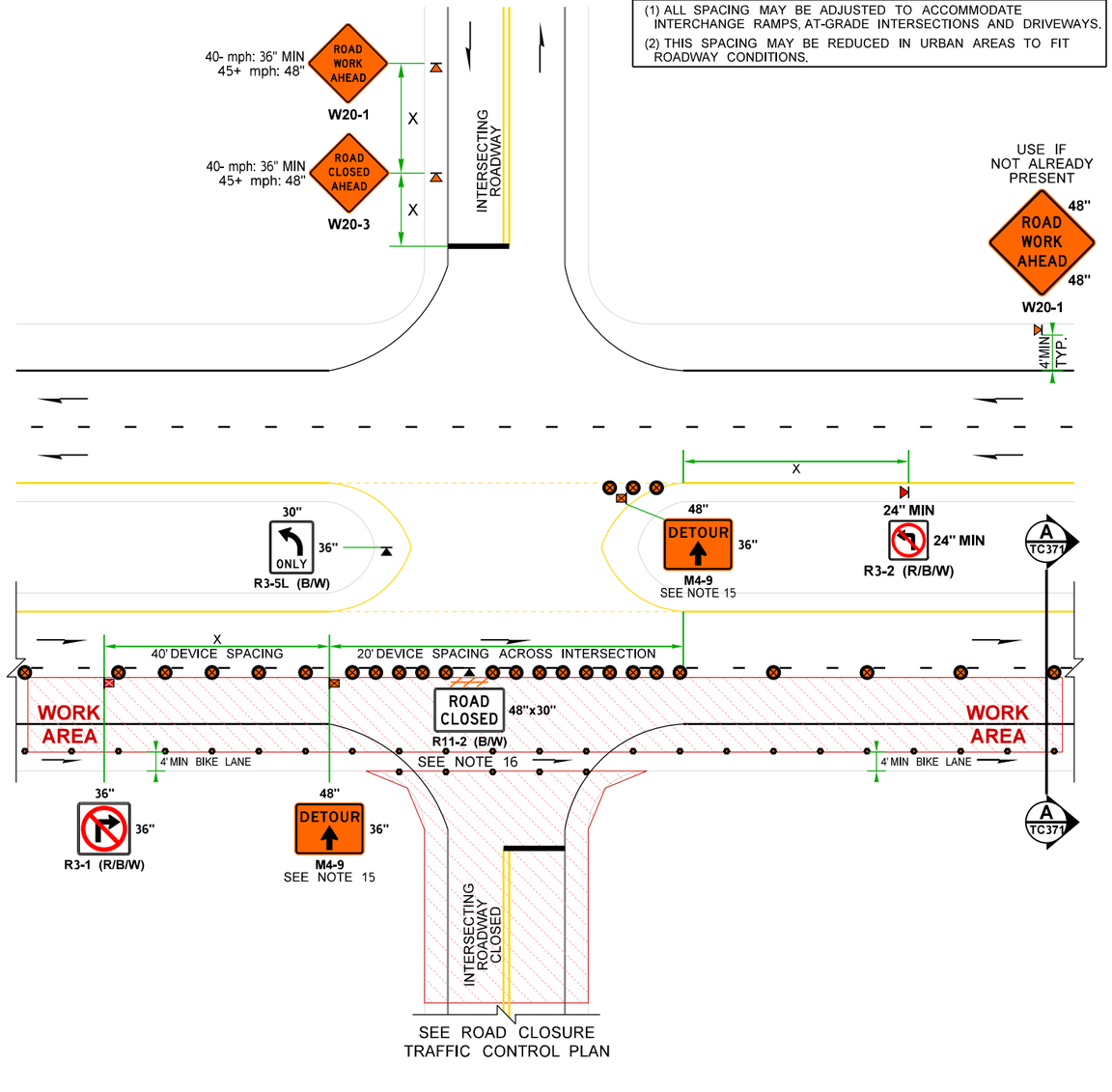
RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'±
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25-30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)

(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.



AT-GRADE INTERSECTION (NO TURN LANES): KEPT OPEN



AT-GRADE INTERSECTION (NO TURN LANES): PARTIAL CLOSURE

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

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

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 13

PLAN REF NO TC371

SHEET 2C OF 3 SHEETS

NOTES:

14. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1C OR 1D.

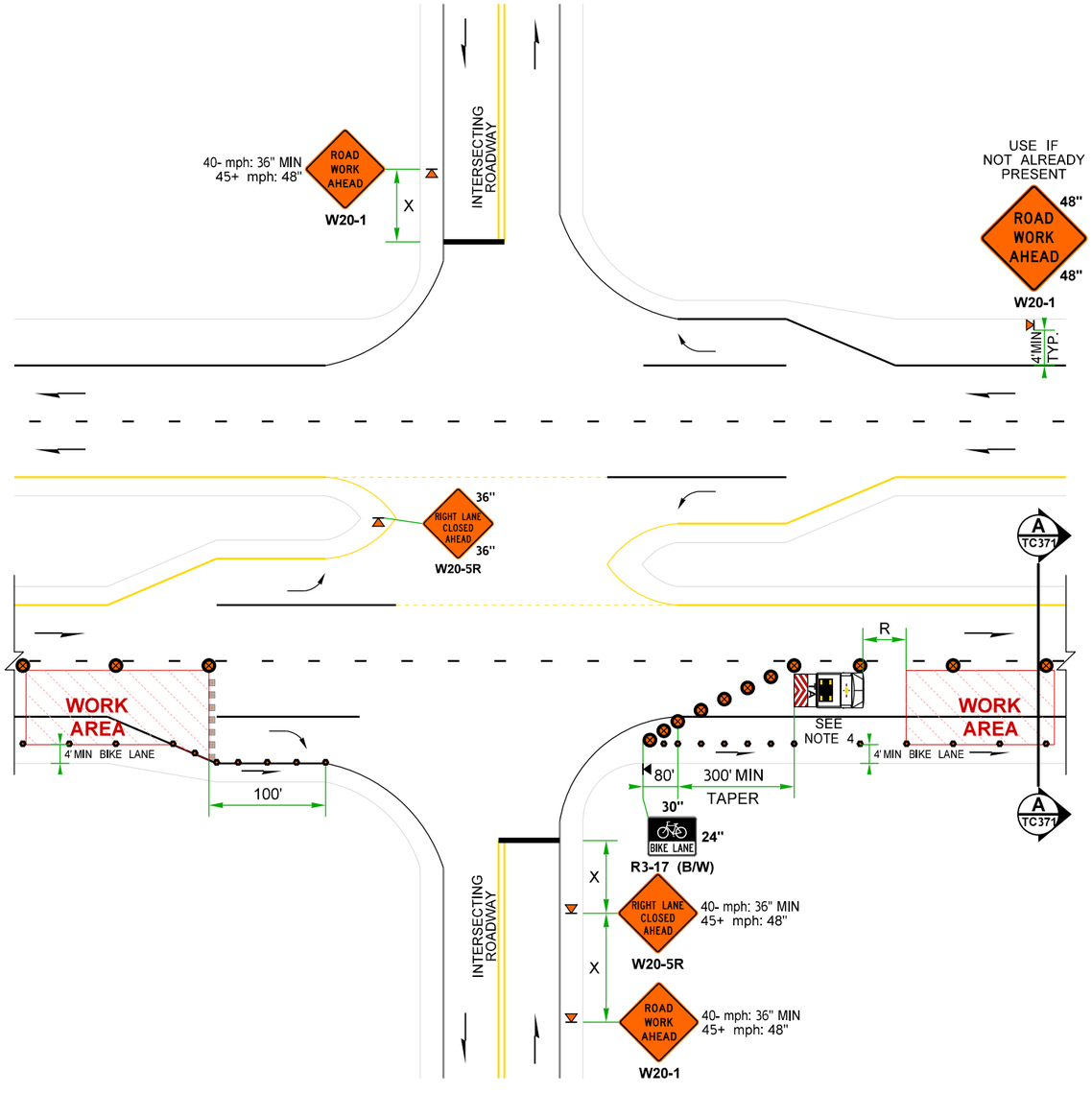
15. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

16. TEMP BIKE LANE ACROSS PARTIAL CLOSURE MAY BE REMOVED. IF SO, ESCORT BICYCLISTS THROUGH WORK AREA AFTER STOPPING WORK OPERATIONS WHEN FEASIBLE.

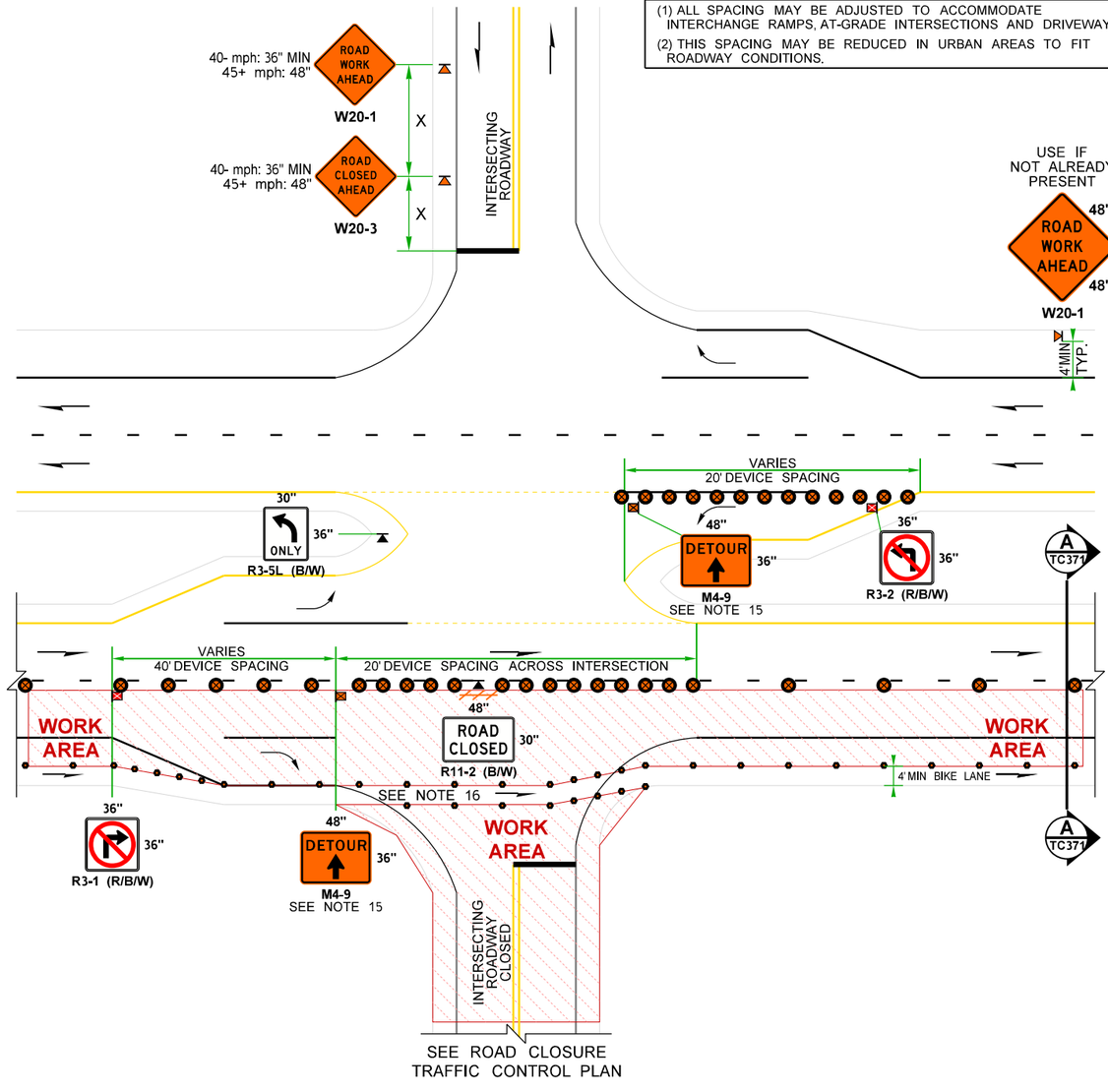
RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-65 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'±
RURAL ROADS & URBAN ARTERIALS RESIDENTAL & BUSINESS DISTRICTS	25-30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)

(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.



AT-GRADE INTERSECTION (WITH TURN LANES): KEPT OPEN



AT-GRADE INTERSECTION (WITH TURN LANES): PARTIAL CLOSURE

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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REGIONAL ADM.		REVISION	DATE	BY			

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 14

PLAN REF NO TC371

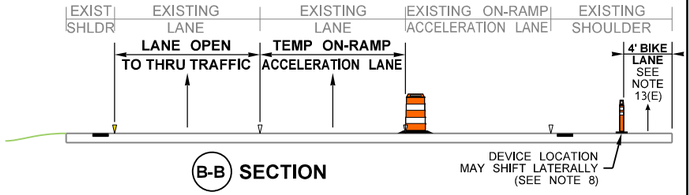
SHEET 2D OF 3 SHEETS

NOTES:

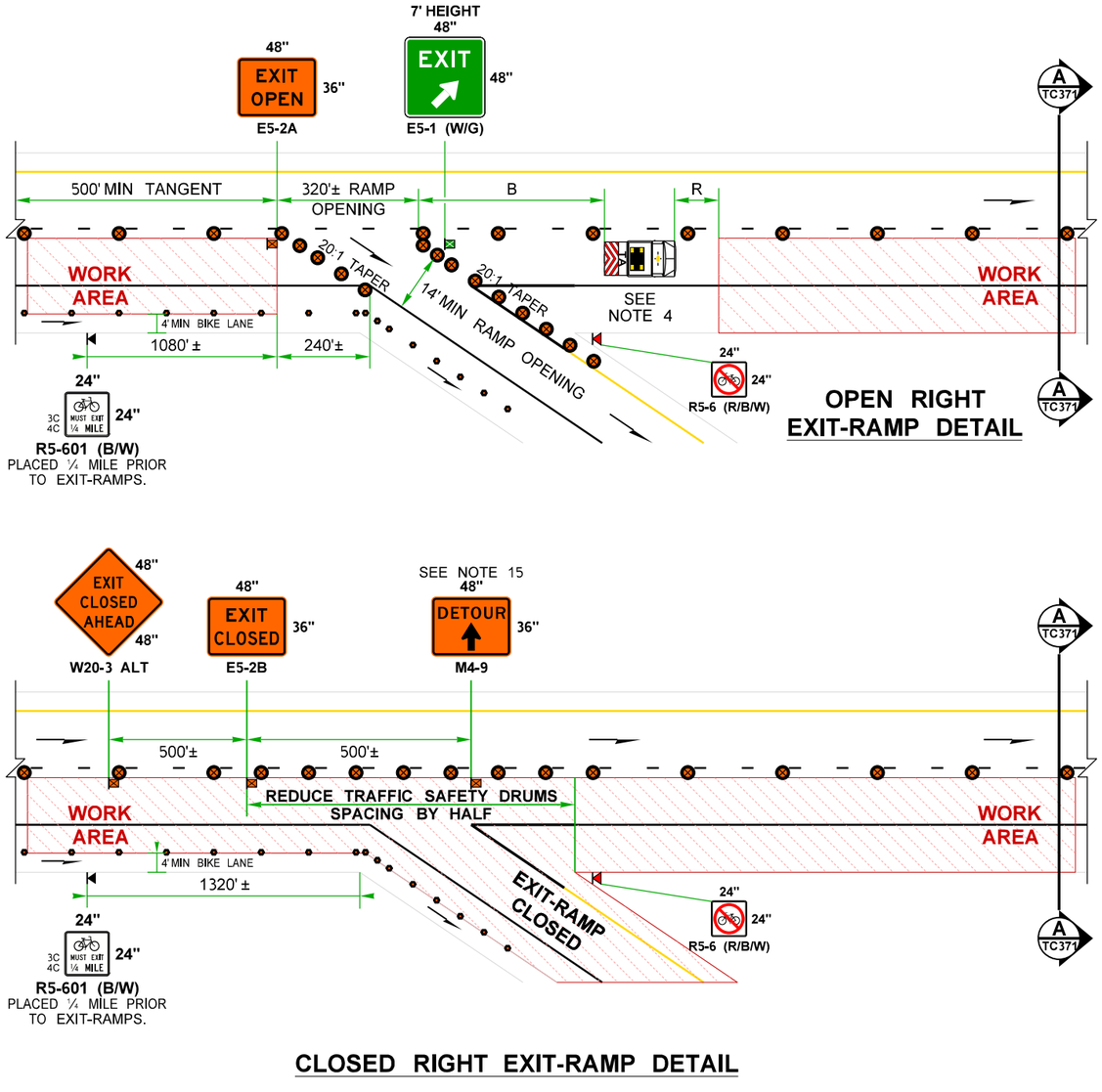
14. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1C OR 1D.

15. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.

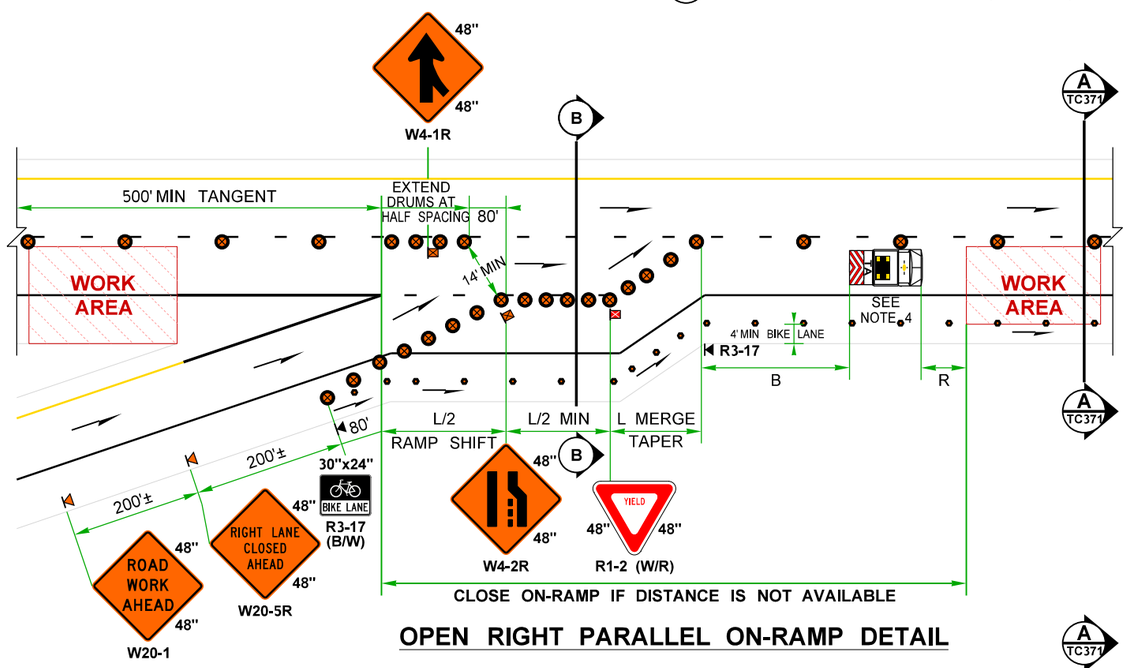
PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE)						
COMPONENT	SPEED (MPH)	50	55	60	65	70
Ramp Shift Taper	L/2 (feet)	320	360	360	400	440
Acceleration Tangent	L/2 (feet)	320	360	360	400	440
Merge Taper	L (feet)	600	680	720	800	840



B-B SECTION

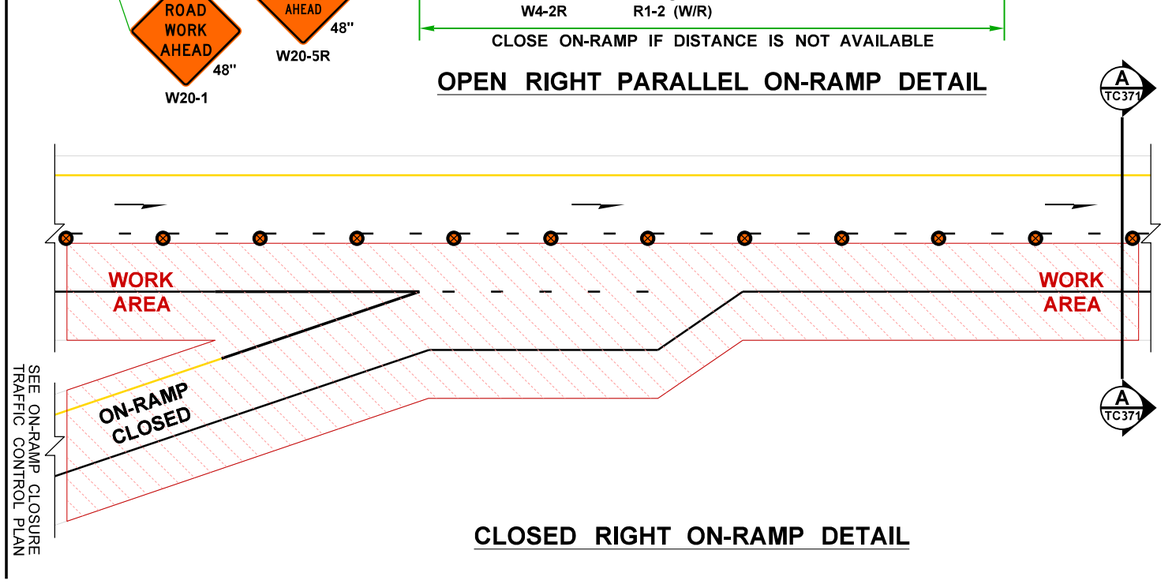


OPEN RIGHT EXIT-RAMP DETAIL



OPEN RIGHT PARALLEL ON-RAMP DETAIL

CLOSED RIGHT EXIT-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

FILE NAME	C:\Users\LIntzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\371DMLHwy45+1RtLane.dgn				REGION NO. 10	STATE WASH	FED.AID PROJ.NO.
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PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 15

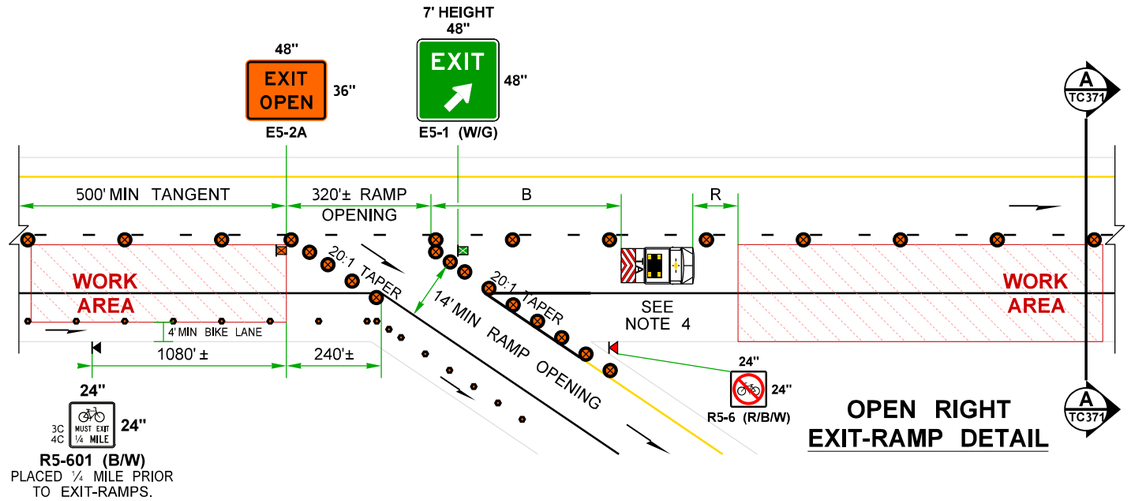
PLAN REF NO TC371

SHEET 3C OF 3 SHEETS

NOTES:

14. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC371, SHEET 1C OR 1D.

15. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.



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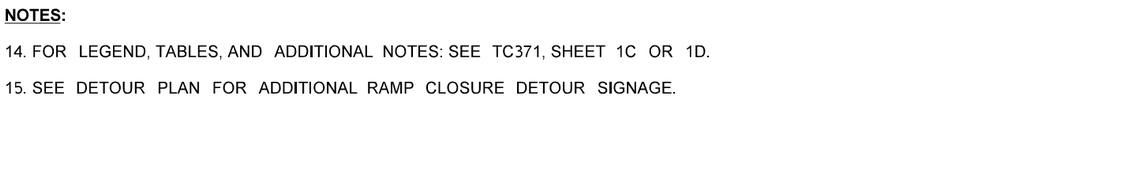

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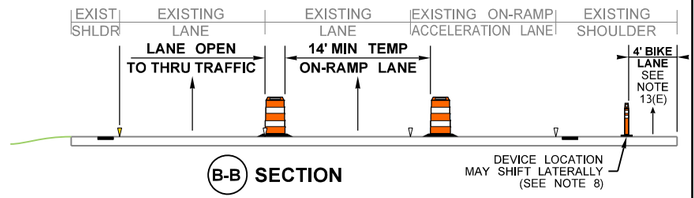
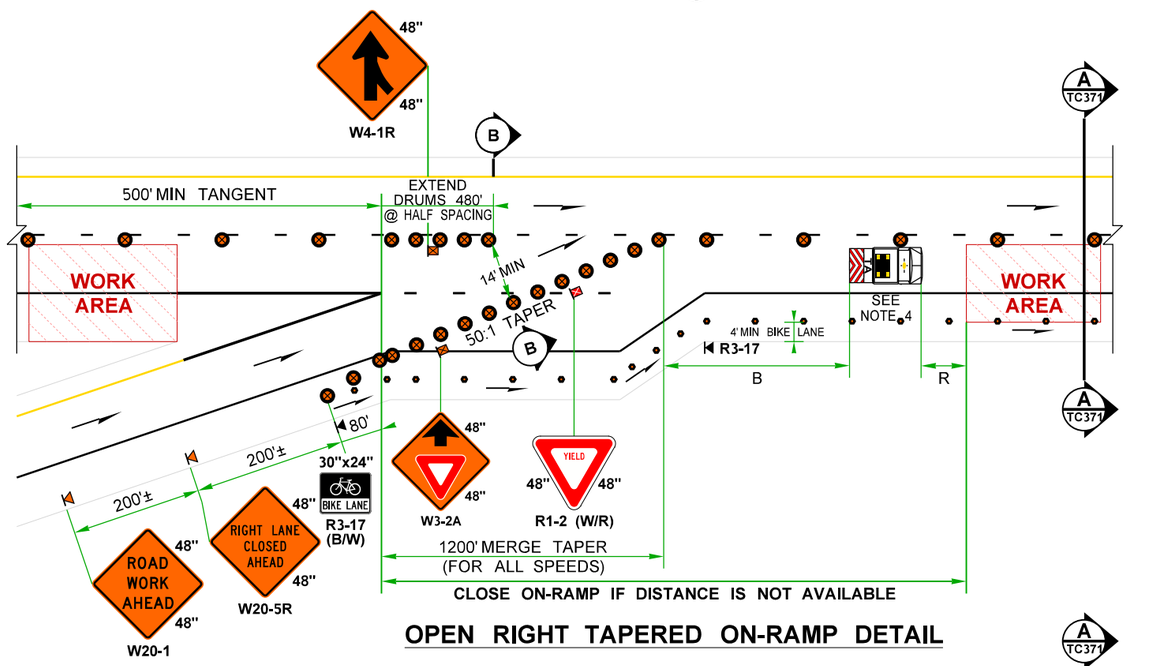
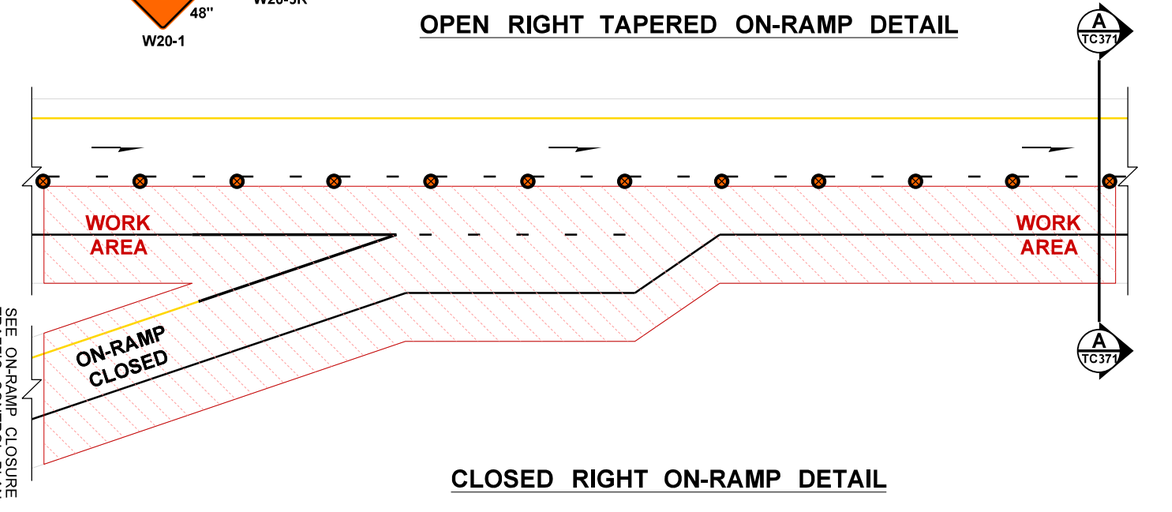




OPEN RIGHT TAPERED ON-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TIME	10:36:44 AM							PLAN REF NO TC371
DATE	9/24/2024				JOB NUMBER			
PLOTTED BY	LintzF							SHEET 3D OF 3 SHEETS
DESIGNED BY								
ENTERED BY								
CHECKED BY					CONTRACT NO.		LOCATION NO.	
PROJ. ENGR.								
REGIONAL ADM.		REVISION	DATE	BY				

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

mPCMS	
1	2
RIGHT LANE CLOSURE	1 MILE AHEAD
2.0 SEC	2.0 SEC

OR

mPCMS - ALT 1		
1	2	3
RIGHT LANE CLOSURE	WATCH FOR SLOW TRAFFIC	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

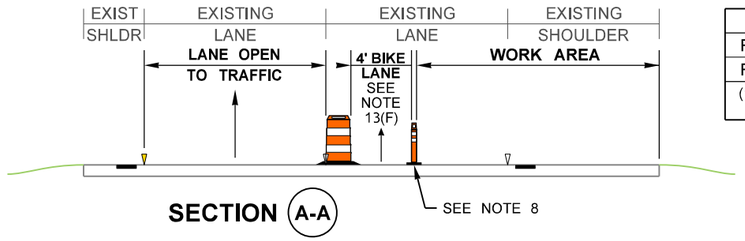
FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER PER STD. SPEC. 1-10.3(3)C.

USE IF TRAFFIC BACKUPS EXPECTED, BUT NOT VERIFIED HOURLY BY TCS.

mPCMS - ALT 2		
1	2	3
RIGHT LANE CLOSURE	SLOW TRAFFIC AHEAD	NEXT # MILES
1.5 SEC	1.5 SEC	1.5 SEC

ONLY USED IF TCS VERIFIES HOURLY THAT TRAFFIC BACKUPS ARE PRESENT.

FIELD LOCATE 1± MILE PRIOR TO CLOSURE TAPER OR UPSTREAM OF EXPECTED MAXIMUM TRAFFIC QUEUE PER STANDARD SPECIFICATION 1-10.3(3)C.



SECTION (A-A)

RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

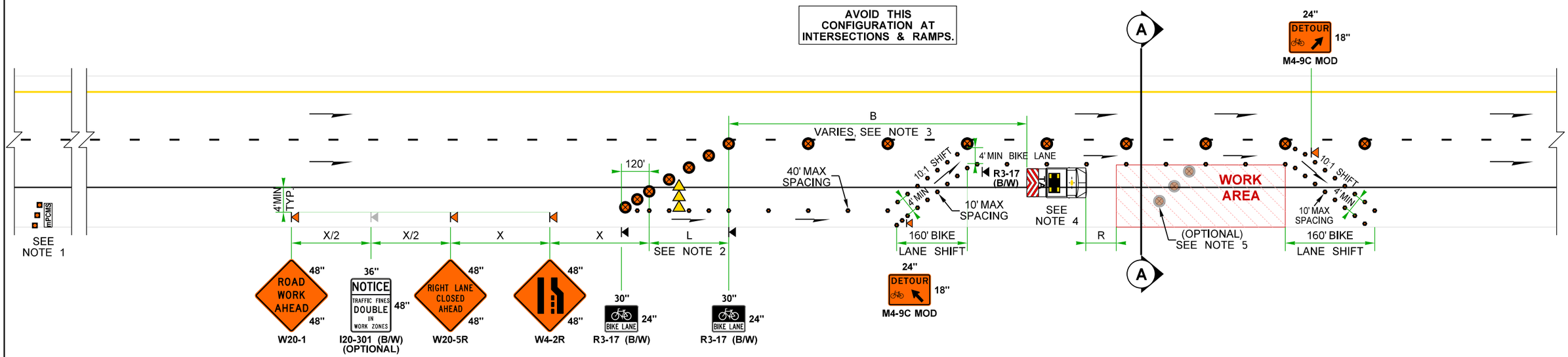
LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

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'

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60

AVOID THIS CONFIGURATION AT INTERSECTIONS & RAMPS.



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- PORTABLE TUBULAR MARKER (SEE NOTE 8)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS — mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

1. FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
3. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
8. 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
9. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
10. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
11. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
12. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
13. BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
    (F) PROVIDE TEMP. 4' MIN BIKE LANE ADJACENT TO OPEN LANE THROUGH CLOSURE.

48" TRUCKS LEAVING HIGHWAY 48" — W21-30A
48" TRUCKS ENTERING HIGHWAY 48" — W21-30
48" TRUCKS ENTERING AND LEAVING HIGHWAY 48" — W21-30B
6C TEXT

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 21

PLAN REF NO TC371

SHEET 1E OF 3 SHEETS

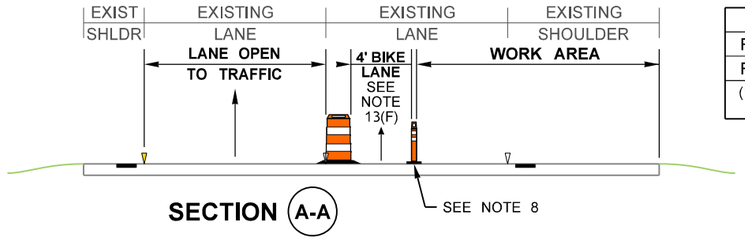
3-MILE QUEUE WARNING SYSTEM MESSAGES					
TRAFFIC SENSORS		mPCMS 2		mPCMS 1	
B	A	1	2	1	2
TRIGGER SPEED		2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
35+ MPH	35+ MPH	■ ■ ■ ■	(Blank)	RIGHT LANE CLOSURE	1.5 MILES AHEAD
35+ MPH	< 35 MPH	LANE CLOSURE 3 MILES	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES
< 35 MPH	< 35 MPH	SLOW OR STOPPED TRAFFIC	NEXT 3 MILES	USE ALL LANES	TAKE TURNS AT MERGE

SEE QUEUE WARNING SYSTEM SPECIAL PROVISION OR RFP FOR DETAILS.

LOCATE PCMSs PER STD. SPEC. 1-10.3(3)C. PCMS MAY BE PLACED ON OPPOSITE SHOULDER WHEN NEEDED, BUT AVOID RAMP GORES. WHEN PCMSs OR TRAFFIC SENSORS PLACED BEHIND BARRIER/GUARDRAIL OR WITHIN CLOSED LANE, TRANSVERSE TRAFFIC DRUMS ARE NOT REQUIRED.

ADJUST QWS COMPONENTS AS NEEDED TO AVOID CONFLICTS WITH TRAFFIC CONTROL DEVICES, NARROW SHOULDERS, RAMPS, OR TO MAINTAIN VISIBILITY OF SEQUENTIAL ARROW SIGN.

IN THE EVENT OF A SYSTEM FAILURE, SEE SPECIAL PROVISIONS OR RFP "QUEUE WARNING SYSTEM FAILURE PROTOCOL".



SECTION (A-A)

RECOMMENDED SIGN SPACING = X (1)		
RURAL HIGHWAYS	60-70 MPH	800'±
RURAL ROADS	45-55 MPH	500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

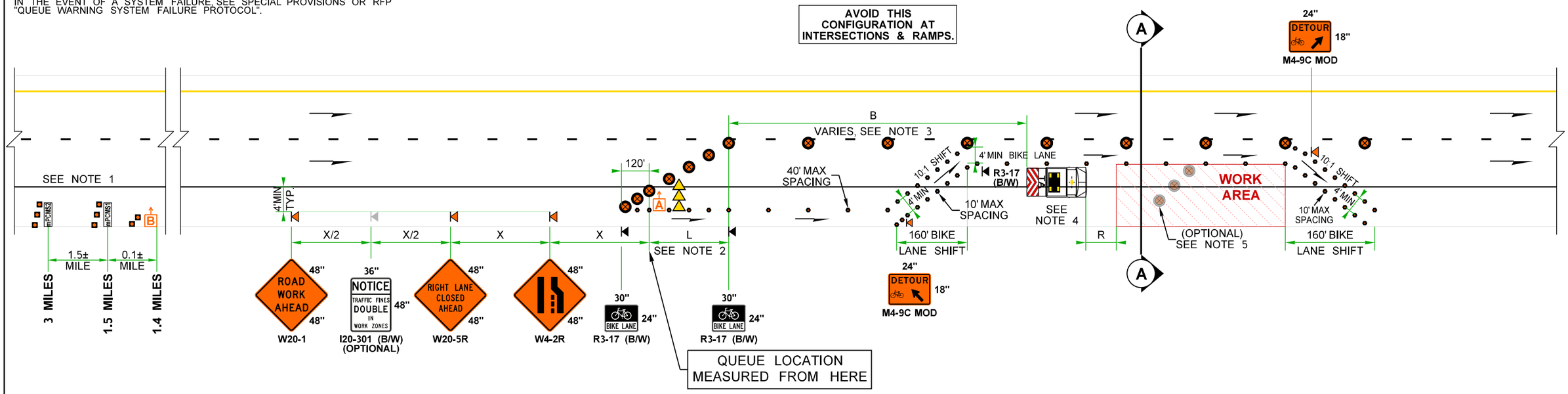
LANE CLOSURE TAPER LENGTH = L							
LANE WIDTH	SPEED (MPH)	45	50	55	60	65	70
12'	L (feet)	540	600	680	720	800	840
Avoid reducing lane closure length on 45+ mph roadways.							

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'

LONGITUDINAL BUFFER SPACE = B						
SPEED (MPH)	45	50	55	60	65	70
B (feet)	360	425	495	570	645	730
Buffer space may be adjusted (±) based on field conditions.						

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 70	40	80
45	30	60

AVOID THIS CONFIGURATION AT INTERSECTIONS & RAMPS.

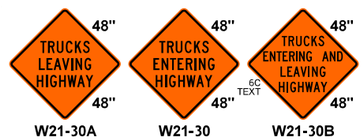


LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 7)
- PORTABLE TUBULAR MARKER (SEE NOTE 8)
- QWS TRAFFIC SENSOR
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

NOTES:

1. FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
3. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
4. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
5. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
6. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
7. 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
8. 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
9. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
10. PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
11. ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
12. PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
    (A) KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
    (B) CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
    (C) STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
    (D) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
13. BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
    (F) PROVIDE TEMP. 4' MIN BIKE LANE ADJACENT TO OPEN LANE THROUGH CLOSURE.



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE + 3-MILE QWS (45+ MPH, MAINTAIN EXISTING SPEED LIMIT)

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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 22

PLAN REF NO TC371

SHEET 1F OF 3 SHEETS

WORK ZONE MICROSTATION CELLS: Updated work zone cells incorporated (September 2024).

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 e-mail 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

PLOT USAGE EXPLANATION:

Plot 1: Single right lane closure maintaining existing speed limit on divided 4-lane highways with single PCMS in advance for queue mitigation.

Plot 2: Single right lane closure maintaining existing speed limit on divided 4-lane highways with 3-Mile Queue Warning System in advance for queue mitigation.

Plots 3-4: Details for at-grade intersections, including with and without turn lanes.

Plots 5-6: Details for interchange ramps, including with and without turn lanes.

Plot 11: Single right lane closure maintaining existing speed limit on divided 4-lane highways with single PCMS in advance for queue mitigation with temporary bike lane at edge of shoulder alternative.

Plot 12: Single right lane closure maintaining existing speed limit on divided 4-lane highways with 3-Mile Queue Warning System in advance for queue mitigation with temporary bike lane at edge of shoulder alternative.

Plots 13-14: Details for at-grade intersections, including with and without turn lanes, with temporary bike lane at edge of shoulder alternative.

Plots 15-16: Details for interchange ramps with temporary bike lane at edge of shoulder alternative.

Plot 21: Single right lane closure maintaining existing speed limit on divided 4-lane highways with single PCMS in advance for queue mitigation with temporary bike lane adjacent to open lane alternative.

Plot 22: Single right lane closure maintaining existing speed limit on divided 4-lane highways with 3-Mile Queue Warning System in advance for queue mitigation with temporary bike lane adjacent to open lane alternative.

OTHER QUEUE MITIGATION PLANS: Available in 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)

6-Mile Queue Warning System: See TC155, mPCMSs + channelizing devices may be used in lieu of PCMS + traffic safety drums; modify plan as needed.

6-Mile Smart Work Zone System: See TC165, mPCMSs + channelizing devices may be used in lieu of PCMS + traffic safety drums; modify plan as needed.

9-Mile Smart Work Zone System: See TC175, mPCMSs + channelizing devices may be used in lieu of PCMS + traffic safety drums; modify plan as needed.

DESIGNER NOTES:

A. Contact Region Transportation Operations to determine if a queuing mitigation system is needed; and if so, which one is appropriate.

B. Contact Region Transportation Operations to determine if Parallel (Sheet 3A or 3C) and/or Tapered (Sheet 3B or 3D) temporary left on-ramps are used.

C. Several alternative bicycle traffic control strategies are provided. Contact Region Transportation Operations to determine which is appropriate.

D. These typical traffic control plans (Typical TCPs) may be modified for project-specific, site-specific situations, and/or WSDOT Region Transportation Operations standard practices. **Typical TCPs are not "Standard Plans".**

E. Portable Changeable Message Signs (PCMSs) are optional per MUTCD Section 6F.60 and Section 6H and are used to supplement signage and inform motorists of unexpected situations. Thus, if no work zone congestion or queuing is expected, all PCMSs on Sheet 1A, 1C, and 1E may be deleted (just using the temporary signage in advance of lane closure); it's also acceptable to delete the two PCMS-ALT messages and use the PCMS message if desired.

F. 48"x48" diamond-shaped work zone signs used on freeway mainlines and ramps. Per MUTCD 6H-33, gating temporary signs on both shoulders is Guidance on divided highways and Optional per MUTCD Section 6F.03 P02. Based on engineering judgement, signs on left shoulders is optional on 2-lane freeways with shoulders less than 6' because it is difficult for work crews to install/remove safely and is less critical to have signs gated than on 3-lane or more freeways. If signs are barrier-mounted separating 2-way traffic or on narrow shoulders, a special rectangular-shaped 24"x48" sign should be used. See MUTCD Table 6F-1 for additional temporary sign size information.

G. Along ramps, 200' +/- sign spacing typical but may be reduced farther.

H. When positioned behind channelizing devices, temporary signs should be mounted at 5' minimum. **Per MUTCD 6H-42 Note 4 (Standard), a temporary "EXIT" sign shall be mounted 7' minimum when located in the temporary gore.**

I. Work zone traffic control layout is based on the posted speed limit; for split speed limits (SPEED LIMIT 70 TRUCKS 60), use the higher 70 mph.

J. Traffic safety drums required on 45+ mph multilane roadway lane closure and lane shift tapers and recommended on tangents per Design Manual 1010.07. On tangents 42" tall channelizing devices, 36" traffic cones, & 28" traffic cones allowable (vertical panel channelizing devices prohibited). Warning lights on channelizing devices being phased out in Washington. Contact Region Transportation Operations for information regarding their standard practices.

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

L. Sequential arrow signs (arrow boards) required at each lane closure taper on 45+ mph multilane roadways per Design Manual 1010.07(4).

M. Longitudinal buffer spaces (B) are optional per MUTCD Section 6C.06 but is desired when practical. Longitudinal buffers are the most adjustable component that may be increased/decreased to move lane closure tapers away from horizontal/vertical curves and from on-ramp merges.

N. The lateral buffer (transverse distance between open travel lanes and work area) is typically 2 feet on 45+ mph highways but may be reduced based on engineering judgement. Per MUTCD 6C.06, lateral buffer is optional. Actual work area limits may be modified.

O. Per MUTCD Figure 6C-2, the downstream taper is optional. Eliminating it allows construction vehicles to accelerate out of work area into reopened lane to minimize traffic impacts and increase safety.

P. A 20:1 tapered temporary exit-ramp is typical, but 15:1 is acceptable. The exit-ramp travel way width may range from 12 to 16 feet.

Q. The on-ramp shift may occur across the paved on-ramp gore at "L/2", but verify the gore's cross-slope is traversable, pavement thickness adequate, and catch basin & ITS boxes are traffic bearing types. This Typical TCP begins the ramp shift at the end of the marked gore for simplicity.

R. Two types of temporary on-ramp configurations, parallel and tapered. Parallel on-ramp uses a L/2 per lane ramp shift, L/2 MIN acceleration pocket that may be extended when space allows, and L ramp merge taper based on MUTCD Guidance Figure 6H-44. However, a L/2 ramp merge taper is allowable based on engineering judgment, see WSDOT Design Manual Exhibit 1360-17 for guidance. Tapered on-ramp uses a single 50:1 taper (for all speeds) from the end of the marked gore to the end of the merge, see WSDOT Design Manual Exhibit 1360-16 for guidance.

S. Ramp detour signage is recommended by MUTCD 6C.09, but using alternative routes is acceptable. Contact Region Transportation Operations for their standard practice. Recommended to use route-specific detour signage for significant ramp closures.

T. The 300' minimum taper downstream of at-grade intersections may be increased to "L" where feasible. A temporary 160' right-turn pocket within the closed right lane may be provided in advance of at-grade intersections where feasible.

U. When used, include the following Queue Warning System General Special Provisions listed below:
1-10.3(3).OPT4.FR1 Specifications
1-10.4(2).OPT7.GR1 Measurement (Traffic Control as Bid Items)
1-10.5(2).OPT4.GR1 Payment

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

INFORMATIONAL USE ONLY

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

DESIGNER GUIDANCE

Plot 7

TC371