

| mPCMS | |
|--------------------|-------------------|
| 1 | 2 |
| RIGHT LANE CLOSURE | ## MPH ZONE AHEAD |
| 2.0 SEC | 2.0 SEC |

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

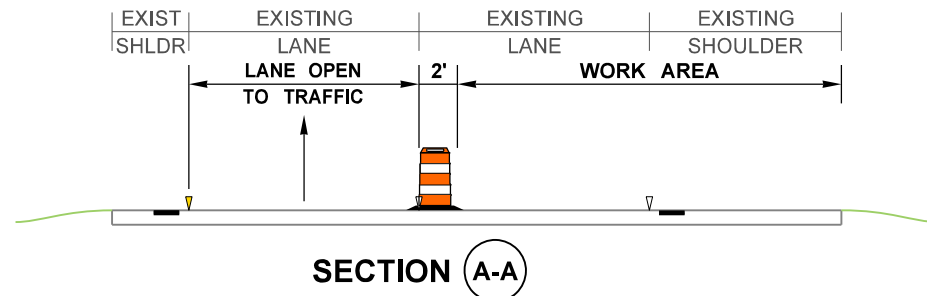
| mPCMS - ALT 1 | | |
|--------------------|------------------------|--------------|
| 1 | 2 | 3 |
| RIGHT LANE CLOSURE | WATCH FOR SLOW TRAFFIC | NEXT # MILES |
| 1.5 SEC | 1.5 SEC | 1.5 SEC |

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

| 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 MPH | 800± |
| RURAL ROADS | 45-55 MPH | 500± |
| RURAL ROADS & URBAN ARTERIALS | 35-40 MPH | 350± |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS. (2) MAY REDUCE SPACING IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

| LANE CLOSURE TAPER LENGTH = L | | | | | | | |
|-------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| LANE WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| 12' | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |

Avoid reducing lane closure length on 45+ mph roadways.

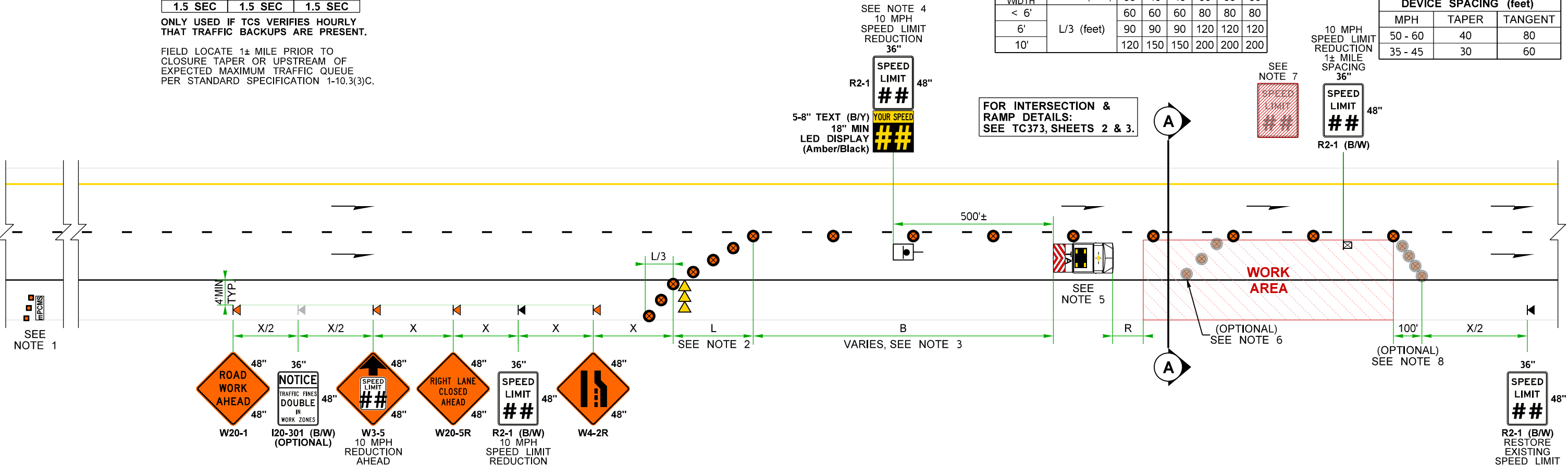
| SHOULDER CLOSURE TAPER LENGTH = L/3 | | | | | | | |
|-------------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| SHOULDER WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| < 6' | L/3 (feet) | 60 | 60 | 60 | 80 | 80 | 80 |
| 6' | | 90 | 90 | 90 | 120 | 120 | 120 |
| 10' | | 120 | 150 | 150 | 200 | 200 | 200 |

| 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 | 123' | 172' |
| 45-55 MPH | 60 MPH | 100' | 150' |

| LONGITUDINAL BUFFER SPACE = B | | | | | | |
|-------------------------------|-----|-----|-----|-----|-----|-----|
| SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| B (feet) | 250 | 305 | 360 | 425 | 495 | 570 |

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

| MAXIMUM CHANNELIZATION DEVICE SPACING (feet) | | |
|--|-------|---------|
| MPH | TAPER | TANGENT |
| 50 - 60 | 40 | 80 |
| 35 - 45 | 30 | 60 |



- NOTES:**
- FULL-SIZE PCMS (11'x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
 - IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
 - DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
 - RELOCATE RSDS AS WORK ZONE MOVES DOWNSTREAM. IF ENGINEER ACCEPTS, ADDITIONAL RSDS MAY BE ADDED PRIOR TO EACH WORK CREW.
 - RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
 - IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.

- COVER ALL CONFLICTING SIGNAGE PER STD. SPEC. 1-10.3(3)A. BLACK 1/8" ABS OR 1/4" PLYWOOD TEMP. SIGN COVER PERMITTED.
- IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
- 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS OK.
- SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
- PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
- NOTIFY PUBLIC OF SPEED REDUCTION AT LEAST 3 DAYS PRIOR VIA mPCMS: ## MPH WZ SPEED LIMIT/BEGINS DAY OF WEEK MM/DD/YY @ 2.0 SEC.
- ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500'± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).

- PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
 - KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
 - CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
 - STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
 - ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
- BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
 - BICYCLES PROHIBITED VIA R5-601 & R5-6 SIGNS. PROVIDE SIGNED DETOUR OR ALTERNATIVE ROUTE.
 - BICYCLES PROHIBITED VIA R5-6 SIGNS. PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
 - STOP WORK OPS & ESCORT BICYCLISTS THROUGH CLOSURE.
 - ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

| | | | | | | | |
|---------------|---|------|----|--------------|-------|------------------|-------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 1 |
| TIME | 10:50:26 AM | | | 10 | WASH | | PLAN REF NO |
| DATE | 9/24/2024 | | | | | | TC373 |
| PLOTTED BY | LintzF | | | JOB NUMBER | | | SHEET |
| DESIGNED BY | | | | CONTRACT NO. | | | 1A |
| ENTERED BY | | | | LOCATION NO. | | | OF |
| CHECKED BY | | | | | | | 3 |
| PROJ. ENGR. | | | | | | | SHEETS |
| REGIONAL ADM. | REVISION | DATE | BY | | | | |

Washington State Department of Transportation

TYPICAL TRAFFIC CONTROL PLANS

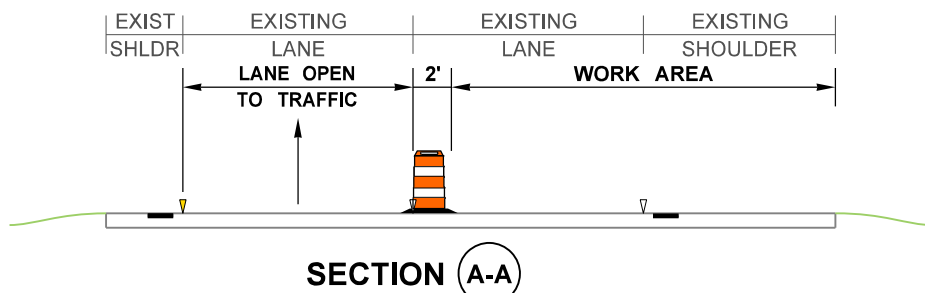
| 3-MILE QUEUE WARNING SYSTEM MESSAGES | | | | | |
|--------------------------------------|----------|-------------------------|-------------------------|-------------------------|---------------------|
| TRAFFIC SENSORS | | mPCMS 2 | | mPCMS 1 | |
| B | A | 1 | 2 | 1 | 2 |
| TRIGGER | SPEED | 2.0 SEC | 2.0 SEC | 2.0 SEC | 2.0 SEC |
| 35+ MPH | 35+ MPH | ■ | (Blank) | RIGHT LANE CLOSURE | ## MPH ZONE 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, RAMP, 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 MPH | 800± |
| RURAL ROADS | 45-55 MPH | 500± |
| RURAL ROADS & URBAN ARTERIALS | 35-40 MPH | 350± |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS. (2) MAY REDUCE SPACING IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

| LANE CLOSURE TAPER LENGTH = L | | | | | | | |
|-------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| LANE WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| 12' | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |

Avoid reducing lane closure length on 45+ mph roadways.

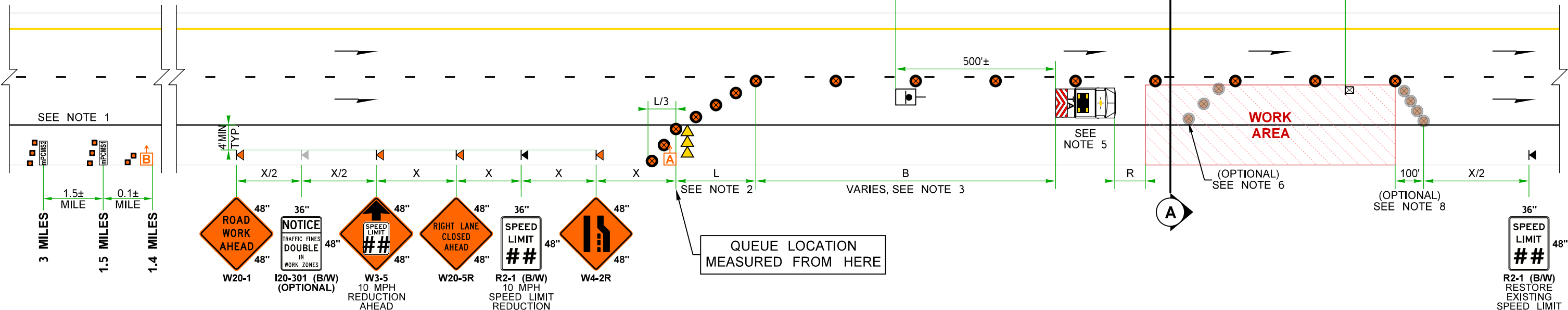
| SHOULDER CLOSURE TAPER LENGTH = L/3 | | | | | | | |
|-------------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| SHOULDER WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| < 6' | L/3 (feet) | 60 | 60 | 60 | 80 | 80 | 80 |
| 6' | L/3 (feet) | 90 | 90 | 90 | 120 | 120 | 120 |
| 10' | L/3 (feet) | 120 | 150 | 150 | 200 | 200 | 200 |

| 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) | 35 | 40 | 45 | 50 | 55 | 60 |
| B (feet) | 250 | 305 | 360 | 425 | 495 | 570 |

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

| MAXIMUM CHANNELIZATION DEVICE SPACING (feet) | | |
|--|-------|---------|
| MPH | TAPER | TANGENT |
| 50 - 60 | 40 | 80 |
| 35 - 45 | 30 | 60 |



NOTES:

- FULL-SIZE PCMS (11'x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
- IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
- DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
- RELOCATE RSDS AS WORK ZONE MOVES DOWNSTREAM. IF ENGINEER ACCEPTS, ADDITIONAL RSDS MAY BE ADDED PRIOR TO EACH WORK CREW.
- RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
- IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.

- COVER ALL CONFLICTING SIGNAGE PER STD. SPEC. 1-10.3(3)A. BLACK 1/8" ABS OR 1/4" PLYWOOD TEMP. SIGN COVER PERMITTED.
- IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
- 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS OK.
- SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
- PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
- NOTIFY PUBLIC OF SPEED REDUCTION AT LEAST 3 DAYS PRIOR VIA mPCMS: ## MPH WZ SPEED LIMIT/BEGINS DAY OF WEEK MM/DD/YY @ 2.0 SEC.
- ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).

- PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
 - KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
 - CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
 - STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
 - ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
- BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
 - BICYCLES PROHIBITED VIA R5-6 SIGNS. PROVIDE SIGNED DETOUR OR ALTERNATIVE ROUTE.
 - BICYCLES PROHIBITED VIA R5-601 & R5-6 SIGNS. PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK) + CONTACT INFORMATION OR PHONE BOX.
 - STOP WORK OPS. & ESCORT BICYCLISTS THROUGH CLOSURE.
 - ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE + 3-MILE QWS (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 9)
- QWS TRAFFIC SENSOR
- RADAR SPEED DISPLAY SIGN (RSDS)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

| | | | | | | | |
|---------------|---|------|----|----------------|--------------|------------------|-------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 2 |
| TIME | 10:50:26 AM | | | 10 | WASH | | PLAN REF NO |
| DATE | 9/24/2024 | | | | | | TC373 |
| PLOTTED BY | LintzF | | | JOB NUMBER | | | SHEET |
| DESIGNED BY | | | | CONTRACT NO. | LOCATION NO. | | 1B |
| ENTERED BY | | | | | | | OF |
| CHECKED BY | | | | | | | 3 |
| PROJ. ENGR. | | | | | | | SHEETS |
| REGIONAL ADM. | REVISION | DATE | BY | P.E. STAMP BOX | DATE | P.E. STAMP BOX | TYPICAL TRAFFIC CONTROL PLANS |



TYPICAL TRAFFIC CONTROL PLANS

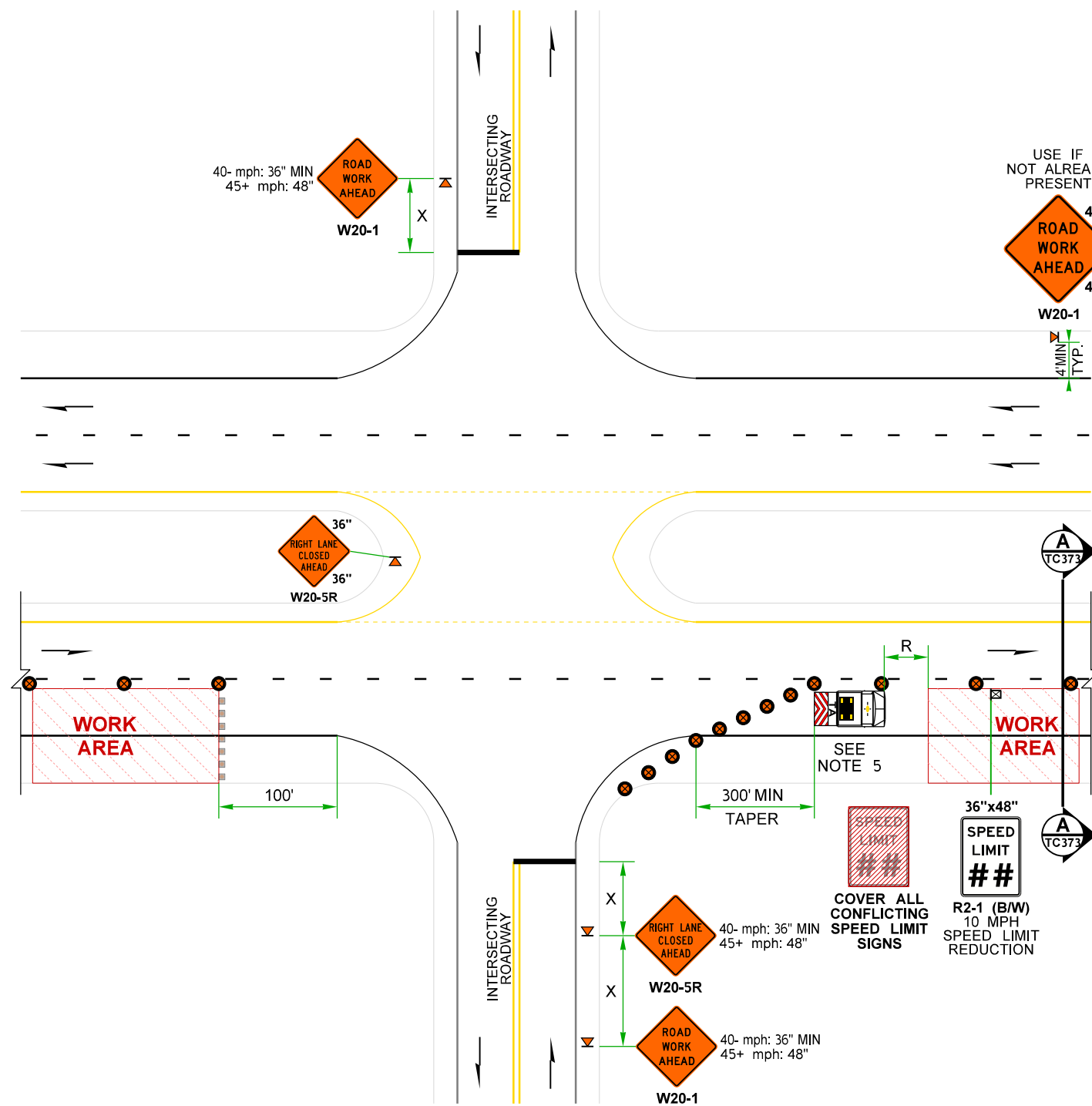
NOTES:

16. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1A OR 1B.

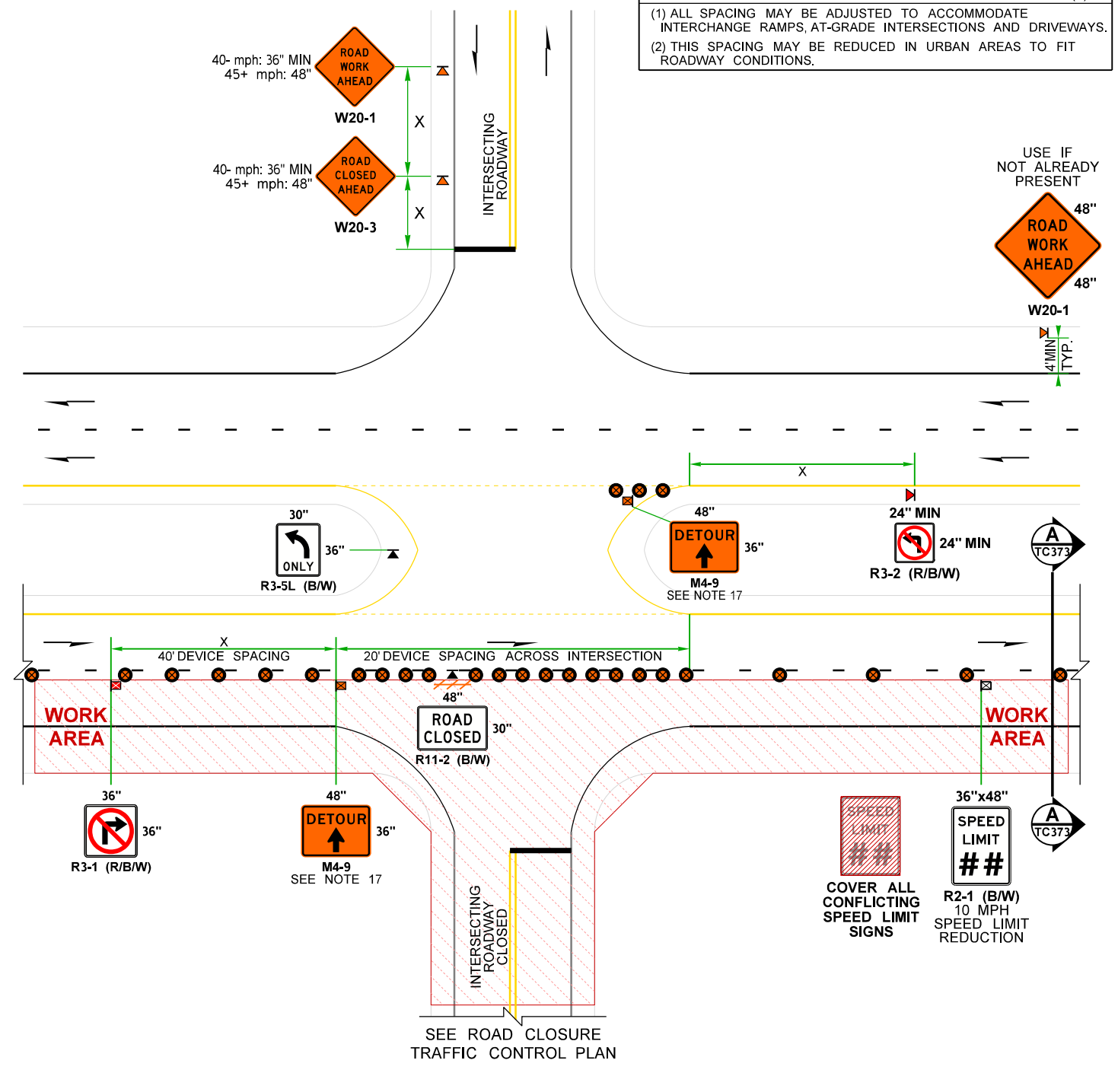
17. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

| 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 RESIDENTIAL & BUSINESS DISTRICTS | 25-30 MPH | 200'± (2) |
| URBAN STREETS | 25 MPH OR LESS | 100'± (2) |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



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, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

| | | | | | | | | | |
|---------------|---|------|----|--|----------------|--------------|------------------|--|----------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | | REGION NO. | STATE | FED.AID PROJ.NO. | Washington State Department of Transportation | Plot 3 |
| TIME | 10:50:27 AM | | | | 10 | WASH | | | PLAN REF NO TC373 |
| DATE | 9/24/2024 | | | | JOB NUMBER | | | TYPICAL TRAFFIC CONTROL PLANS | SHEET 2A OF 3 SHEETS |
| PLOTTED BY | LintzF | | | | CONTRACT NO. | LOCATION NO. | | | |
| DESIGNED BY | | | | | | | | | |
| ENTERED BY | | | | | | | | | |
| CHECKED BY | | | | | | | | | |
| PROJ. ENGR. | | | | | | | | | |
| REGIONAL ADM. | REVISION | DATE | BY | | P.E. STAMP BOX | DATE | P.E. STAMP BOX | | |

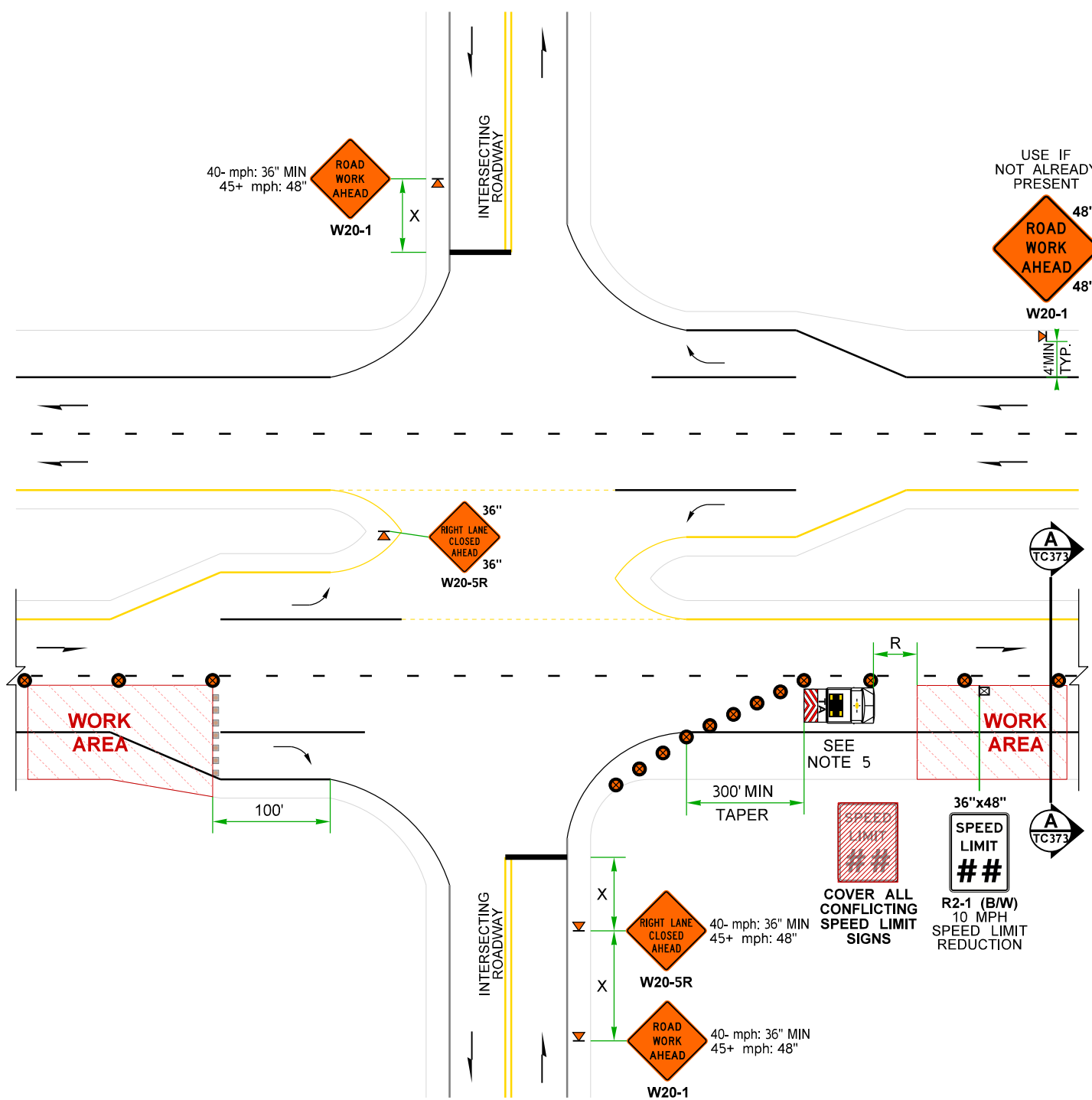
NOTES:

16. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1A OR 1B.

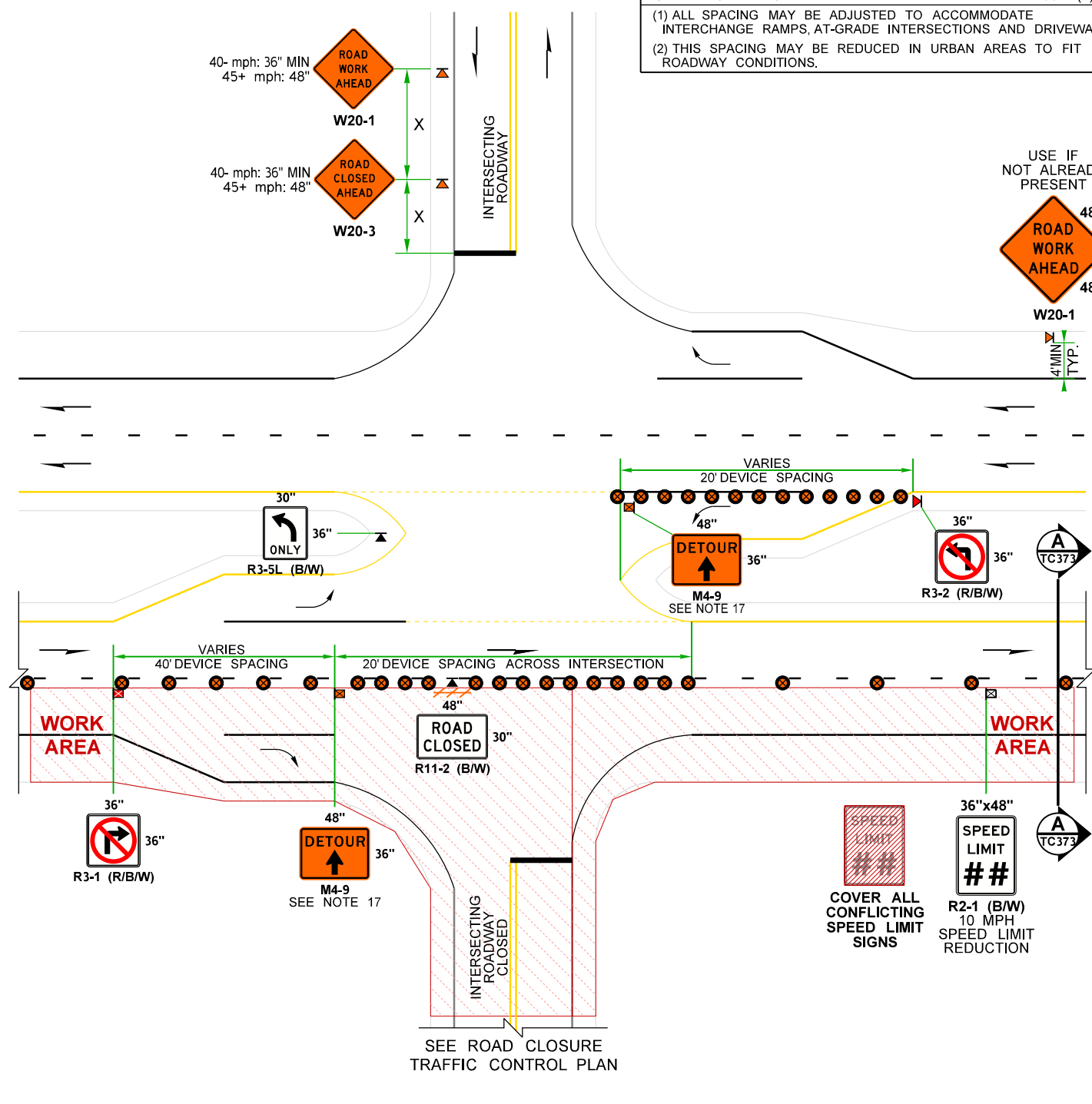
17. SEE DETOUR PLAN FOR ADDITIONAL ROAD CLOSURE DETOUR SIGNAGE.

| 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 RESIDENTIAL & BUSINESS DISTRICTS | 25-30 MPH | 200± (2) |
| URBAN STREETS | 25 MPH OR LESS | 100± (2) |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



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, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

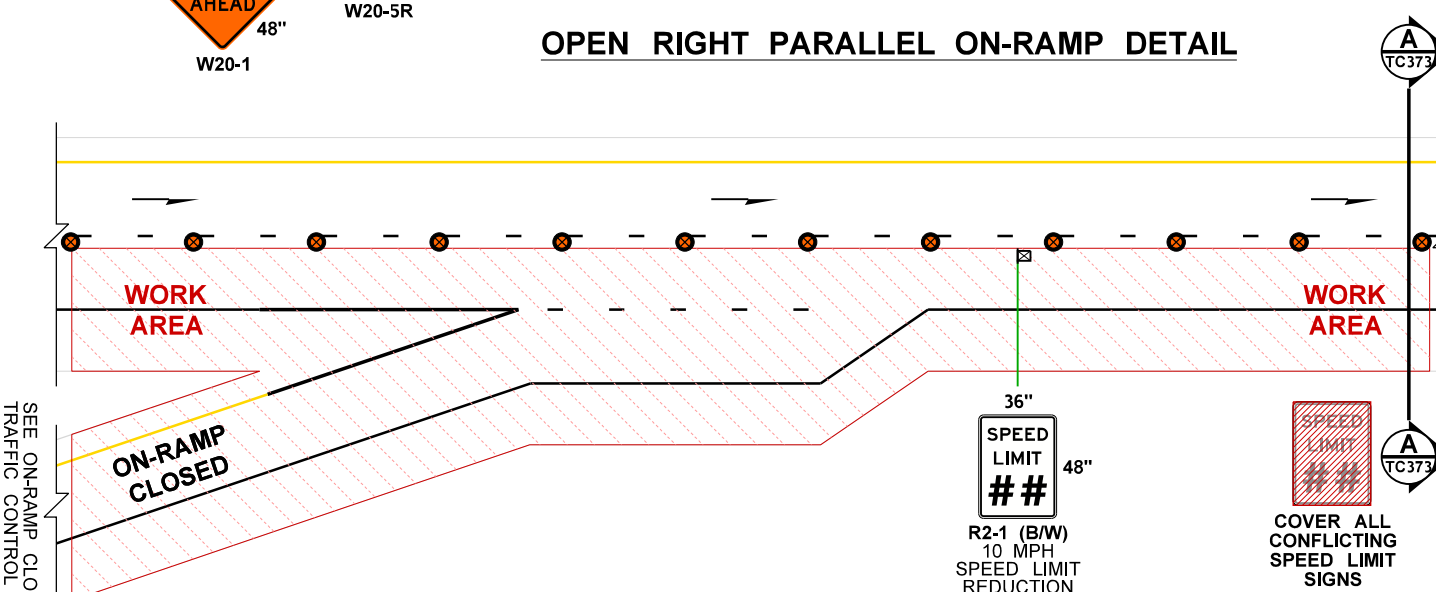
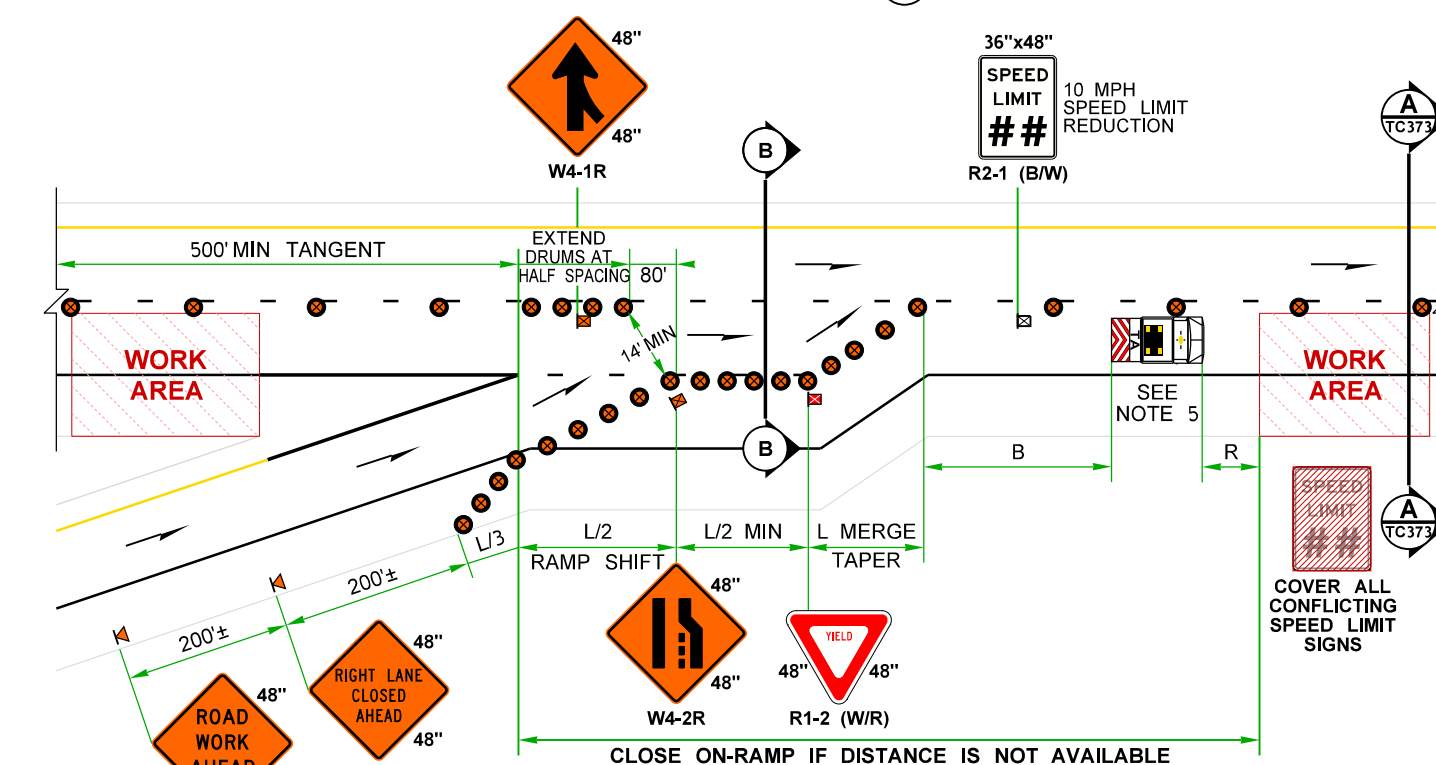
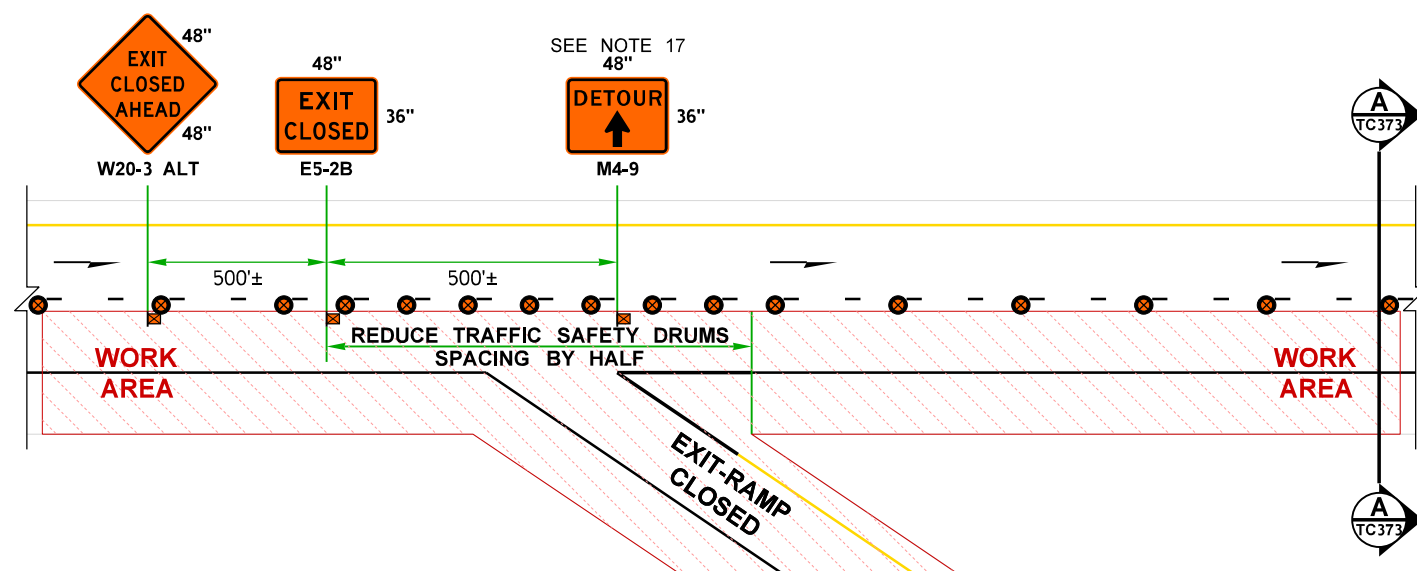
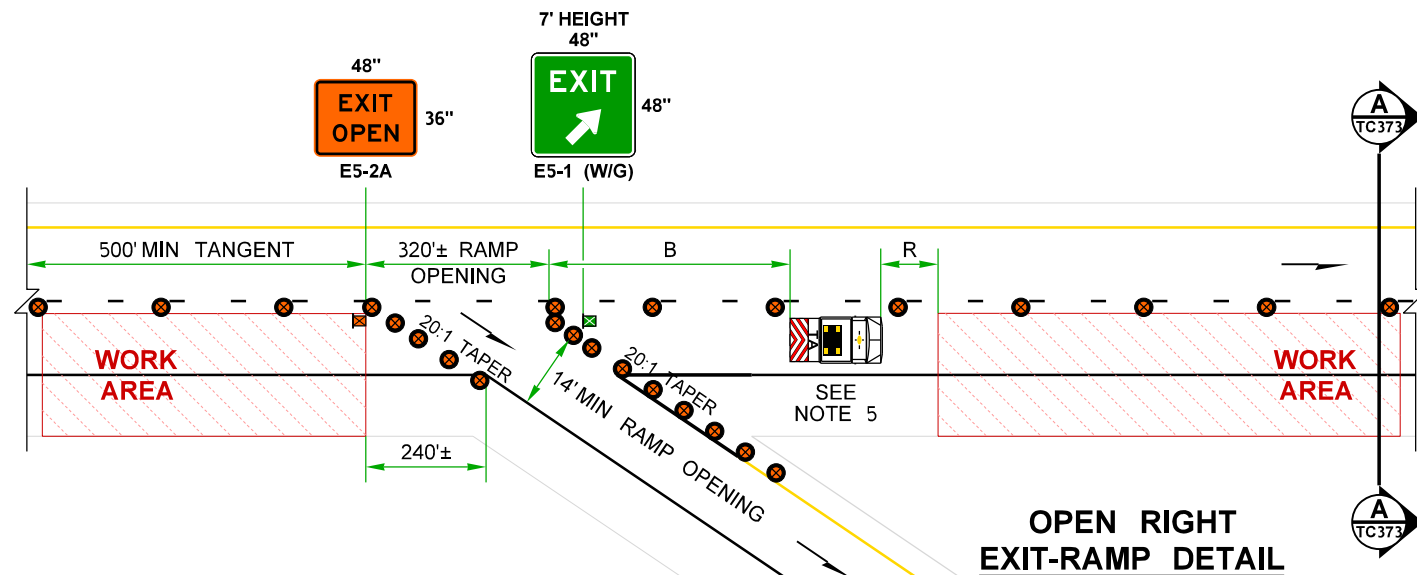
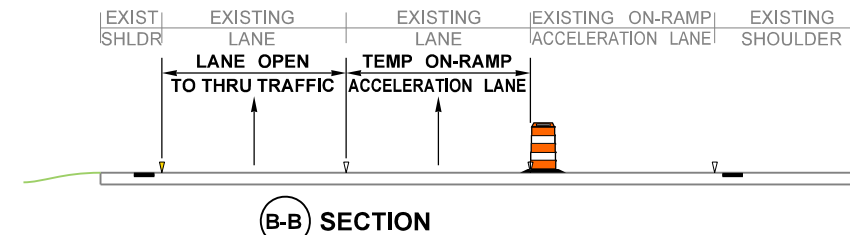
| | | | | | | | | | | | | | |
|---------------|---|--|--|--|--------------|-------|------------------|------|----------------|------|----------------|--|-------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | | REGION NO. | STATE | FED.AID PROJ.NO. | DATE | P.E. STAMP BOX | DATE | P.E. STAMP BOX | Washington State Department of Transportation | Plot 4 |
| TIME | 10:50:27 AM | | | | | | | | | | | | 10 |
| DATE | 9/24/2024 | | | | JOB NUMBER | | | | | | | | SHEET 2B |
| PLOTTED BY | LintzF | | | | CONTRACT NO. | | LOCATION NO. | | | | | | OF 3 |
| DESIGNED BY | | | | | | | | | | | | | SHEETS |
| ENTERED BY | | | | | | | | | | | | | |
| CHECKED BY | | | | | | | | | | | | | |
| PROJ. ENGR. | | | | | | | | | | | | | |
| REGIONAL ADM. | | | | | REVISION | | DATE | | | | | | |
| | | | | | BY | | | | | | | | |

NOTES:

16. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1A OR 1B.

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

| PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE) | | | | | | | |
|---|-------------|-----|-----|-----|-----|-----|-----|
| COMPONENT | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| Ramp Shift Taper | L/2 (feet) | 210 | 240 | 270 | 320 | 360 | 360 |
| Acceleration Tangent | L/2 (feet) | 210 | 240 | 270 | 320 | 360 | 360 |
| Merge Taper | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)
NOT TO SCALE

| | | | | | | | | |
|---------------|--|----------|------|----|--------------|--------------|------------------|---------------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\1373DMLHwy45+1RtLaneWZSL.dgn | | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 5 PLAN REF NO TC373 |
| TIME | 10:50:28 AM | | | | 10 | WASH | | |
| DATE | 9/24/2024 | | | | JOB NUMBER | | | SHEET 3A OF 3 SHEETS |
| PLOTTED BY | LintzF | | | | CONTRACT NO. | LOCATION NO. | | |
| DESIGNED BY | | | | | | | | TYPICAL TRAFFIC CONTROL PLANS |
| ENTERED BY | | | | | | | | |
| CHECKED BY | | | | | | | | |
| PROJ. ENGR. | | | | | | | | |
| REGIONAL ADM. | | REVISION | DATE | BY | | | | |

| mPCMS | |
|--------------------|-------------------|
| 1 | 2 |
| RIGHT LANE CLOSURE | ## MPH ZONE AHEAD |
| 2.0 SEC | 2.0 SEC |

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

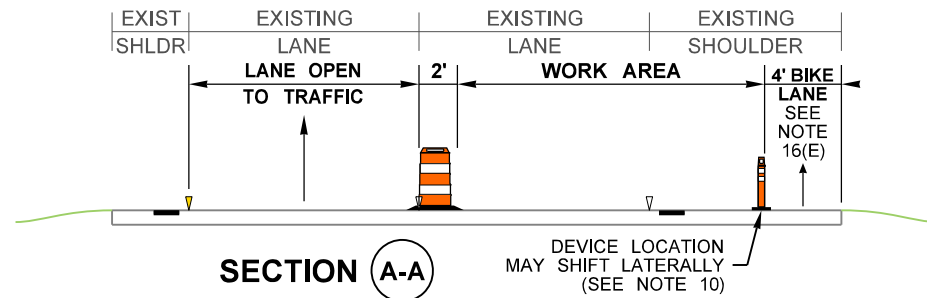
| mPCMS - ALT 1 | | |
|--------------------|------------------------|--------------|
| 1 | 2 | 3 |
| RIGHT LANE CLOSURE | WATCH FOR SLOW TRAFFIC | NEXT # MILES |
| 1.5 SEC | 1.5 SEC | 1.5 SEC |

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

| 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 MPH | 800± |
| RURAL ROADS | 45-55 MPH | 500± |
| RURAL ROADS & URBAN ARTERIALS | 35-40 MPH | 350± |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) MAY REDUCE SPACING IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

| LANE CLOSURE TAPER LENGTH = L | | | | | | | |
|-------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| LANE WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| 12' | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |

Avoid reducing lane closure length on 45+ mph roadways.

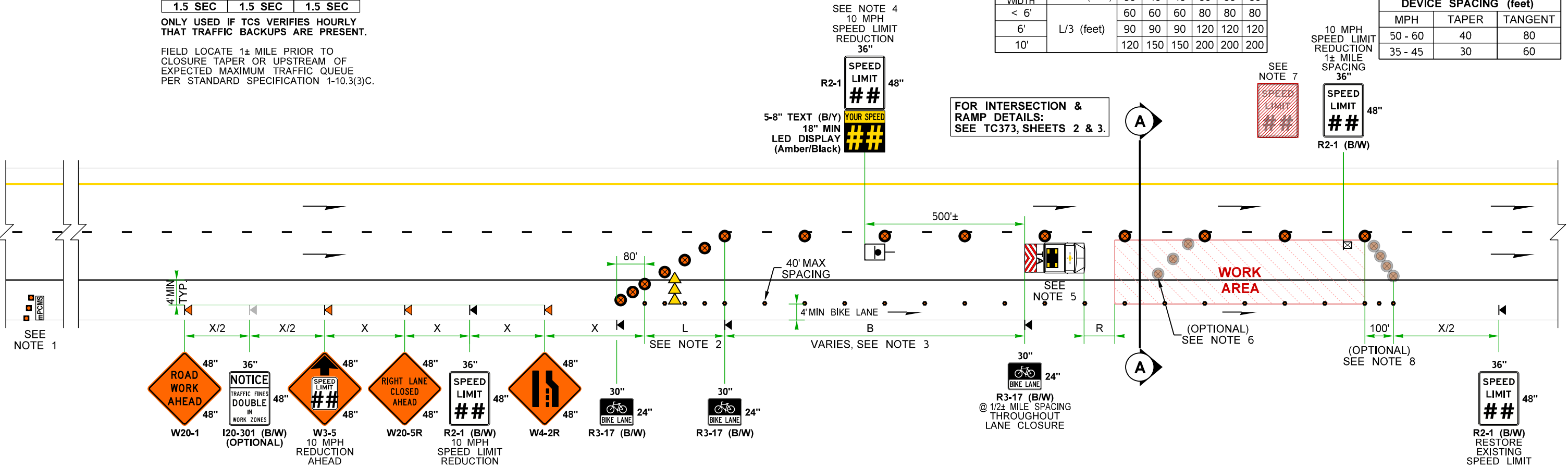
| SHOULDER CLOSURE TAPER LENGTH = L/3 | | | | | | | |
|-------------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| SHOULDER WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| < 6' | L/3 (feet) | 60 | 60 | 60 | 80 | 80 | 80 |
| 6' | | 90 | 90 | 90 | 120 | 120 | 120 |
| 10' | | 120 | 150 | 150 | 200 | 200 | 200 |

| 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 | 123' | 172' |
| 45-55 MPH | 60 MPH | 100' | 150' |

| LONGITUDINAL BUFFER SPACE = B | | | | | | |
|-------------------------------|-----|-----|-----|-----|-----|-----|
| SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| B (feet) | 250 | 305 | 360 | 425 | 495 | 570 |

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

| MAXIMUM CHANNELIZATION DEVICE SPACING (feet) | | |
|--|-------|---------|
| MPH | TAPER | TANGENT |
| 50 - 60 | 40 | 80 |
| 35 - 45 | 30 | 60 |

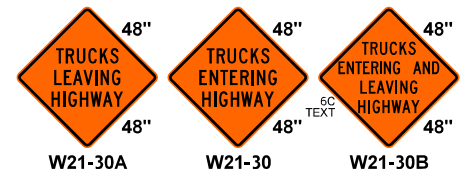


NOTES:

- FULL-SIZE PCMS (11'x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
- IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
- DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
- RELOCATE RSDS AS WORK ZONE MOVES DOWNSTREAM. IF ENGINEER ACCEPTS, ADDITIONAL RSDS MAY BE ADDED PRIOR TO EACH WORK CREW.
- RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
- IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
- COVER ALL CONFLICTING SIGNAGE PER STD. SPEC. 1-10.3(3)A. BLACK 1/8" ABS OR 1/4" PLYWOOD TEMP. SIGN COVER PERMITTED.
- IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
- 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
- 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
- SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
- PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
- NOTIFY PUBLIC OF SPEED REDUCTION AT LEAST 3 DAYS PRIOR VIA mPCMS: ## MPH WZ SPEED LIMIT/BEGINS DAYOFWEEK MM/DD/YY @ 2.0 SEC.
- ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
- 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.
- 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 (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 9)
- PORTABLE TUBULAR MARKER (SEE NOTE 10)
- RADAR SPEED DISPLAY SIGN (RSDS)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

| | | | | | | | |
|---------------|--|------|----|----------------|--------------|------------------|-------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\1373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 11 |
| TIME | 10:50:29 AM | | | 10 | WASH | | TC373 |
| DATE | 9/24/2024 | | | JOB NUMBER | | | SHEET 1C OF 3 SHEETS |
| PLOTTED BY | LintzF | | | CONTRACT NO. | LOCATION NO. | | TYPICAL TRAFFIC CONTROL PLANS |
| DESIGNED BY | | | | | | | |
| ENTERED BY | | | | | | | |
| CHECKED BY | | | | | | | |
| PROJ. ENGR. | | | | | | | |
| REGIONAL ADM. | REVISION | DATE | BY | P.E. STAMP BOX | DATE | P.E. STAMP BOX | |

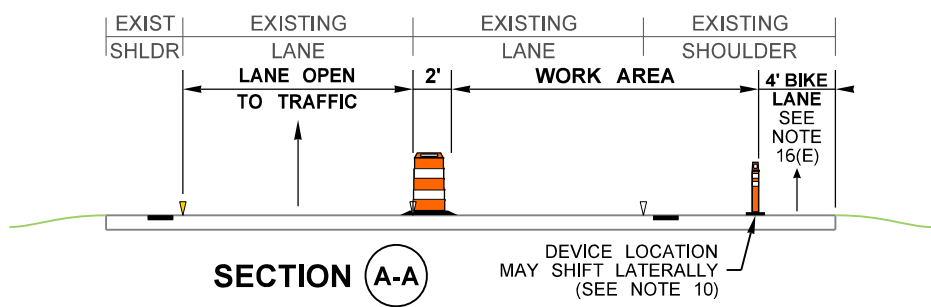
| 3-MILE QUEUE WARNING SYSTEM MESSAGES | | | | | |
|--------------------------------------|----------|-------------------------|-------------------------|-------------------------|---------------------|
| TRAFFIC SENSORS | | mPCMS 2 | | mPCMS 1 | |
| B | A | 1 | 2 | 1 | 2 |
| TRIGGER | SPEED | 2.0 SEC | 2.0 SEC | 2.0 SEC | 2.0 SEC |
| 35+ MPH | 35+ MPH | ■ | (Blank) | RIGHT LANE CLOSURE | ## MPH ZONE 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, RAMP, 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 MPH | 800± | |
| RURAL ROADS | 45-55 MPH | 500± | |
| RURAL ROADS & URBAN ARTERIALS | 35-40 MPH | 350± | |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) MAY REDUCE SPACING IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

| LANE CLOSURE TAPER LENGTH = L | | | | | | | |
|-------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| LANE WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| 12' | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |

Avoid reducing lane closure length on 45+ mph roadways.

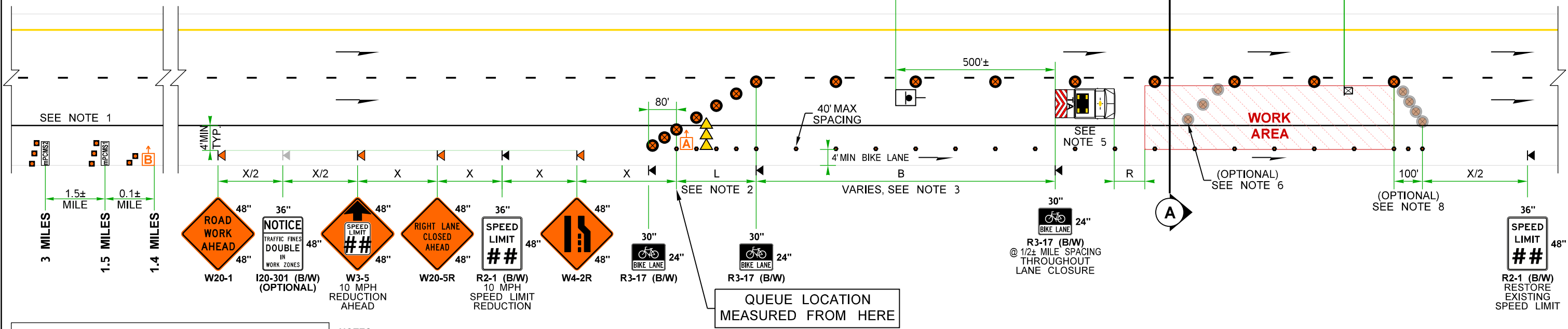
| SHOULDER CLOSURE TAPER LENGTH = L/3 | | | | | | | |
|-------------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| SHOULDER WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| < 6' | L/3 (feet) | 60 | 60 | 60 | 80 | 80 | 80 |
| 6' | L/3 (feet) | 90 | 90 | 90 | 120 | 120 | 120 |
| 10' | L/3 (feet) | 120 | 150 | 150 | 200 | 200 | 200 |

| 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) | 35 | 40 | 45 | 50 | 55 | 60 |
| B (feet) | 250 | 305 | 360 | 425 | 495 | 570 |

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

| MAXIMUM CHANNELIZATION DEVICE SPACING (feet) | | |
|--|-------|---------|
| MPH | TAPER | TANGENT |
| 50 - 60 | 40 | 80 |
| 35 - 45 | 30 | 60 |

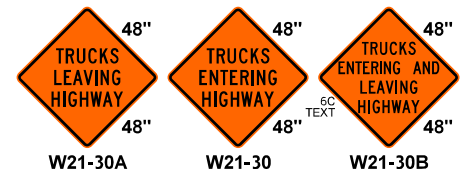


LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 9)
- PORTABLE TUBULAR MARKER (SEE NOTE 10)
- QWS TRAFFIC SENSOR
- RADAR SPEED DISPLAY SIGN (RSDS)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

- NOTES:**
- FULL-SIZE PCMS (11' x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
 - IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
 - DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
 - RELOCATE RSDS AS WORK ZONE MOVES DOWNSTREAM. IF ENGINEER ACCEPTS, ADDITIONAL RSDS MAY BE ADDED PRIOR TO EACH WORK CREW.
 - RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
 - IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
 - COVER ALL CONFLICTING SIGNAGE PER STD. SPEC. 1-10.3(3)A. BLACK 1/8" ABS OR 1/4" PLYWOOD TEMP. SIGN COVER PERMITTED.
 - IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
 - 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
 - 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
 - SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
 - PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
 - NOTIFY PUBLIC OF SPEED REDUCTION AT LEAST 3 DAYS PRIOR VIA mPCMS: ## MPH WZ SPEED LIMIT/BEGINS DAYOFWEEK MM/DD/YY @ 2.0 SEC.

- ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
- PEDESTRIAN ACCOMMODATIONS, WHERE FACILITY OPEN TO PEDESTRIANS:
 - KEEP ADJACENT SIDEWALK OR PATHWAY OPEN.
 - CLOSE ADJACENT SIDEWALK OR PATHWAY. PROVIDE PEDESTRIAN DETOUR, ALTERNATE ROUTE, OR FREE SHUTTLE (WORK TRUCK, VAN, OR BUS OK).
 - STOP WORK OPS. & ESCORT PEDESTRIANS THROUGH WORK AREA.
 - ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES.
- BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES:
 - 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, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

| | | | | | | | |
|---------------|---|------|----|----------------|-------|------------------|-------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 12 |
| TIME | 10:50:29 AM | | | 10 | WASH | | PLAN REF NO |
| DATE | 9/24/2024 | | | | | | TC373 |
| PLOTTED BY | LintzF | | | JOB NUMBER | | | SHEET |
| DESIGNED BY | | | | CONTRACT NO. | | | 1D |
| ENTERED BY | | | | LOCATION NO. | | | OF |
| CHECKED BY | | | | | | | 3 |
| PROJ. ENGR. | | | | | | | SHEETS |
| REGIONAL ADM. | REVISION | DATE | BY | P.E. STAMP BOX | DATE | P.E. STAMP BOX | TYPICAL TRAFFIC CONTROL PLANS |



NOTES:

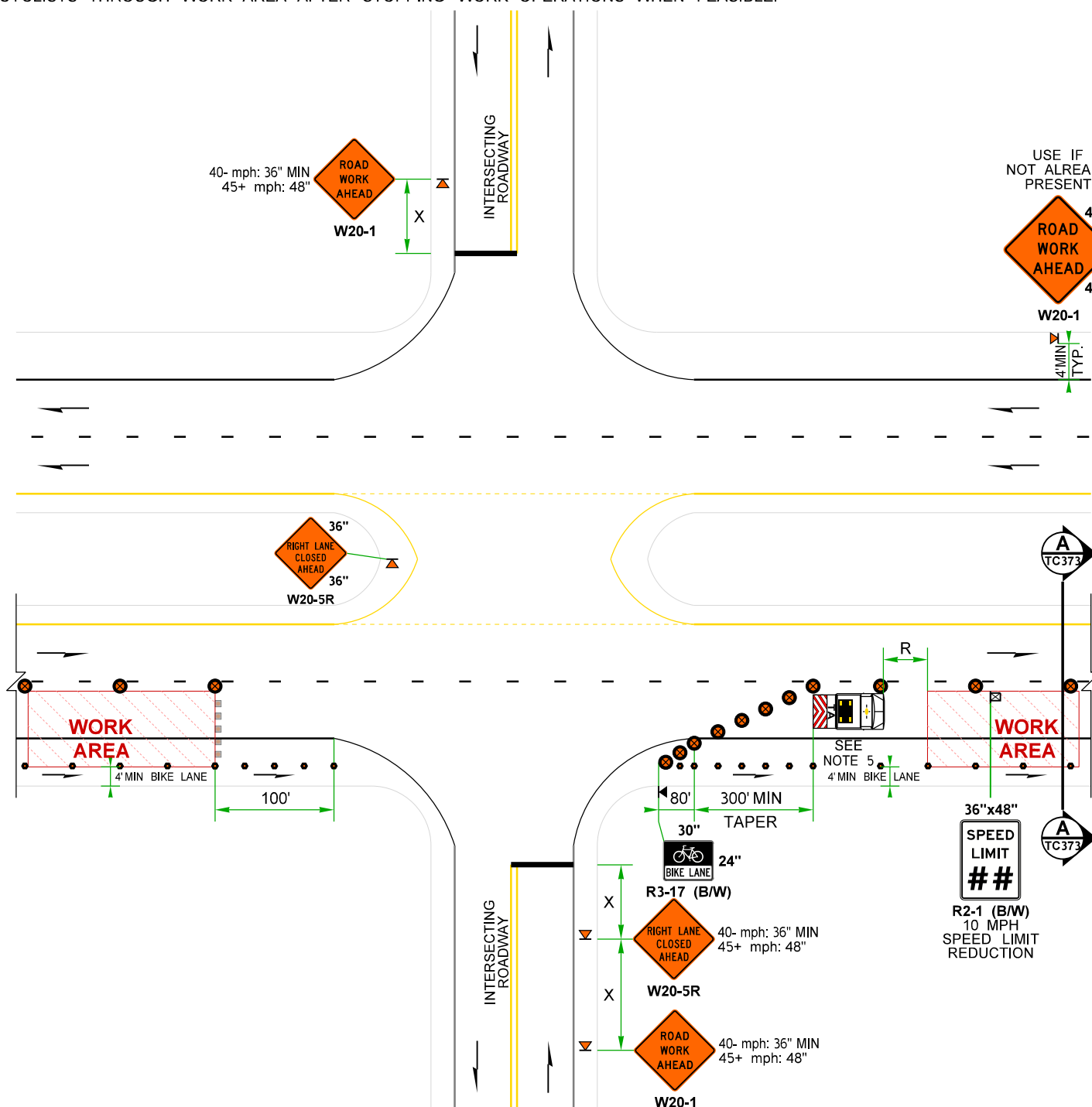
17. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1C OR 1D.

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

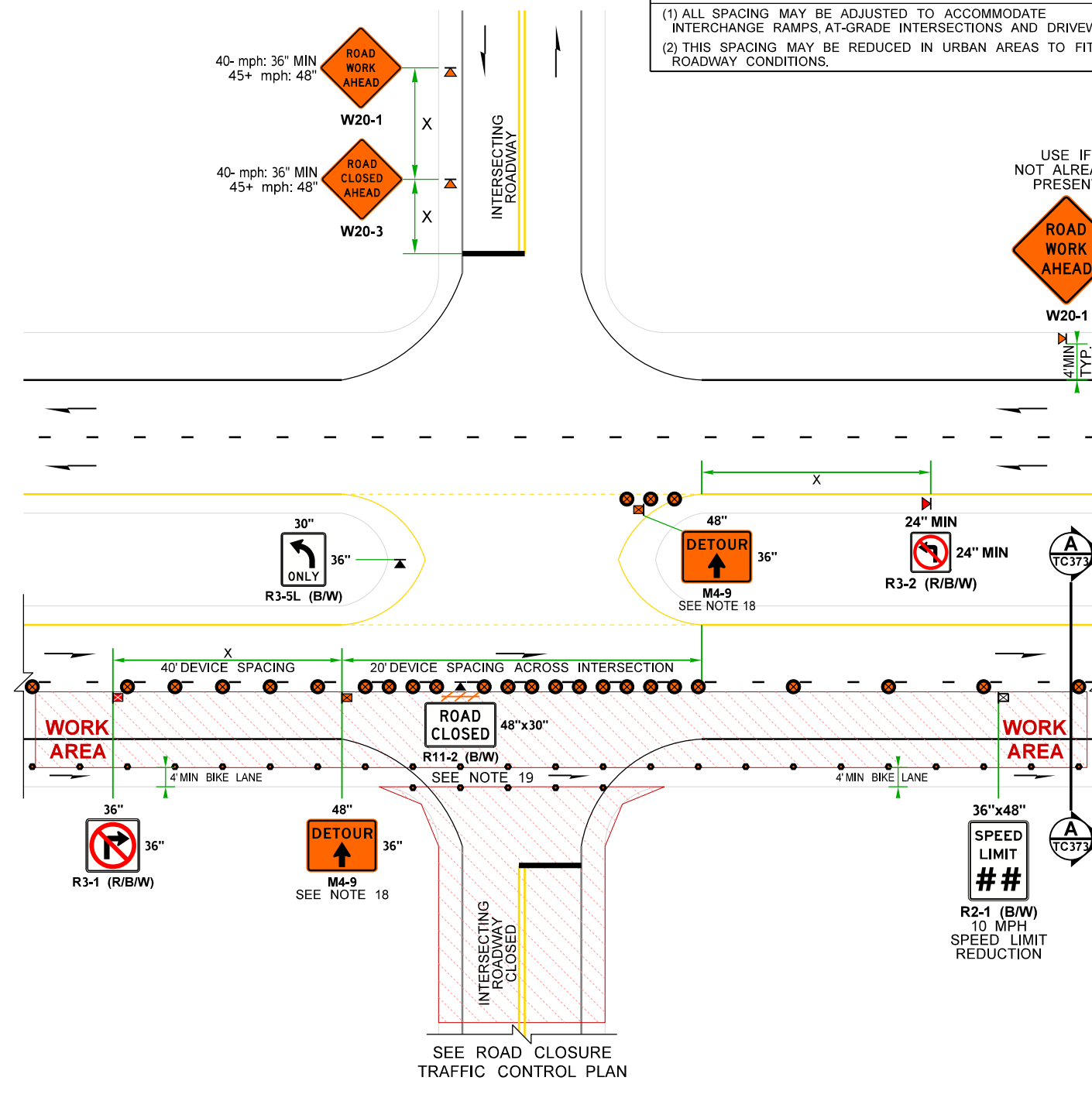
19. TEMP BIKE LANE ACROSS PARTIAL CLOSURE MAY BE REMOVED. IF SO, ESCORT BICYCLISTS THROUGH WORK AREA AFTER STOPPING WORK OPERATIONS WHEN FEASIBLE.

| 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 RESIDENTIAL & BUSINESS DISTRICTS | 25-30 MPH | 200± (2) |
| URBAN STREETS | 25 MPH OR LESS | 100± (2) |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



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, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

| | | | | | | | | |
|---------------|---|------|----|--------------|-------|------------------|--|----------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Washington State Department of Transportation | Plot 13 |
| TIME | 10:50:30 AM | | | 10 | WASH | | | PLAN REF NO TC373 |
| DATE | 9/24/2024 | | | JOB NUMBER | | | | SHEET 2C OF 3 SHEETS |
| PLOTTED BY | LintzF | | | CONTRACT NO. | | LOCATION NO. | | |
| DESIGNED BY | | | | | | | | |
| ENTERED BY | | | | | | | | |
| CHECKED BY | | | | | | | | |
| PROJ. ENGR. | | | | | | | | |
| REGIONAL ADM. | REVISION | DATE | BY | | | | | |

NOTES:

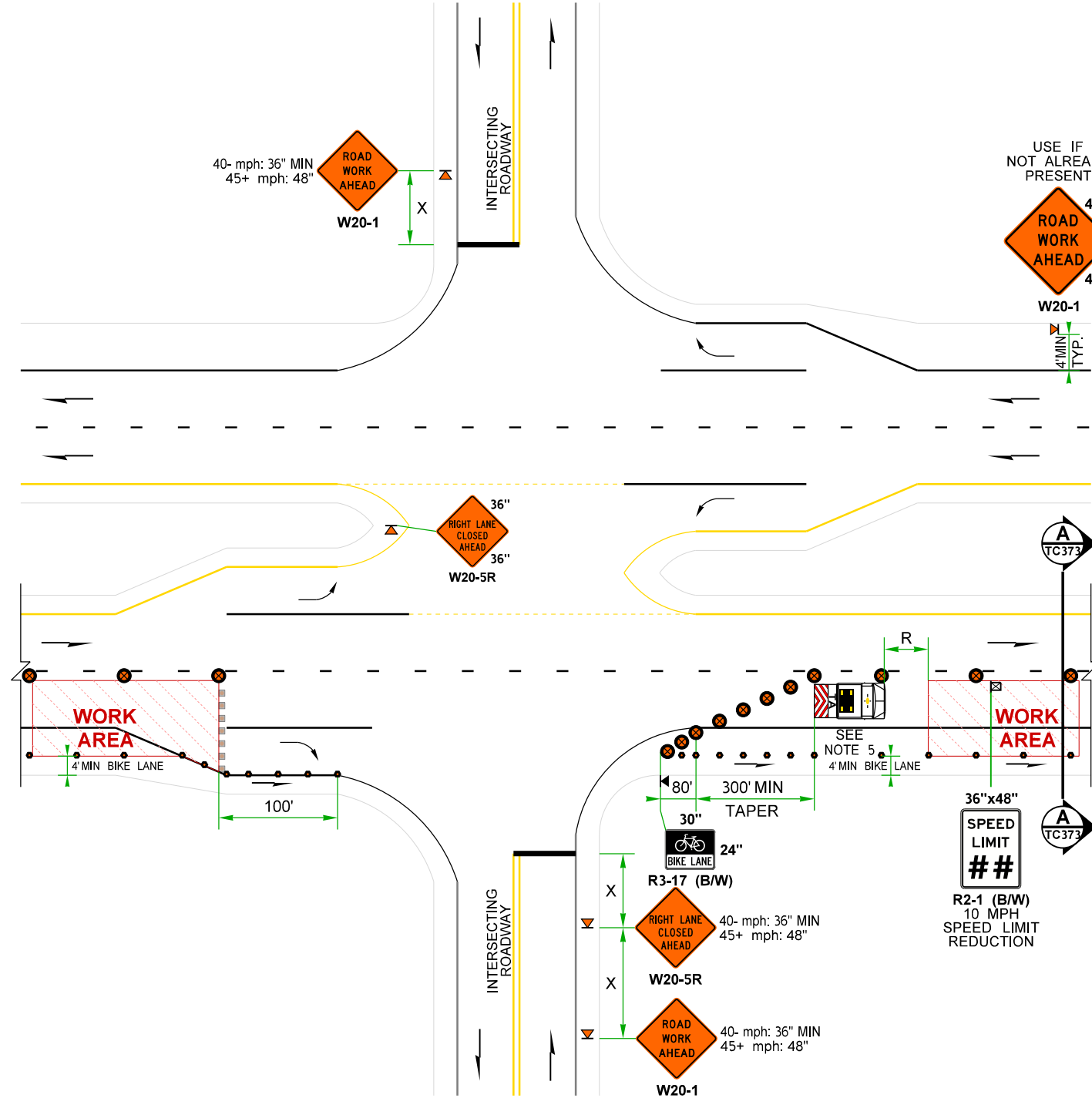
17. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1C OR 1D.

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

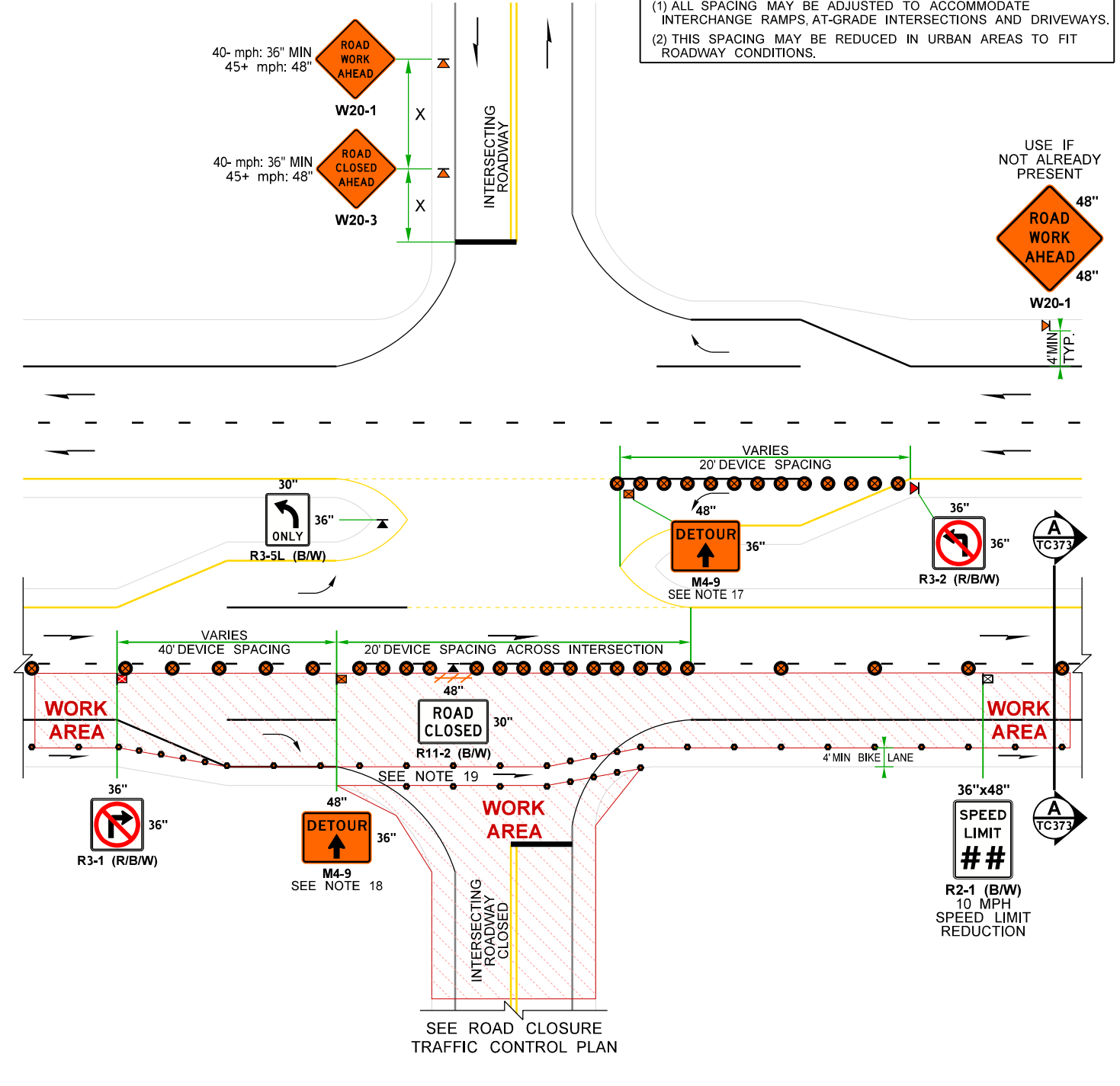
19. TEMP BIKE LANE ACROSS PARTIAL CLOSURE MAY BE REMOVED. IF SO, ESCORT BICYCLISTS THROUGH WORK AREA AFTER STOPPING WORK OPERATIONS WHEN FEASIBLE.

| 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 RESIDENTIAL & BUSINESS DISTRICTS | 25-30 MPH | 200± (2) |
| URBAN STREETS | 25 MPH OR LESS | 100± (2) |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
 (2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.



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, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE

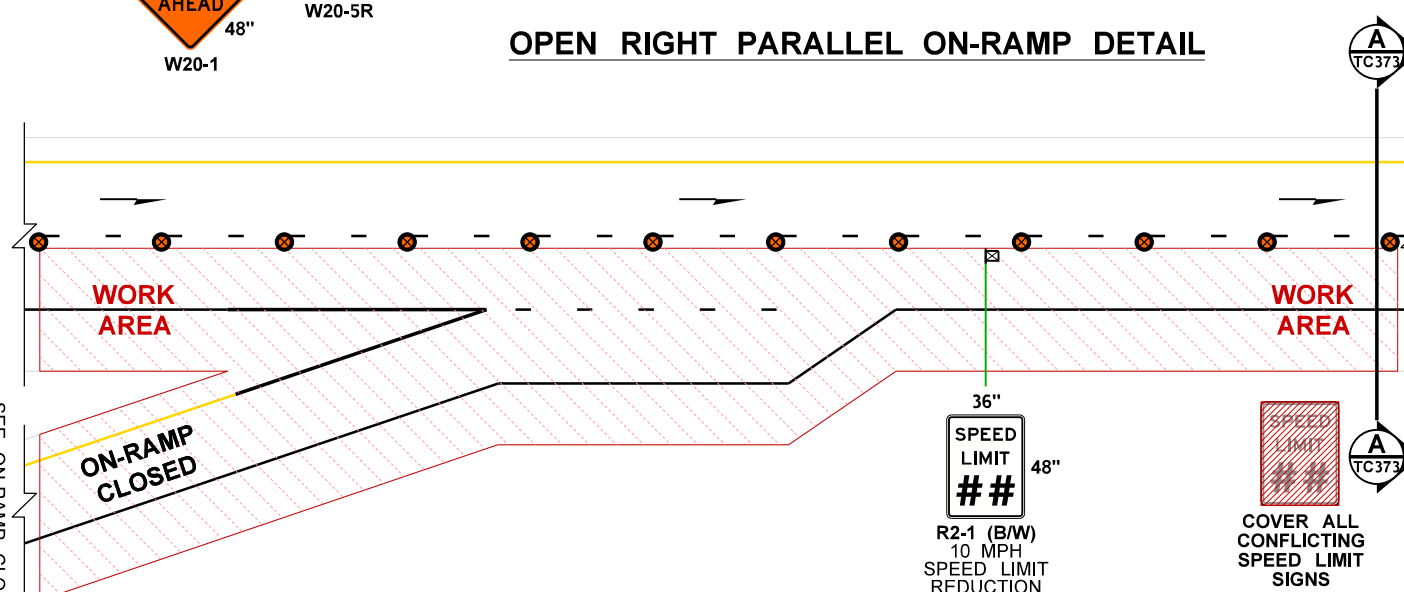
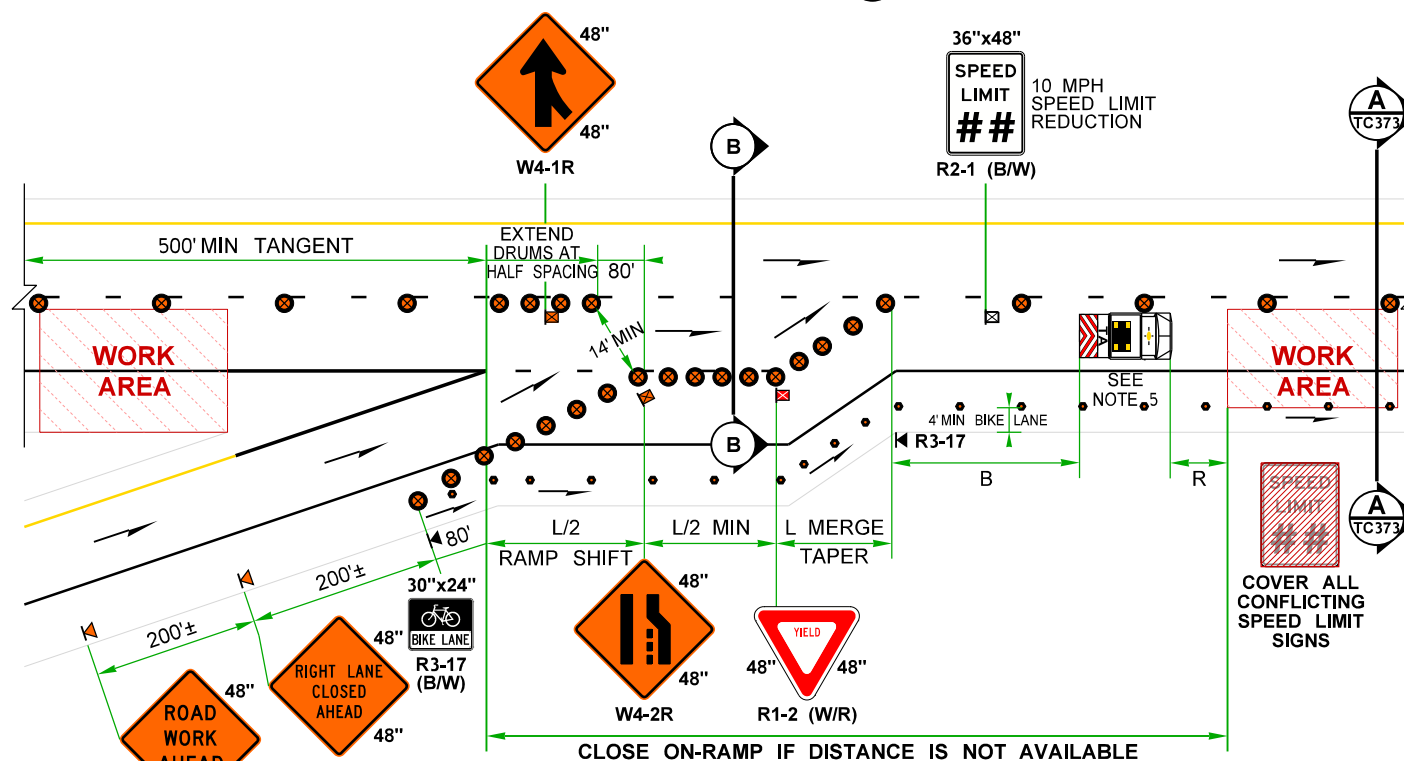
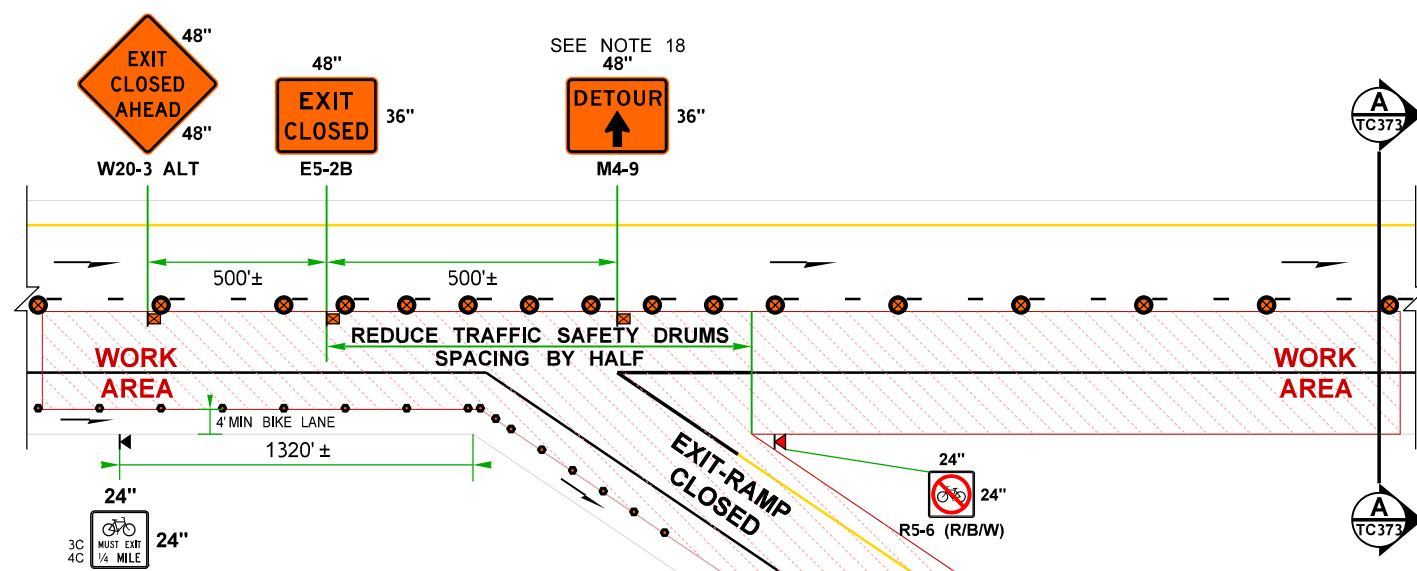
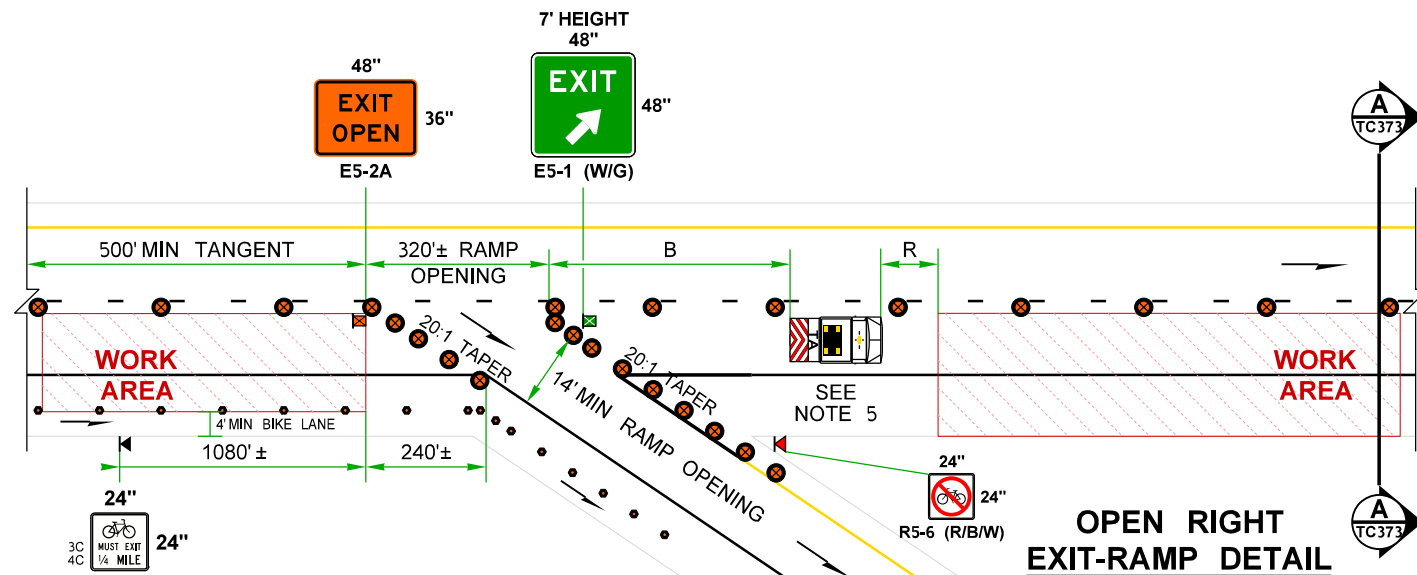
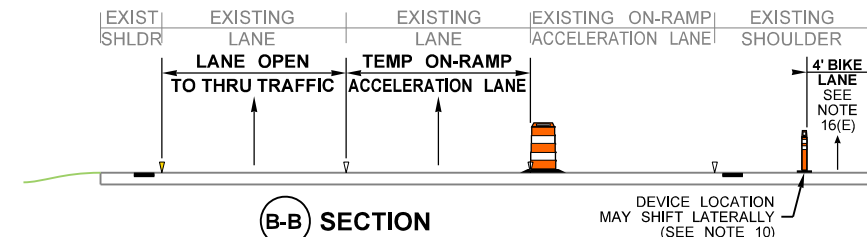
| | | | | | | | | | | | | | |
|---------------|---|--|--|--|--------------|-------|------------------|------|------|----------------|----------------|--|-------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | | REGION NO. | STATE | FED.AID PROJ.NO. | DATE | DATE | P.E. STAMP BOX | P.E. STAMP BOX | Washington State Department of Transportation | Plot 14 |
| TIME | 10:50:30 AM | | | | | | | | | | | | 10 |
| DATE | 9/24/2024 | | | | JOB NUMBER | | | | | | | | SHEET 2D |
| PLOTTED BY | LintzF | | | | CONTRACT NO. | | LOCATION NO. | | | | | | OF 3 |
| DESIGNED BY | | | | | | | | | | | | | SHEETS |
| ENTERED BY | | | | | | | | | | | | | |
| CHECKED BY | | | | | | | | | | | | | |
| PROJ. ENGR. | | | | | | | | | | | | | |
| REGIONAL ADM. | | | | | REVISION | DATE | BY | | | | | | |

NOTES:

17. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1C OR 1D.

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

| PARALLEL TEMPORARY ON-RAMP MERGE (1-LANE) | | | | | | | |
|---|-------------|-----|-----|-----|-----|-----|-----|
| COMPONENT | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| Ramp Shift Taper | L/2 (feet) | 210 | 240 | 270 | 320 | 360 | 360 |
| Acceleration Tangent | L/2 (feet) | 210 | 240 | 270 | 320 | 360 | 360 |
| Merge Taper | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)
NOT TO SCALE

| | | | | | |
|---------------|---|--------------|----|--------------|-------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | | Plot 15 |
| TIME | 10:50:31 AM | | | | PLAN REF NO |
| DATE | 9/24/2024 | | | | TC373 |
| PLOTTED BY | LintzF | REGION NO. | 10 | STATE | WASH |
| DESIGNED BY | | JOB NUMBER | | | |
| ENTERED BY | | CONTRACT NO. | | LOCATION NO. | |
| CHECKED BY | | | | | |
| PROJ. ENGR. | | | | | |
| REGIONAL ADM. | | REVISION | | DATE | BY |

Washington State
Department of Transportation

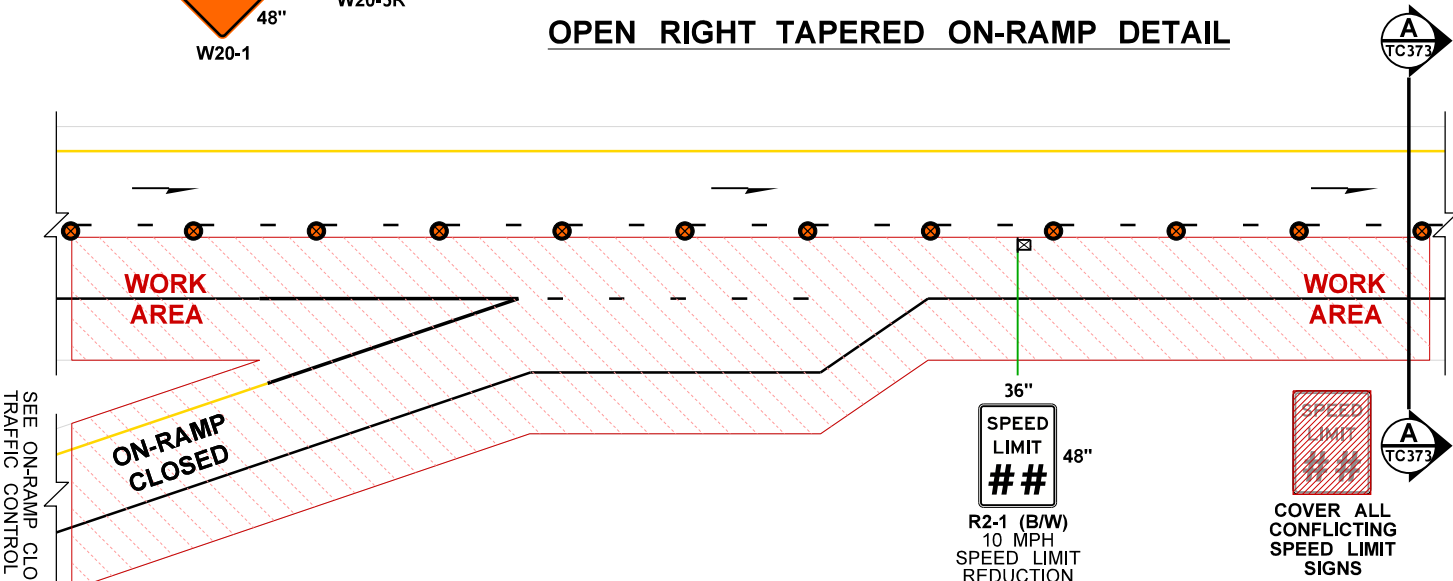
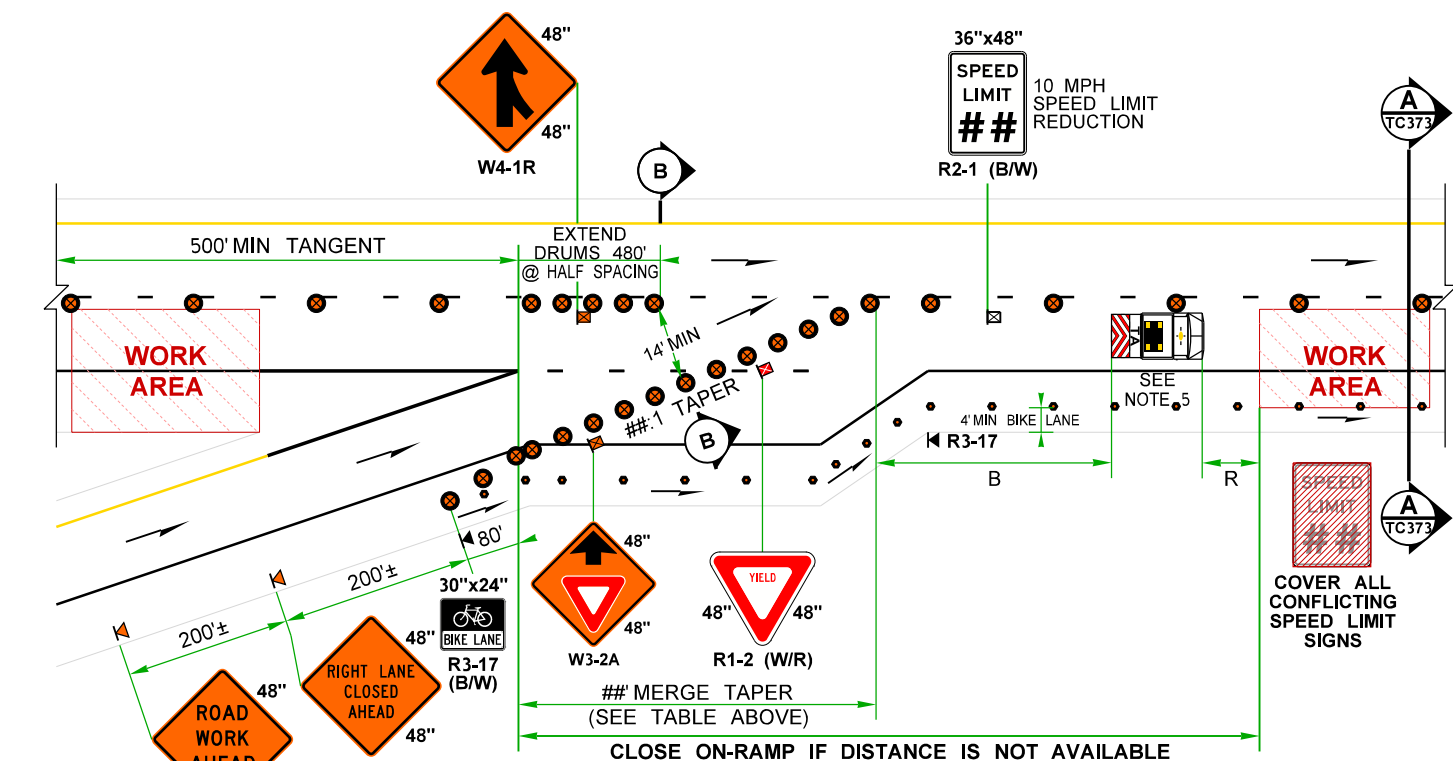
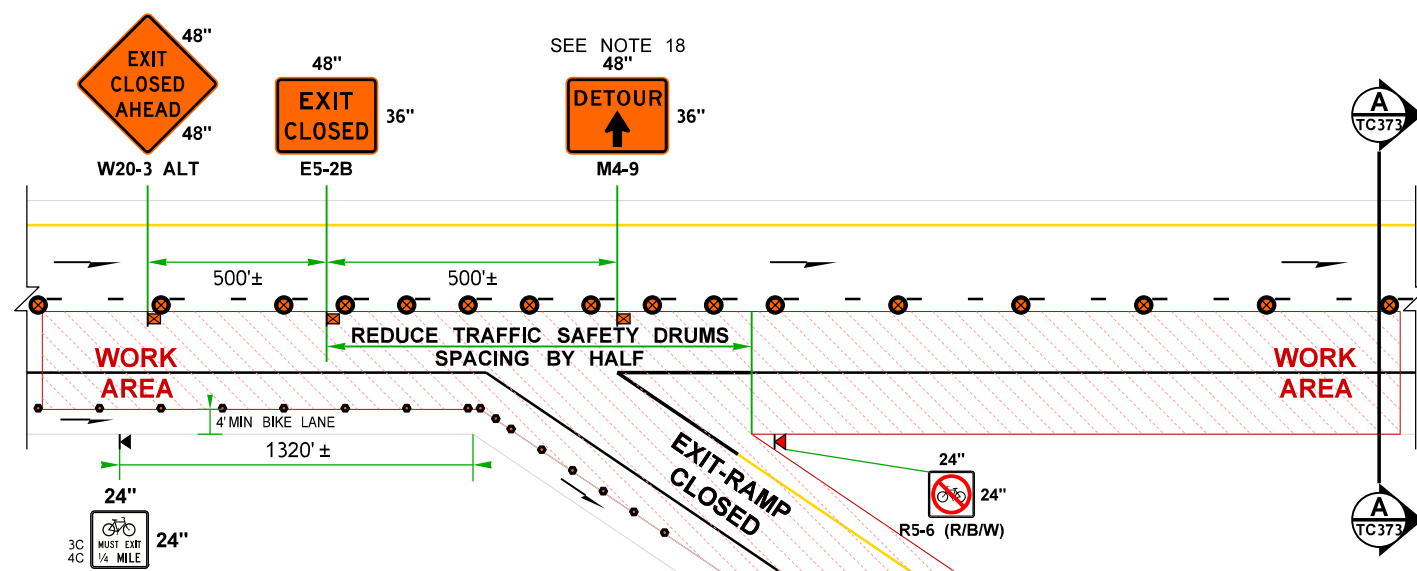
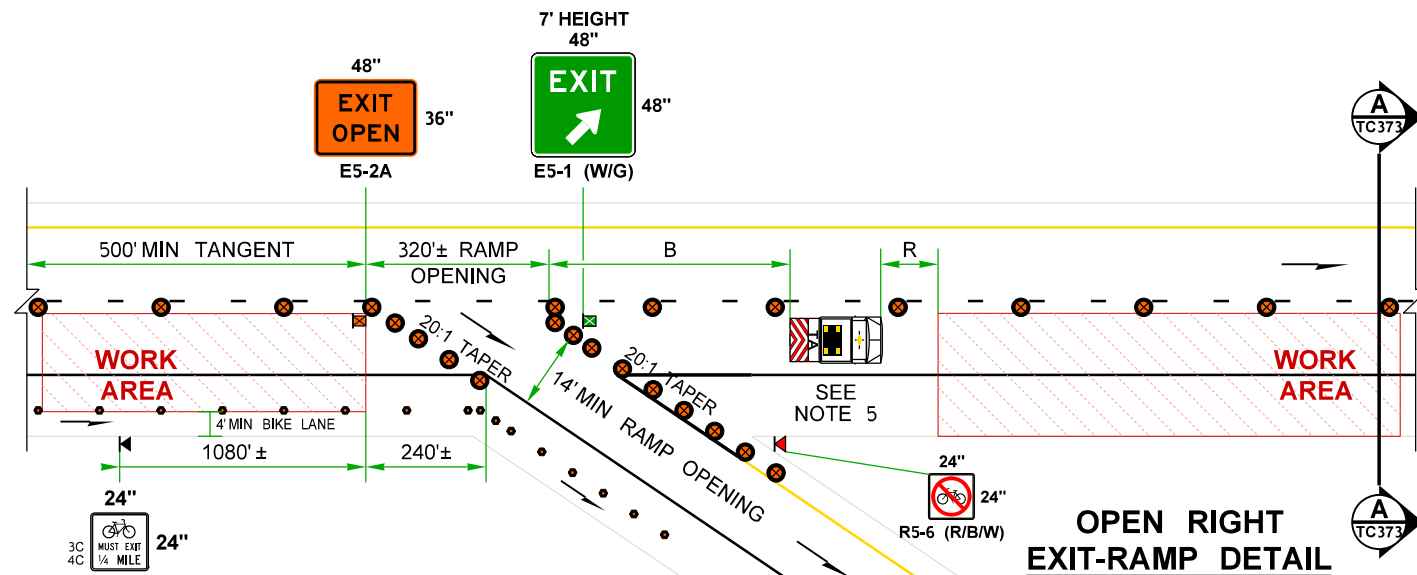
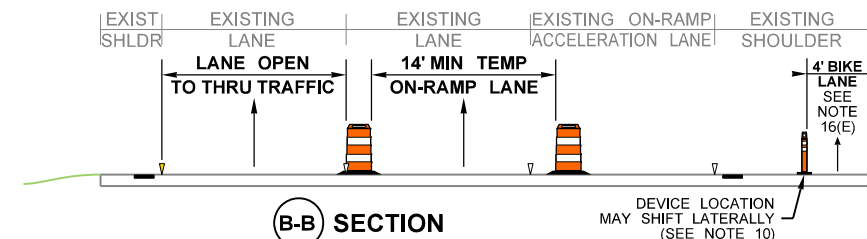
SHEET
3C
OF
3
SHEETS

NOTES:

17. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC373, SHEET 1C OR 1D.

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

| TAPERED TEMPORARY ON-RAMP MERGE TAPER RATE | | | | | | | |
|--|-------------|-----|-----|------|------|------|------|
| COMPONENT | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| Taper Rate | ##:1 | 35 | 40 | 45 | 50 | 50 | 50 |
| Merge Taper | ### | 840 | 960 | 1080 | 1200 | 1200 | 1200 |



4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)
NOT TO SCALE

| | | | | | | | | |
|---------------|---|------|----|--------------|-------|------------------|--|----------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPS\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Washington State Department of Transportation | Plot 16 |
| TIME | 10:50:31 AM | | | 10 | WASH | | | PLAN REF NO TC373 |
| DATE | 9/24/2024 | | | JOB NUMBER | | | | SHEET 3D OF 3 SHEETS |
| PLOTTED BY | LintzF | | | CONTRACT NO. | | LOCATION NO. | | |
| DESIGNED BY | | | | | | | | |
| ENTERED BY | | | | | | | | |
| CHECKED BY | | | | | | | | |
| PROJ. ENGR. | | | | | | | | |
| REGIONAL ADM. | REVISION | DATE | BY | | | | TYPICAL TRAFFIC CONTROL PLANS | |

| mPCMS | |
|--------------------|-------------------|
| 1 | 2 |
| RIGHT LANE CLOSURE | ## MPH ZONE AHEAD |
| 2.0 SEC | 2.0 SEC |

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

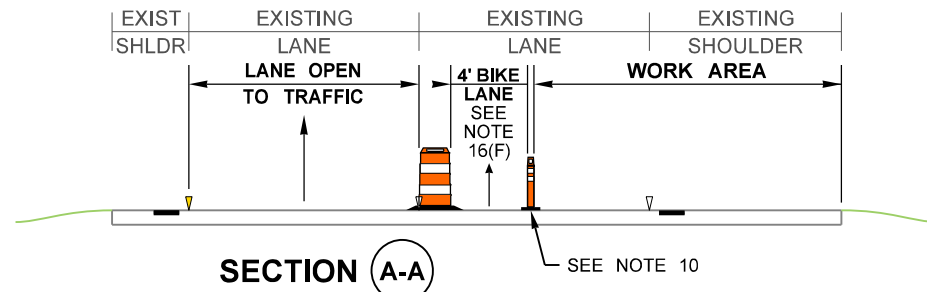
| mPCMS - ALT 1 | | |
|--------------------|------------------------|--------------|
| 1 | 2 | 3 |
| RIGHT LANE CLOSURE | WATCH FOR SLOW TRAFFIC | NEXT # MILES |
| 1.5 SEC | 1.5 SEC | 1.5 SEC |

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

| 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 MPH | 800± | |
| RURAL ROADS | 45-55 MPH | 500± | |
| RURAL ROADS & URBAN ARTERIALS | 35-40 MPH | 350± | |

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) MAY REDUCE SPACING IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

| LANE CLOSURE TAPER LENGTH = L | | | | | | | |
|-------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| LANE WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| 12' | L (feet) | 420 | 480 | 540 | 600 | 680 | 720 |

Avoid reducing lane closure length on 45+ mph roadways.

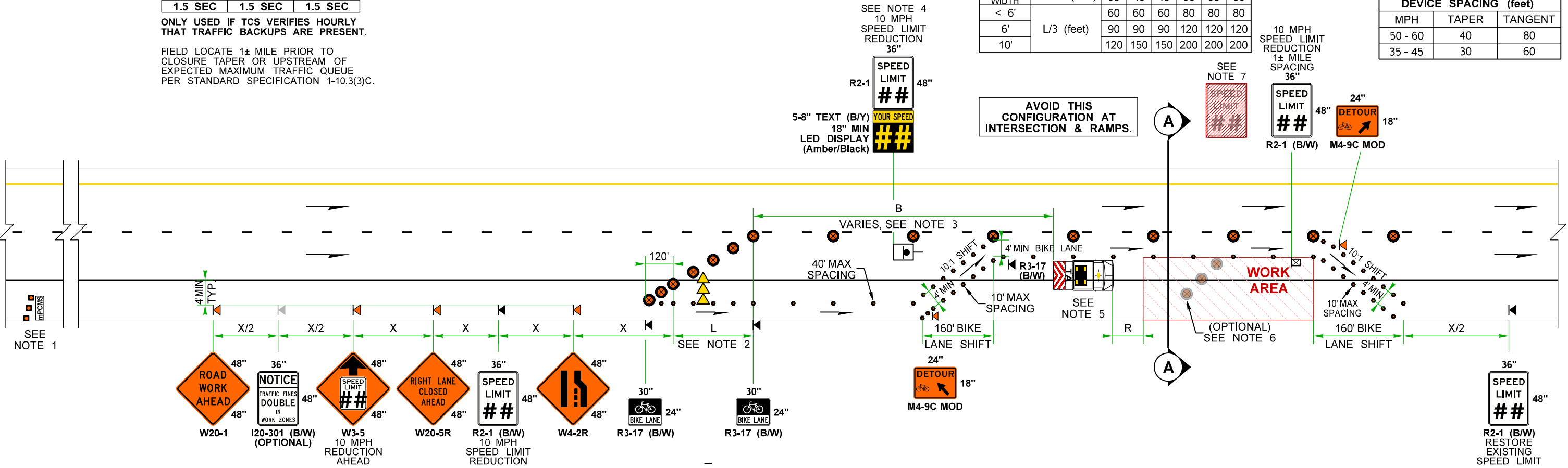
| SHOULDER CLOSURE TAPER LENGTH = L/3 | | | | | | | |
|-------------------------------------|-------------|-----|-----|-----|-----|-----|-----|
| SHOULDER WIDTH | SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| < 6' | L/3 (feet) | 60 | 60 | 60 | 80 | 80 | 80 |
| 6' | | 90 | 90 | 90 | 120 | 120 | 120 |
| 10' | | 120 | 150 | 150 | 200 | 200 | 200 |

| 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 | 123' | 172' |
| 45-55 MPH | 60 MPH | 100' | 150' |

| LONGITUDINAL BUFFER SPACE = B | | | | | | |
|-------------------------------|-----|-----|-----|-----|-----|-----|
| SPEED (MPH) | 35 | 40 | 45 | 50 | 55 | 60 |
| B (feet) | 250 | 305 | 360 | 425 | 495 | 570 |

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

| MAXIMUM CHANNELIZATION DEVICE SPACING (feet) | | |
|--|-------|---------|
| MPH | TAPER | TANGENT |
| 50 - 60 | 40 | 80 |
| 35 - 45 | 30 | 60 |



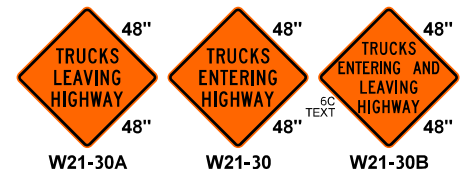
NOTES:

- FULL-SIZE PCMS (11'x 6' DISPLAY) MAY BE USED IN LIEU OF mPCMS. PCMS MESSAGES MAY BE MODIFIED.
- IF FEASIBLE, AVOID PLACING LANE CLOSURE OR LANE SHIFT TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL CURVES.
- DISTANCE INCREASES AS WORK AREA MOVES DOWNSTREAM.
- RELOCATE RSDS AS WORK ZONE MOVES DOWNSTREAM. IF ENGINEER ACCEPTS, ADDITIONAL RSDS MAY BE ADDED PRIOR TO EACH WORK CREW.
- RED/WHITE OR BLACK/YELLOW CHEVRON PATTERN OK. ADDITIONAL TRANSPORTABLE ATTENUATORS MAY BE ADDED BEHIND EACH WORK CREW.
- IF USED, PLACE DEVICES TRANSVERSELY ACROSS CLOSED LANES AT 45°± AND 5' SPACING AT STRATEGIC LOCATIONS.
- COVER ALL CONFLICTING SIGNAGE PER STD. SPEC. 1-10.3(3)A. BLACK 1/8" ABS OR 1/4" PLYWOOD TEMP. SIGN COVER PERMITTED.
- IF USED, DOWNSTREAM TAPER DEVICE SPACING IS 20'.
- 28" TRAFFIC CONES, 36" TRAFFIC CONES, 42" TALL CHANNELIZING DEVICES, OR TRAFFIC SAFETY DRUMS ALSO OK.
- 28" TRAFFIC CONE, 36" TRAFFIC CONE, 42" TALL CHANNELIZING DEVICE OK. DEVICE MAY SHIFT LATERALLY TO PROVIDE 4' MIN BIKE LANE.
- SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
- PLAN IS APPLICABLE TO LANE CLOSURES OF 7 DAYS OR LESS.
- NOTIFY PUBLIC OF SPEED REDUCTION AT LEAST 3 DAYS PRIOR VIA mPCMS: ## MPH WZ SPEED LIMIT/BEGINS DAYOFWEEK MM/DD/YY @ 2.0 SEC.

- ADD W21-30-SERIES SIGNS (48"x48", 5' HEIGHT) 500± PRIOR TO FREQUENT CONSTRUCTION VEHICLES INGRESS/EGRESS INTO THE OPEN LANE(S).
- 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.
- BICYCLIST ACCOMMODATIONS, WHERE FACILITY OPEN TO BICYCLES: (F) PROVIDE TEMP. 4' MIN BIKE LANE THROUGH LANE CLOSURE ADJACENT TO VEHICLE TRAFFIC.

4-LANE DIVIDED HIGHWAYS: SINGLE RIGHT LANE CLOSURE (45+ MPH, 10 MPH WORK ZONE SPEED LIMIT REDUCTION)

NOT TO SCALE



LEGEND:

- TEMPORARY SIGN LOCATION (1' MIN HEIGHT)
- TEMPORARY SIGN LOCATION (5' MIN HEIGHT)
- TRAFFIC SAFETY DRUM
- CHANNELIZING DEVICE (SEE NOTE 8)
- PORTABLE TUBULAR MARKER (SEE NOTE 9)
- RADAR SPEED DISPLAY SIGN (RSDS)
- SEQUENTIAL ARROW SIGN
- TRANSPORTABLE ATTENUATOR (TL-3)
- mPCMS mini PORTABLE CHANGEABLE MESSAGE SIGN (PCMS OK, SEE NOTE 1)

| | | | | | | | |
|---------------|---|------|----|--------------|--------------|------------------|-------------------------------|
| FILE NAME | C:\Users\LintzF\OneDrive - Washington State Department of Transportation\Desktop\Work Zone TCPs\373DMLHwy45+1RtLaneWZSL.dgn | | | REGION NO. | STATE | FED.AID PROJ.NO. | Plot 21 |
| TIME | 10:50:32 AM | | | 10 | WASH | | TC373 |
| DATE | 9/24/2024 | | | JOB NUMBER | | | SHEET 1E OF 3 SHEETS |
| PLOTTED BY | LintzF | | | CONTRACT NO. | LOCATION NO. | | TYPICAL TRAFFIC CONTROL PLANS |
| DESIGNED BY | | | | | | | |
| ENTERED BY | | | | | | | |
| CHECKED BY | | | | | | | |
| PROJ. ENGR. | | | | | | | |
| REGIONAL ADM. | REVISION | DATE | BY | | | | |



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.
- Plots 5-6:** Details for interchange ramps.
- 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 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.
- 6-Mile Smart Work Zone System:** See TC165.
- 9-Mile Smart Work Zone System:** See TC175.

DESIGNER NOTES:

- A. Per WSDOT Executive Order E1060(<https://www.wsdot.wa.gov/publications/policies/fulltext/1060.pdf>); speed limit reductions and advisory speeds must be approved for work zones. Submit speed reduction reductions & advisory speed requests for work zones through WSDOT Region Transportation Operations. See Traffic Manual Section 5-18 for additional information for documentation and notification requirements.**
- B. Contact Region Transportation Operations to determine if a queuing mitigation system is needed; and if so, which one is appropriate.**
- C. 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.
- D. Several alternative bicycle traffic control strategies are provided. Contact Region Transportation Operations to determine which is appropriate.
- E. 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".

- F. 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.
- G. Radar speed display signs are typical practice for freeway lane closures with speed limit reductions. When used, 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).OPT2.GR1 (Radar Speed Display Sign Specification GSP)
 - * 1-10.3(3)(9-35.8).GR1 (Radar Speed Display Sign Materials GSP)
 - * 1-10.3(3)(9-35.8).OPT1.2025.GR1 (Radar Speed Display Sign Specifications GSP, will be placed in 2025 Standard Specifications)
 - * 1-10.4(2).OPT3.GR1 (Radar Speed Display Sign Measurement GSP, if not Lump Sum) "HOUR"
 - * 1-10.5(2).OPT2.GR1 (Radar Speed Display Sign Payment GSP, if not Lump Sum) "HOUR"
- H. 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.
- I. 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.
- J. 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.**
- K. 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.
- L. 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 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.
- M. Maximum channelizing device spacing table for tangents is based on WAC 468-95-301 and may ALWAYS be reduced.
- N. Sequential arrow signs (arrow boards) are required at each freeway lane closure taper per MUTCD Standard Note 6 on TA-33.
- O. 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.
- P. 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.
- Q. 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.
- R. 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.
- S. 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.
- T. 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.
- U. 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.
- V. 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.
- W. 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 (10 MPH WORK ZONE SPEED LIMIT REDUCTION)

| | | |
|--|---|-----------------------------------|
| | <p>INFORMATIONAL USE ONLY</p> <p>DO NOT INCLUDE THIS SHEET IN CONTRACT PS&Es or TCP SUBMITTALS.</p> | <p>Plot 7</p> <p>TC373</p> |
| | <p>DESIGNER GUIDANCE</p> | |