PCMS	
1	2
RIGHT LANE CLOSURE	1.5 MILES AHEAD
2.0 SEC	2.0 SEC

OR

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

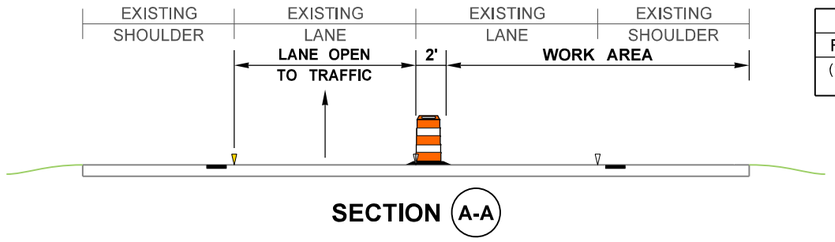
USE IF TRAFFIC BACKUPS EXPECTED, BUT NOT VERIFIED HOURLY BY TCS.

PCMS - 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 1.5± MILES PRIOR TO CLOSURE TAPER OR UPSTREAM OF EXPECTED MAXIMUM TRAFFIC QUEUE PER STANDARD SPECIFICATION 1-10.3(3)C.

FIELD LOCATE 1.5± MILES PRIOR TO CLOSURE TAPER PER STD. SPEC. 1-10.3(3)C.



SECTION A-A

RECOMMENDED SIGN SPACING = X (1)		
FREEWAYS & EXPRESSWAYS	50-75 MPH	1500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

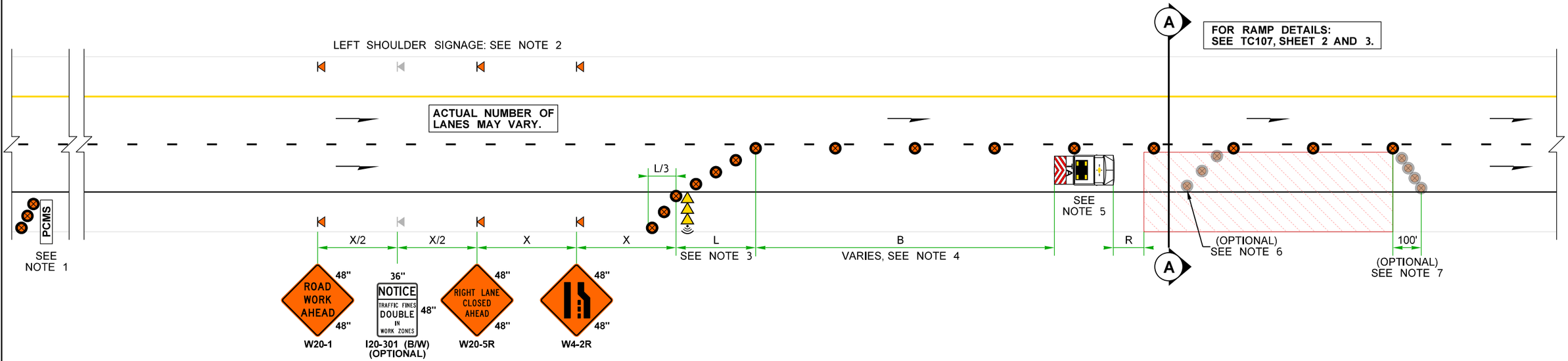
LONGITUDINAL BUFFER SPACE = B							
SPEED (MPH)	45	50	55	60	65	70	75
B (feet)	360	425	495	570	645	730	820
Buffer space may be adjusted (±) based on field conditions.							

SHOULDER CLOSURE TAPER LENGTH = L/3								
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70	75
< 6'	L/3 (feet)	60	80	80	80	80	80	80
6'		90	120	120	120	160	160	160
10'		150	200	200	200	240	240	280

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	75
12'	L (feet)	540	600	680	720	800	840	920
Avoid reducing lane closure length on 45+ mph roadways.								

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 75	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- SMART SEQUENTIAL ARROW SIGN (CONNECTED)
- TRANSPORTABLE ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. miniPCMS PERMITTED ON 2-LANE FREEWAYS.
2. ON 2-LANE FREEWAYS, LEFT SHOULDER SIGNAGE OPTIONAL IF PAVED SHOULDER WIDTH IS LESS THAN 6 FEET.
3. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
4. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
5. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
6. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
7. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
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. 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 R5-601 & R5-6 SIGNS, PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TIME	7:49:12 AM						
DATE	1/8/2024						
PLOTTED BY	LintzF						
DESIGNED BY							
ENTERED BY							
CHECKED BY							
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 1

PLAN REF NO TC107

SHEET 1A OF 3 SHEETS

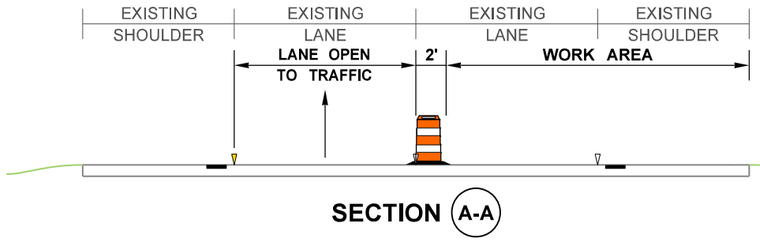
3-MILE QUEUE WARNING SYSTEM MESSAGES					
TRAFFIC SENSORS		PCMS 2		PCMS 1	
B	A	1	2	1	2
TRIGGER	SPEED	2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
35+ MPH	35+ MPH	■ ■ ■ ■	(Blank)	RIGHT LANE CLOSURE	1.5 MILES AHEAD
35+ MPH	< 35 MPH	LANE CLOSURE 3 MILES	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES
< 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)		
FREEWAYS & EXPRESSWAYS	50-75 MPH	1500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

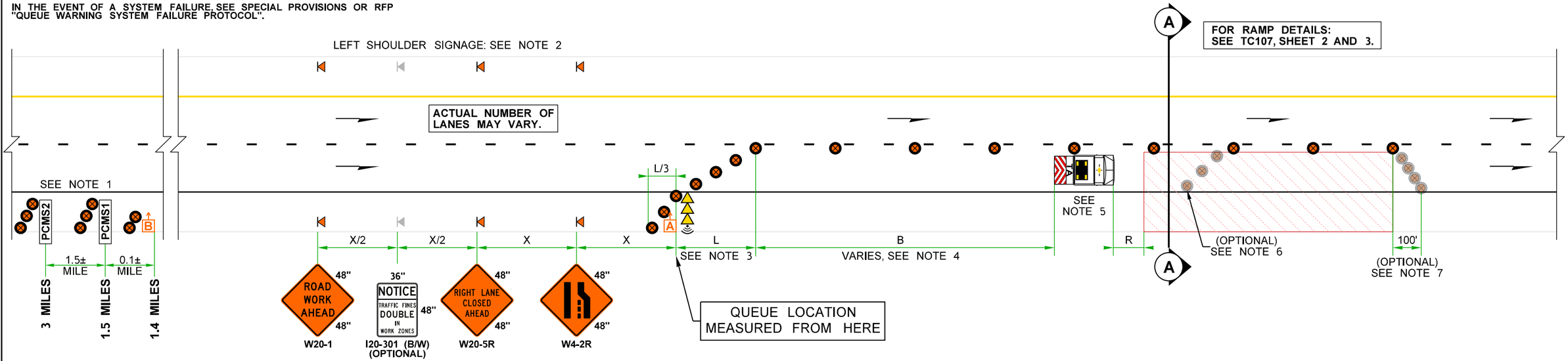
LONGITUDINAL BUFFER SPACE = B							
SPEED (MPH)	45	50	55	60	65	70	75
B (feet)	360	425	495	570	645	730	820
Buffer space may be adjusted (±) based on field conditions.							

SHOULDER CLOSURE TAPER LENGTH = L/3								
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70	75
< 6'	L/3 (feet)	60	80	80	80	80	80	80
6'		90	120	120	120	160	160	160
10'		150	200	200	200	240	240	280

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	75
12'	L (feet)	540	600	680	720	800	840	920
Avoid reducing lane closure length on 45+ mph roadways.								

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 75	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- QWS TRAFFIC SENSOR
- SMART SEQUENTIAL ARROW SIGN (CONNECTED)
- TRANSPORTABLE ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. miniPCMS PERMITTED ON 2-LANE FREEWAYS.
2. ON 2-LANE FREEWAYS, LEFT SHOULDER SIGNAGE OPTIONAL IF PAVED SHOULDER WIDTH IS LESS THAN 6 FEET.
3. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
4. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
5. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
6. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
7. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
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. 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 R5-601 & R5-6 SIGNS. PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TIME	7:49:13 AM						
DATE	1/8/2024						
PLOTTED BY	LintzF						
DESIGNED BY							
ENTERED BY							
CHECKED BY							
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

P.E. STAMP BOX — DATE

Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 2

PLAN REF NO TC107

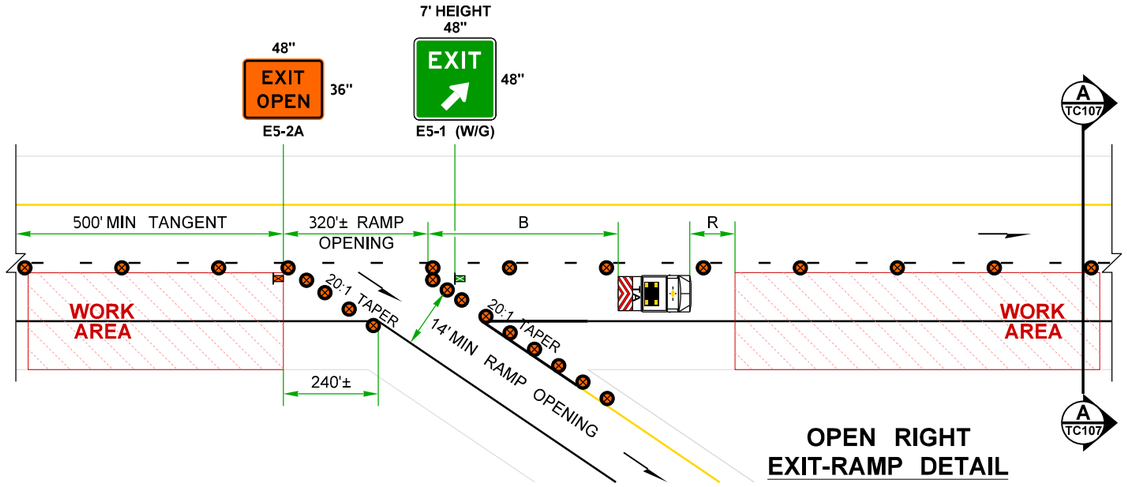
SHEET 1B OF 3 SHEETS

NOTES:

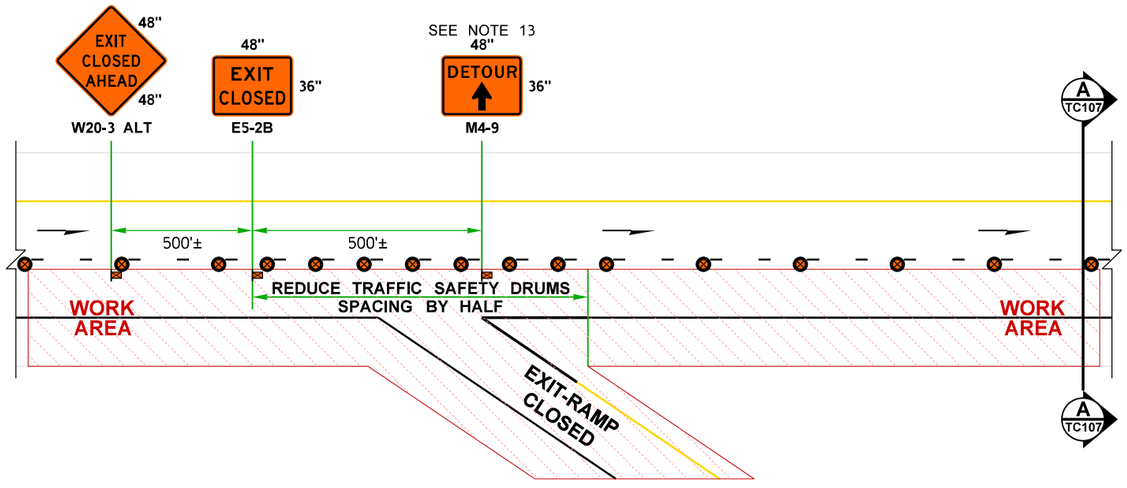
12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

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

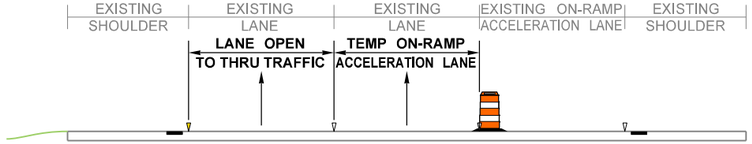
PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE)								
COMPONENT	SPEED (MPH)	45	50	55	60	65	70	75
Ramp Shift Taper	L/2 (feet)	270	320	360	360	400	440	480
Acceleration Tangent	L/2 (feet)	270	320	360	360	400	440	480
Merge Taper	L (feet)	540	600	680	720	800	840	920



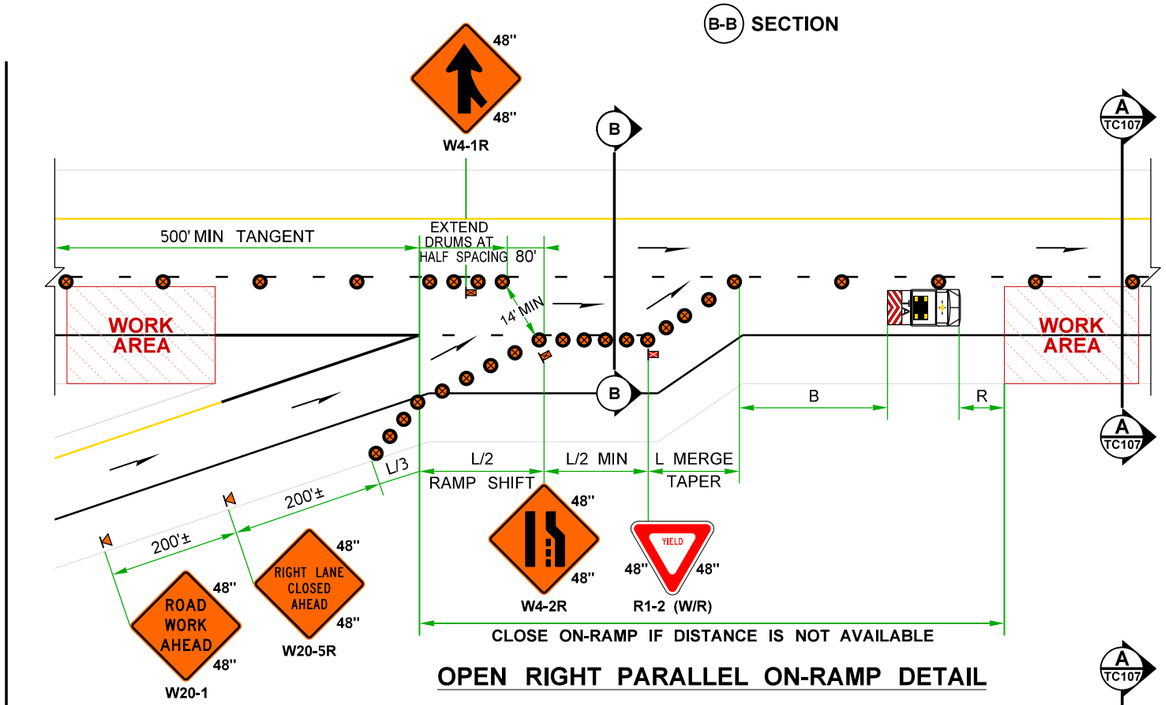
OPEN RIGHT EXIT-RAMP DETAIL



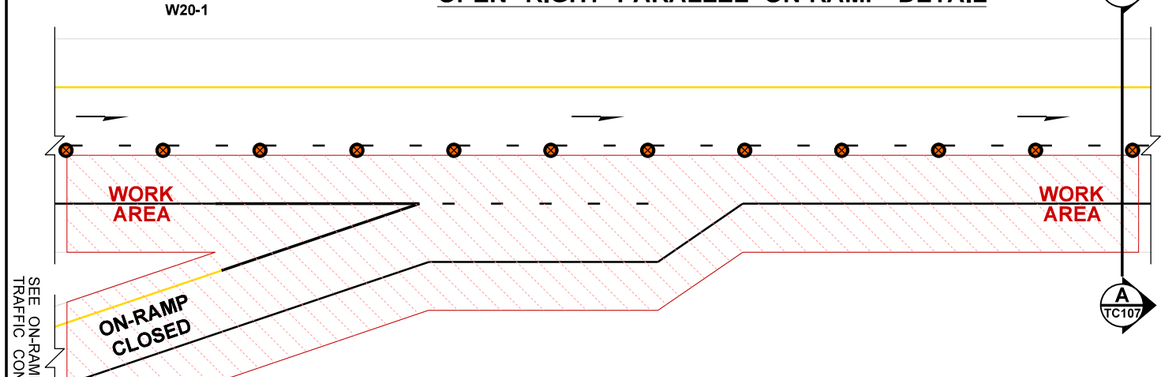
CLOSED RIGHT EXIT-RAMP DETAIL



B-B SECTION



OPEN RIGHT PARALLEL ON-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TIME	7:49:13 AM				10	WASH			PLAN REF NO TC107
DATE	1/8/2024				JOB NUMBER				
PLOTTED BY	LintzF								SHEET 2A OF 3 SHEETS
DESIGNED BY					CONTRACT NO.		LOCATION NO.		
ENTERED BY									
CHECKED BY									
PROJ. ENGR.									
REGIONAL ADM.		REVISION	DATE	BY					

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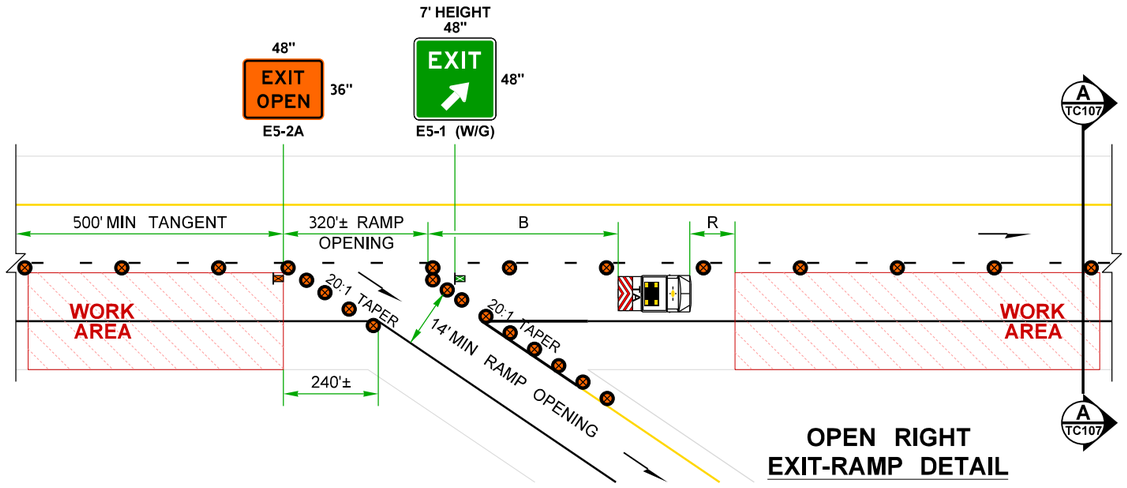
Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

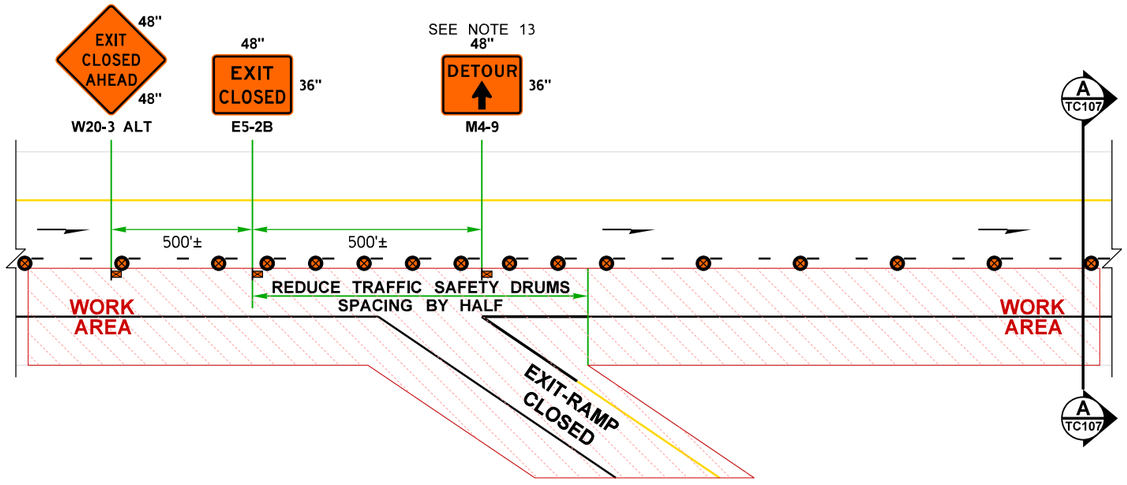
NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

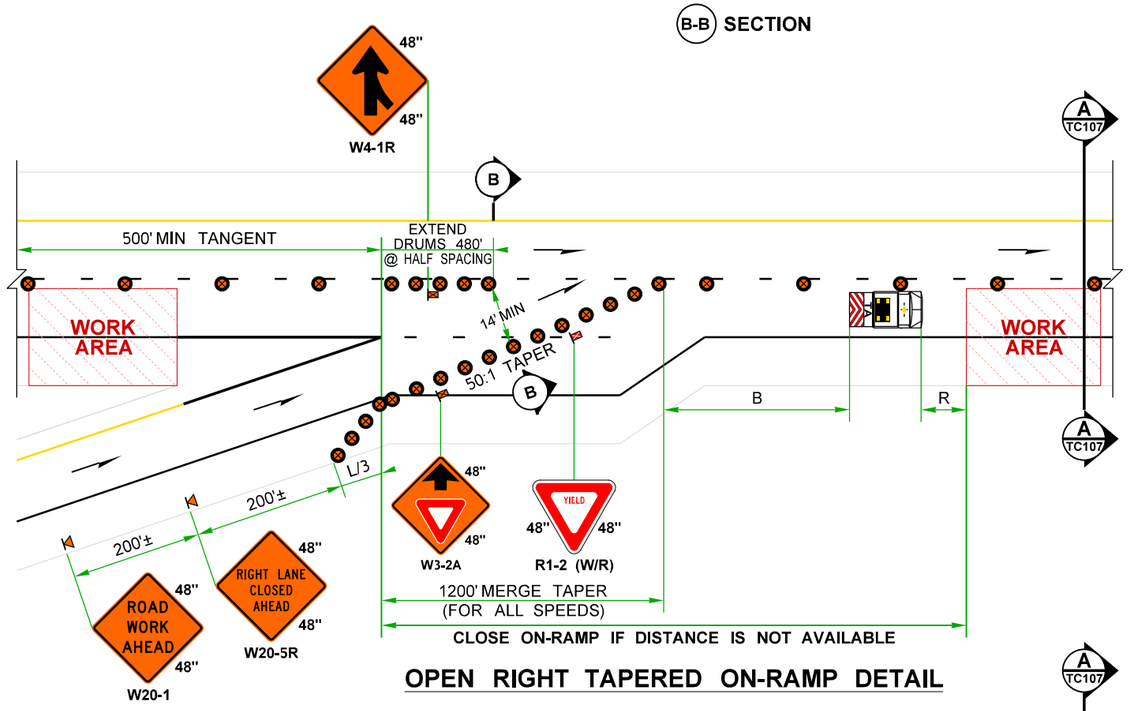
13. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.



OPEN RIGHT EXIT-RAMP DETAIL

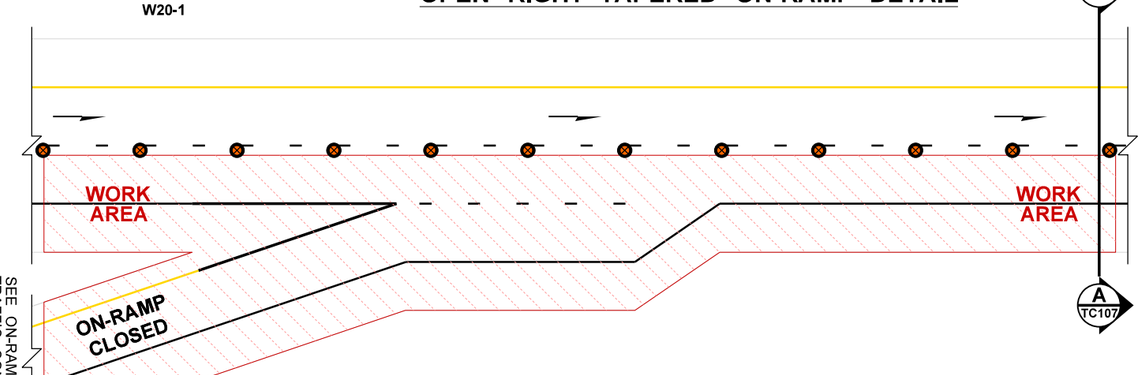


CLOSED RIGHT EXIT-RAMP DETAIL



B-B SECTION

OPEN RIGHT TAPERED ON-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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DATE	1/8/2024				JOB NUMBER				
PLOTTED BY	LintzF								SHEET 2B OF 3 SHEETS
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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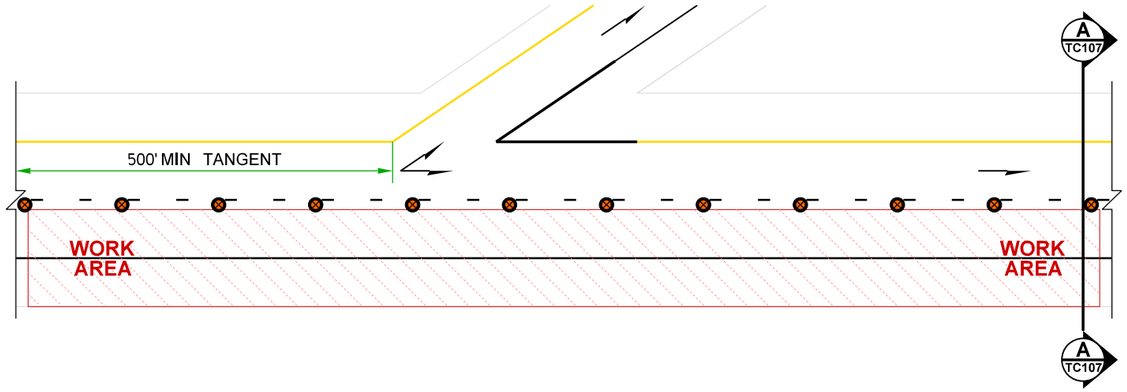
Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

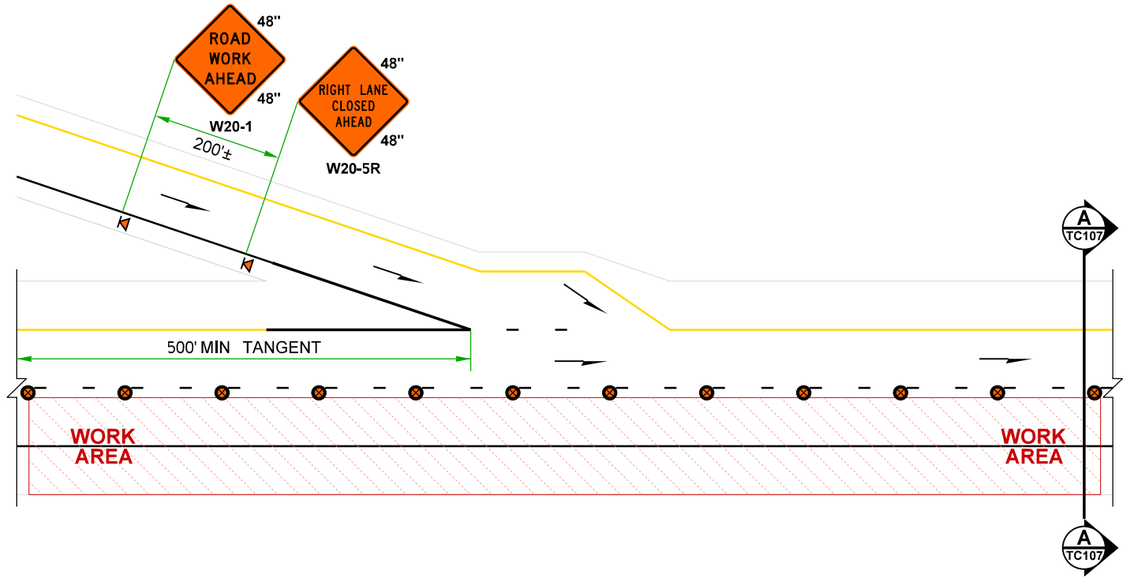
NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

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

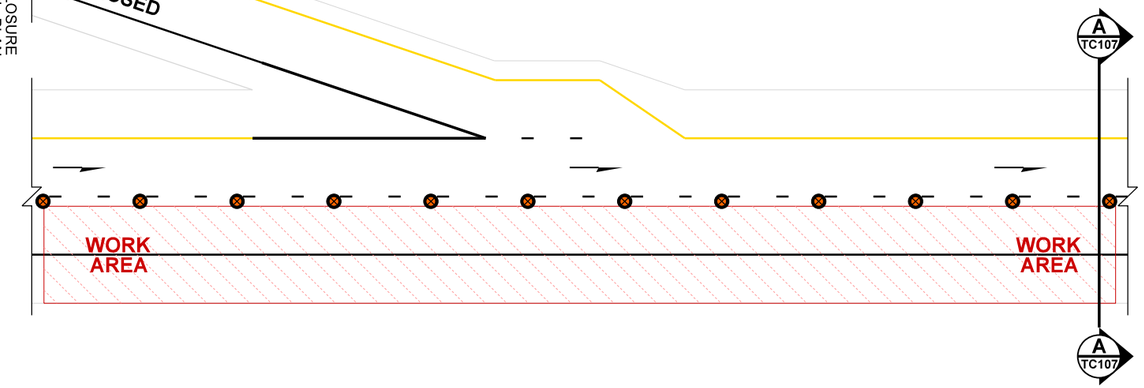


OPEN LEFT EXIT-RAMP DETAIL



OPEN LEFT ON-RAMP DETAIL

SEE ON-RAMP CLOSURE TRAFFIC CONTROL PLAN



CLOSED LEFT EXIT-RAMP DETAIL

LEFT EXIT-RAMPS ARE TO REMAIN OPEN

CLOSED LEFT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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PROJ. ENGR.									
REGIONAL ADM.		REVISION	DATE	BY					

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TYPICAL TRAFFIC CONTROL PLANS

PCMS	
1	2
RIGHT LANE CLOSURE	1.5 MILES AHEAD
2.0 SEC	2.0 SEC

OR

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

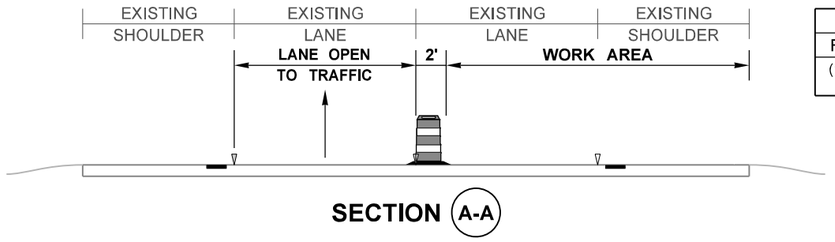
USE IF TRAFFIC BACKUPS EXPECTED, BUT NOT VERIFIED HOURLY BY TCS.

PCMS - 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 1.5± MILES PRIOR TO CLOSURE TAPER OR UPSTREAM OF EXPECTED MAXIMUM TRAFFIC QUEUE PER STANDARD SPECIFICATION 1-10.3(3)C.

FIELD LOCATE 1.5± MILES PRIOR TO CLOSURE TAPER PER STD. SPEC. 1-10.3(3)C.



SECTION (A-A)

RECOMMENDED SIGN SPACING = X (1)		
FREEWAYS & EXPRESSWAYS	50-75 MPH	1500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

LONGITUDINAL BUFFER SPACE = B							
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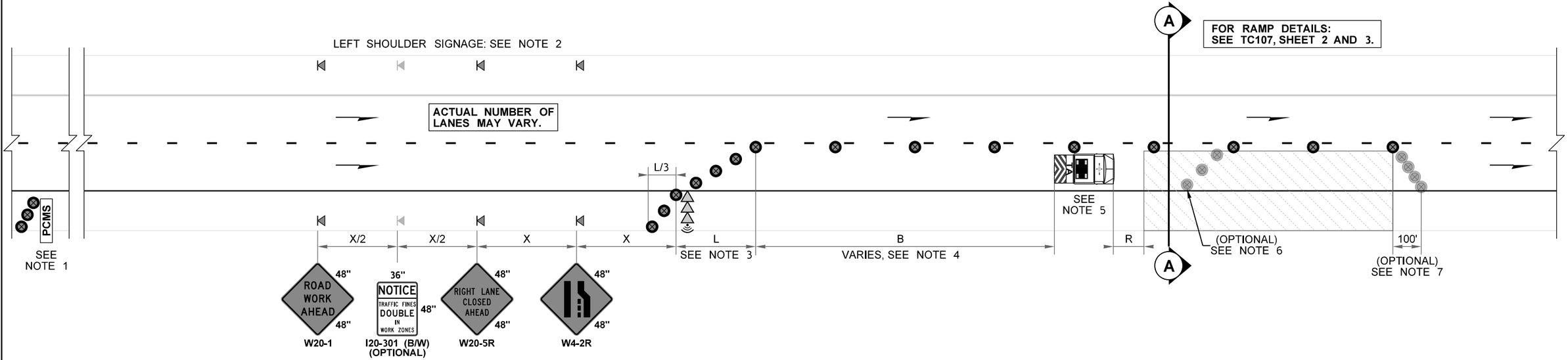
Buffer space may be adjusted (±) based on field conditions.							

SHOULDER CLOSURE TAPER LENGTH = L/3								
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70	75
< 6'	L/3 (feet)	60	80	80	80	80	80	80
6'		90	120	120	120	160	160	160
10'		150	200	200	200	240	240	280

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	75
12'	L (feet)	540	600	680	720	800	840	920
Avoid reducing lane closure length on 45+ mph roadways.								

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 75	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- SMART SEQUENTIAL ARROW SIGN (CONNECTED)
- TRANSPORTABLE ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. miniPCMS PERMITTED ON 2-LANE FREEWAYS.
2. ON 2-LANE FREEWAYS, LEFT SHOULDER SIGNAGE OPTIONAL IF PAVED SHOULDER WIDTH IS LESS THAN 6 FEET.
3. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
4. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
5. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
6. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
7. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
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. 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 R5-601 & R5-6 SIGNS, PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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10	WASH	
JOB NUMBER		
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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

Plot 1

PLAN REF NO TC107

SHEET 1A OF 3 SHEETS

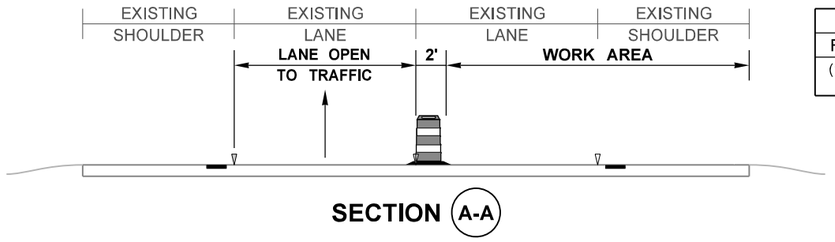
3-MILE QUEUE WARNING SYSTEM MESSAGES					
TRAFFIC SENSORS		PCMS 2		PCMS 1	
B	A	1	2	1	2
TRIGGER SPEED		2.0 SEC	2.0 SEC	2.0 SEC	2.0 SEC
35+ MPH	35+ MPH	■ ■ ■ ■	(Blank)	RIGHT LANE CLOSURE	1.5 MILES AHEAD
35+ MPH	< 35 MPH	LANE CLOSURE 3 MILES	TRAFFIC BACKUPS PRESENT	SLOW OR STOPPED TRAFFIC	NEXT 1.5 MILES
< 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)		
FREEWAYS & EXPRESSWAYS	50-75 MPH	1500'±
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		

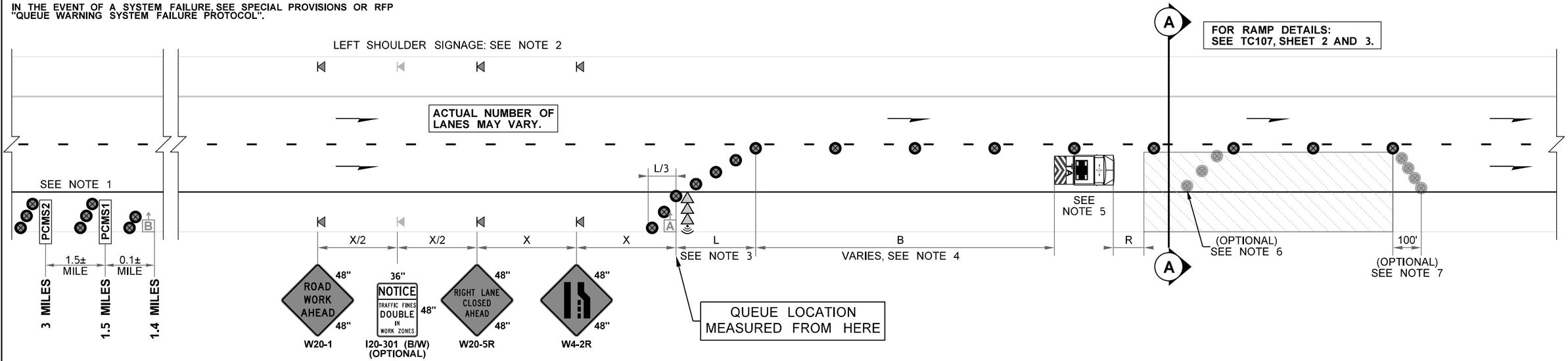
LONGITUDINAL BUFFER SPACE = B							
SPEED (MPH)	45	50	55	60	65	70	75
B (feet)	360	425	495	570	645	730	820
Buffer space may be adjusted (±) based on field conditions.							

SHOULDER CLOSURE TAPER LENGTH = L/3								
SHOULDER WIDTH	SPEED (MPH)	45	50	55	60	65	70	75
< 6'	L/3 (feet)	60	80	80	80	80	80	80
6'		90	120	120	120	160	160	160
10'		150	200	200	200	240	240	280

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	75
12'	L (feet)	540	600	680	720	800	840	920
Avoid reducing lane closure length on 45+ mph roadways.								

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
50 - 75	40	80
45	30	60



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- QWS TRAFFIC SENSOR
- SMART SEQUENTIAL ARROW SIGN (CONNECTED)
- TRANSPORTABLE ATTENUATOR
- PCMS — PORTABLE CHANGEABLE MESSAGE SIGN

NOTES:

1. miniPCMS PERMITTED ON 2-LANE FREEWAYS.
2. ON 2-LANE FREEWAYS, LEFT SHOULDER SIGNAGE OPTIONAL IF PAVED SHOULDER WIDTH IS LESS THAN 6 FEET.
3. IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
4. DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
5. RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
6. IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
7. IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
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. 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 R5-601 & R5-6 SIGNS, PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
    (C) ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

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

TRUCKS ENTERING HIGHWAY 48" x 48" — W21-30

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

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

24" x 24" — R5-6 (R/B/W) AT PRIOR EXIT-RAMP + ON-RAMPS WITHIN LANE CLOSURE

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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DATE	1/8/2024				REGION NO. 10 / STATE WASH	FED.AID PROJ.NO.	
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Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

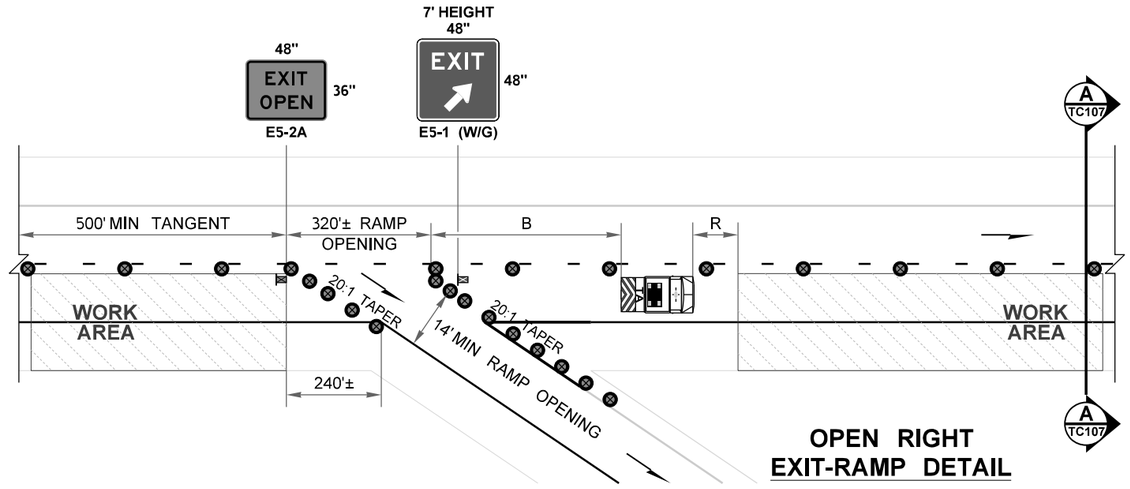
SHEET 1B OF 3 SHEETS

NOTES:

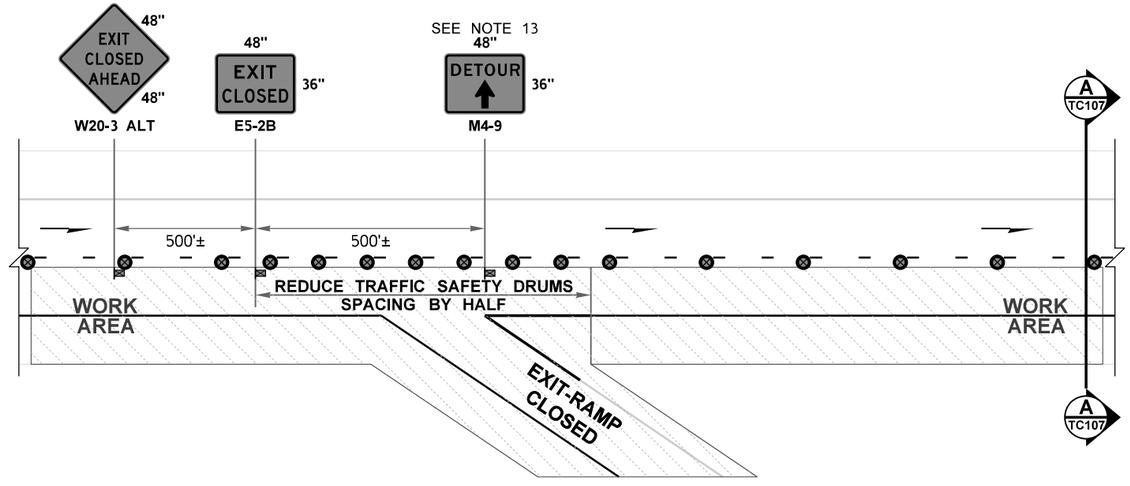
12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

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

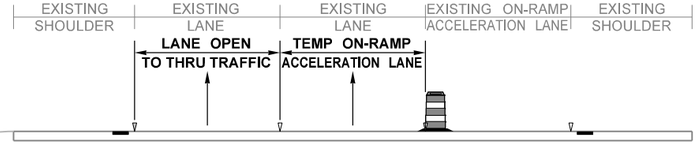
PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE)								
COMPONENT	SPEED (MPH)	45	50	55	60	65	70	75
Ramp Shift Taper	L/2 (feet)	270	320	360	360	400	440	480
Acceleration Tangent	L/2 (feet)	270	320	360	360	400	440	480
Merge Taper	L (feet)	540	600	680	720	800	840	920



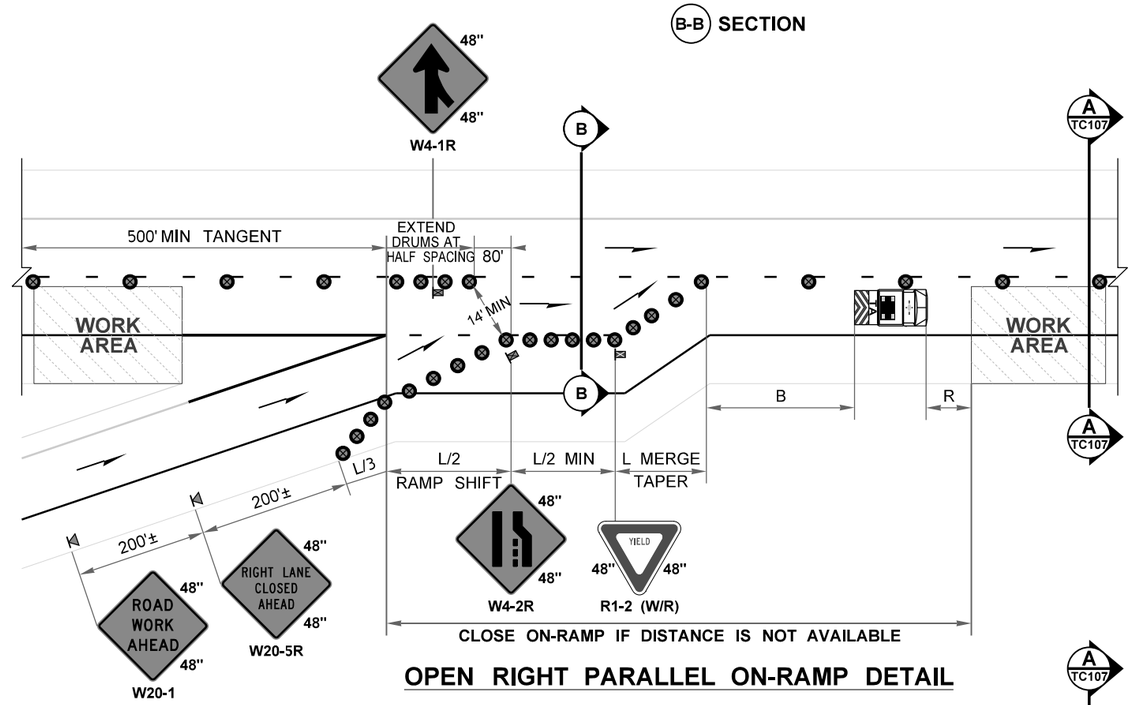
OPEN RIGHT EXIT-RAMP DETAIL



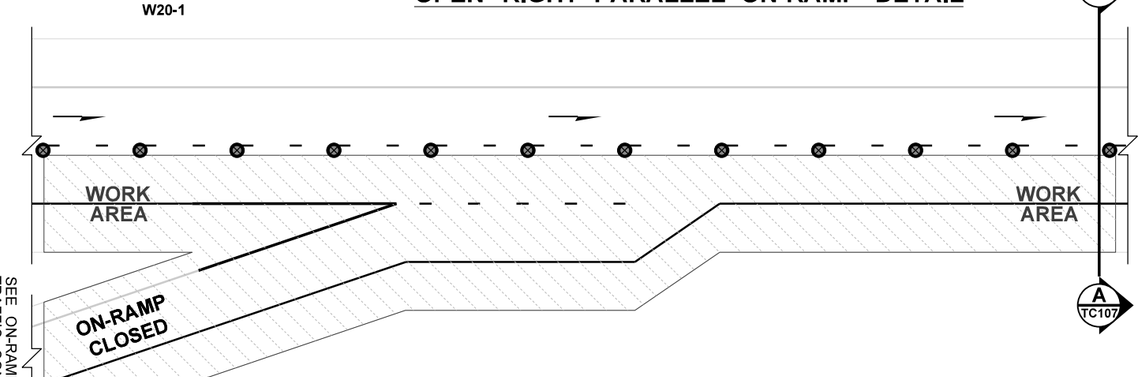
CLOSED RIGHT EXIT-RAMP DETAIL



B-B SECTION



OPEN RIGHT PARALLEL ON-RAMP DETAIL



CLOSED RIGHT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TYPICAL TRAFFIC CONTROL PLANS

Plot 3

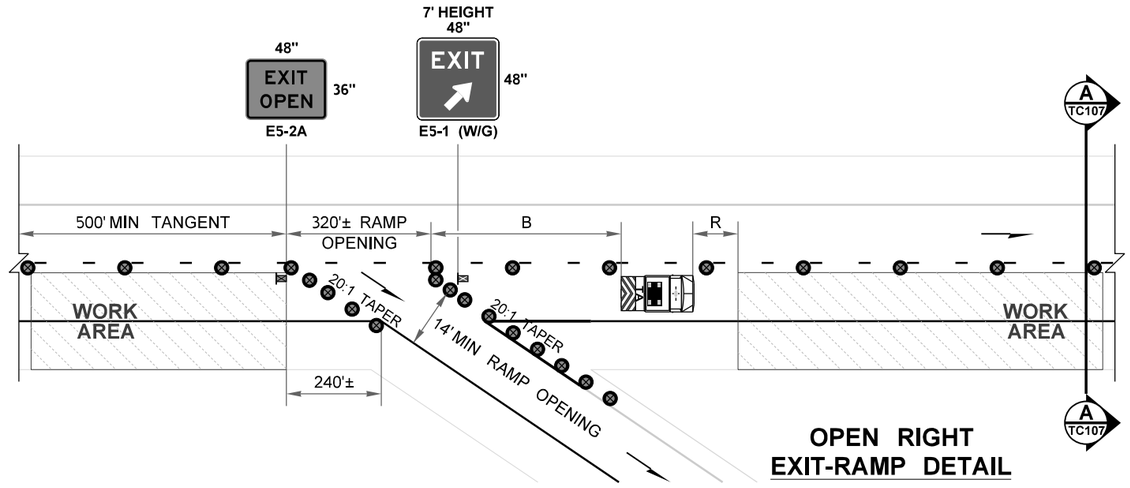
PLAN REF NO TC107

SHEET 2A OF 3 SHEETS

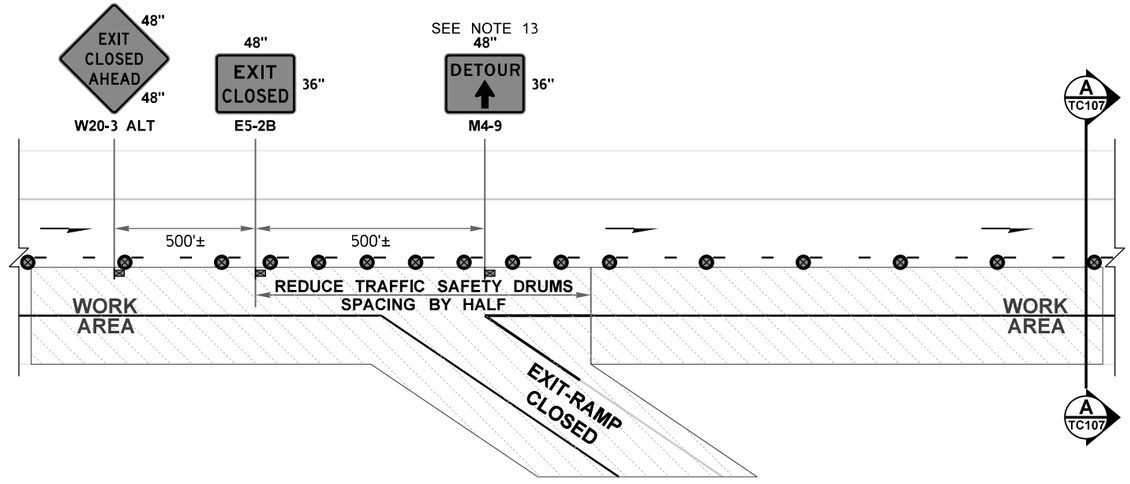
NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

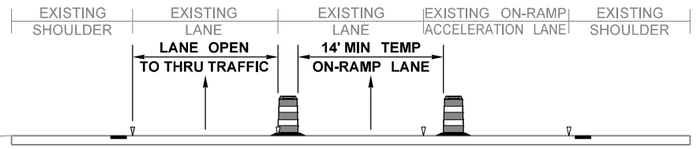
13. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.



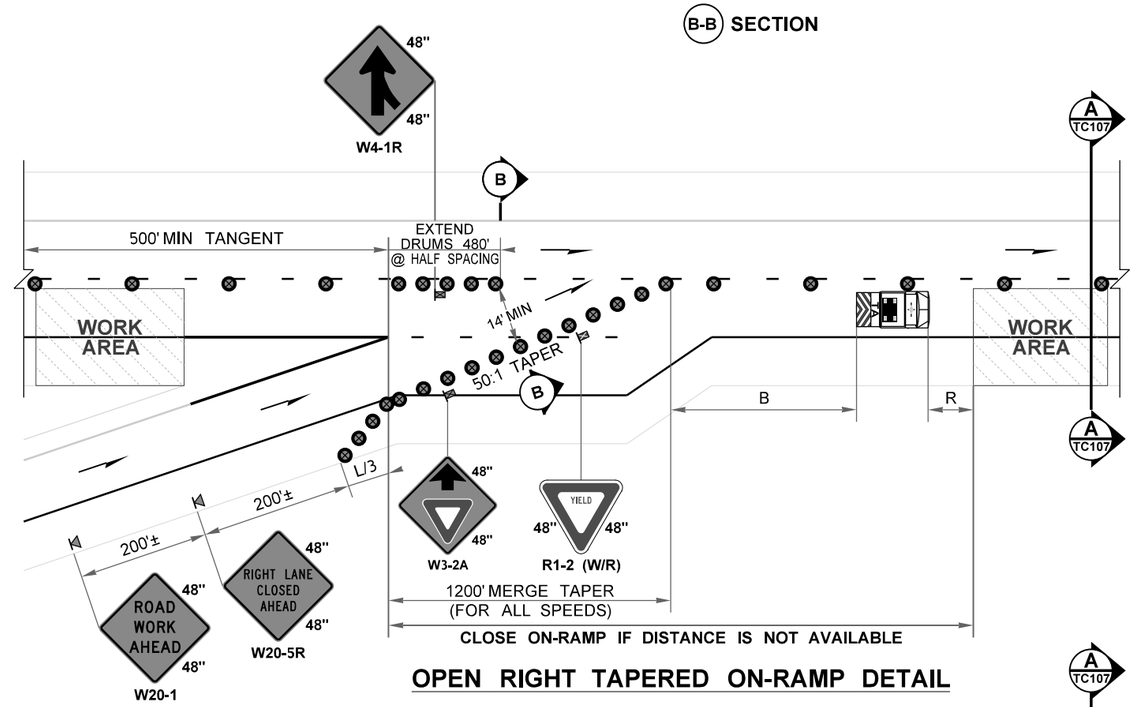
OPEN RIGHT EXIT-RAMP DETAIL



CLOSED RIGHT EXIT-RAMP DETAIL



B-B SECTION



OPEN RIGHT TAPERED ON-RAMP DETAIL

CLOSED RIGHT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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PLOTTED BY	LintzF								SHEET 2B OF 3 SHEETS
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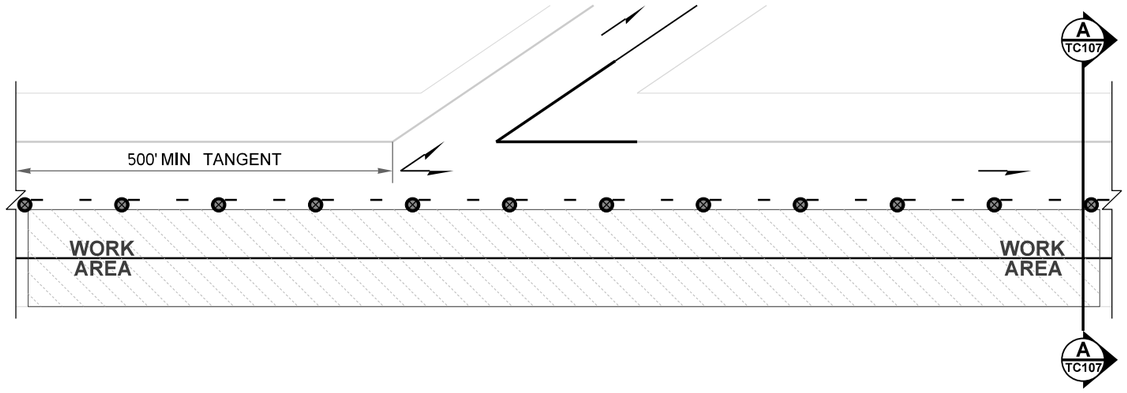
TYPICAL TRAFFIC CONTROL PLANS

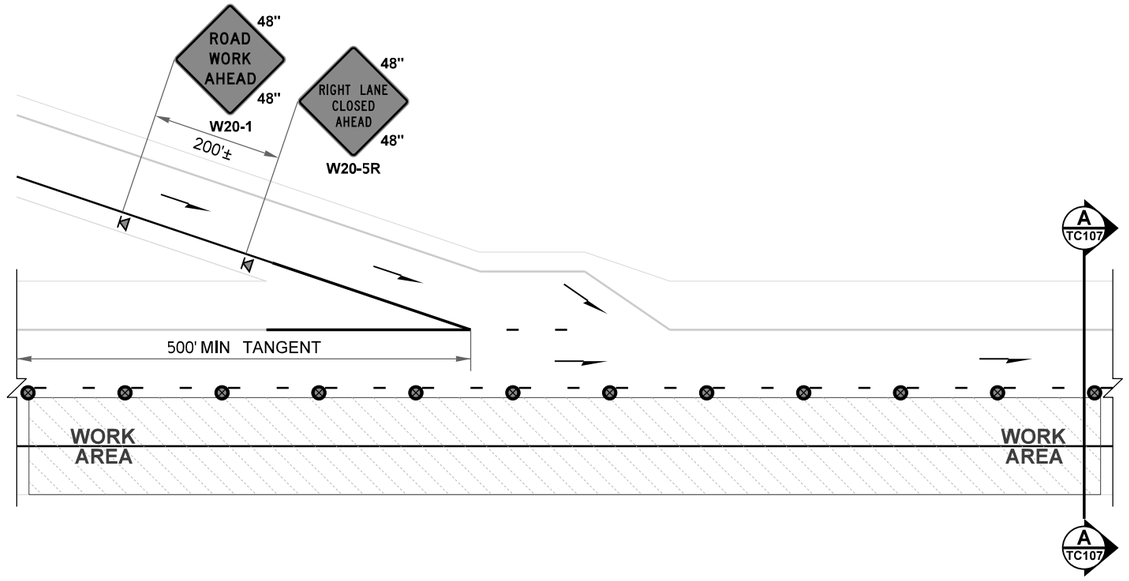
NOTES:

12. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC107, SHEET 1A OR 1B.

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

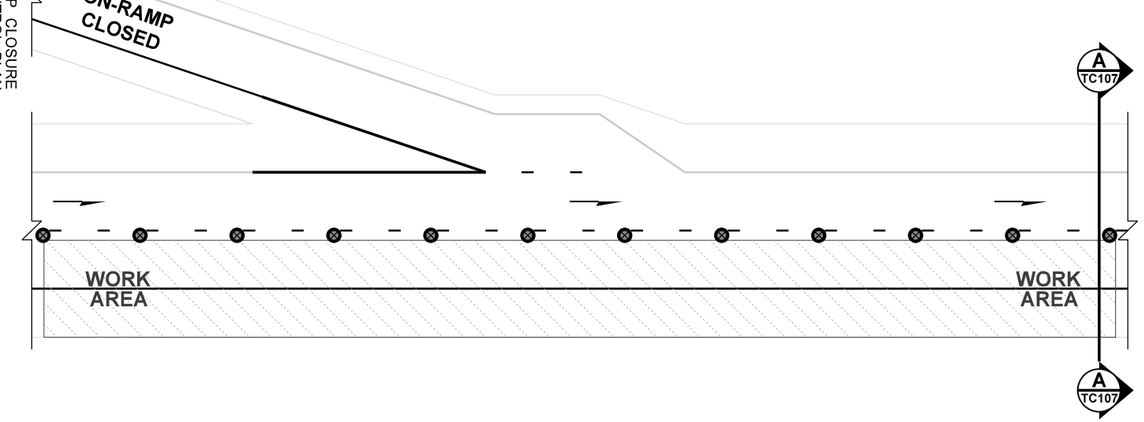


OPEN LEFT EXIT-RAMP DETAIL



OPEN LEFT ON-RAMP DETAIL

SEE ON-RAMP CLOSURE TRAFFIC CONTROL PLAN



CLOSED LEFT EXIT-RAMP DETAIL

LEFT EXIT-RAMPS ARE TO REMAIN OPEN

CLOSED LEFT ON-RAMP DETAIL

FREEWAY (2+ LANES): SINGLE RIGHT LANE CLOSURE (MAINTAIN EXISTING SPEED LIMIT)

NOT TO SCALE

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TYPICAL TRAFFIC CONTROL PLANS

WORK ZONE MICROSTATION CELLS: Updated work zone cells incorporated (January 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 freeway lane closure maintaining existing speed limit with single PCMS in advance for queue mitigation.

Plot 2: 3-Mile Queue Warning System version of single right freeway lane closure maintaining existing speed limit.

Plot 3: Right ramp details, including parallel on-ramp, within single right freeway lane closure maintaining existing speed limit.

Plot 4: Right ramp details, including tapered on-ramp, within single right freeway lane closure maintaining existing speed limit.

Plot 5: Left ramp details within single right freeway lane closure maintaining existing speed limit.

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: Plan now separated; see TC155.

6-Mile Smart Work Zone System: See TC165.

9-Mile Smart Work Zone System: See TC175.

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 2A) and/or Tapered (Sheet 2B) temporary left on-ramps are used.

C. This Typical TCP is not applicable when HOV-restricted or Express Toll Lane(s) are present. Contact Region Transportation Operations for additional guidance.

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 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. Freeway mainline sign spacing may be reduced down to 1000' +/- based on engineering judgement and down to 500' +/- if near interchanges. Along ramps, 200' +/- sign spacing typical but may be reduced farther.

H. When positioned behind channelization 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 freeway lane closure and lane shift tapers and recommended on tangents per Design Manual 1010.07. On tangents 42" tall channelization devices, 36" traffic cones, & 28" traffic cones allowable (vertical panel channelization devices prohibited). Warning lights on channelization devices being phased out in Washington. Contact Region Transportation Operations for information regarding their standard practices.

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

L. Sequential arrow signs (arrow boards) are required at each freeway lane closure taper per MUTCD Standard Note 6 on TA-33.

M. Smart sequential arrow signs ("smart arrow boards") are now required on freeways in Washington on new Construction projects
(existing projects can still use the conventional sequential arrow sign). Smart sequential arrow signs have communication capabilities--old arrow boards can be retrofitted--to broadcast the status of the arrow display with third-party vendors like Google Maps/Waze and Traffic Management Centers. Include the following General Special Provisions for Materials, Specification, Measurement, and Payment.
https://wsdot.wa.gov/publications/fulltext/projectdev/gspspdf/egsp1.pdf
* 1-10.3(3)B(9-35.4).GR1 (Smart Sequential Arrow Sign Materials GSP)
* 1-10.3(3)B(9-35.4).OPT1.2025.GR1 (Smart Sequential Arrow Sign Specifications GSP)
* Measurement and Payment are still hourly per "SEQUENTIAL ARROW SIGN". No new bid item developed.

N. 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.

O. The lateral buffer (transverse distance between open travel lanes and work area) is typically 2 feet on freeways. Actual work area limits may be modified.

P. 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.

Q. 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.

R. 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.

S. 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.

T. 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.

FREEWAY (2+ LANES): 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 6

TC107