NOTES:
2. ACTUAL NUMBER OF LANES MAY VARY.
3. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.

**TC108**

**TC108-1**

**RIGHT ON-RAMP DETAIL**

**CLOSED RIGHT EXIT-RAMP DETAIL**

**FREEWAY (3+ LANES): DOUBLE RIGHT LANE CLOSURE WITH NO LANE SHIFTS**

EXISTING SPEED LIMIT MAINTAINED

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>L</th>
<th>L/2</th>
<th>T A P E R</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>70</td>
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<tr>
<td>50</td>
<td>55</td>
<td>60</td>
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</table>

MINIMUM RAMP ACCELERATION Merging Length = L2

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SPEED (MPH)</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
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</thead>
<tbody>
<tr>
<td>L2</td>
<td>L/2 (MIN)</td>
<td>660</td>
<td>720</td>
<td>780</td>
<td>840</td>
<td>900</td>
<td>960</td>
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MINIMUM RAMP SHIFT TAPER LENGTH = 2L/2

<table>
<thead>
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<th>TYPE</th>
<th>SPEED (MPH)</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2</td>
<td>L/2 (MIN)</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

2. ACTUAL NUMBER OF LANES MAY VARY.

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


LEFT LANE CLOSURE SEE TC107, SHEET 2.
OPEN LEFT EXIT-RAMP DETAIL
NOT TO SCALE

CLOSED LEFT EXIT-RAMP DETAIL
LEFT EXIT-RAMPS ARE TO REMAIN OPEN WITH THIS DOUBLE RIGHT LANE CLOSURE CONFIGURATION

CLOSED LEFT ON-RAMP DETAIL

OPEN LEFT ON-RAMP DETAIL

FREeway (3+ LANES): DOUBLE RIGHT LANE CLOSURE WITH NO LANE SHIFTS
(EXISTING SPEED LIMIT MAINTAINED)

NOT TO SCALE
J. VERTICAL PANEL CHANNELIZATION DEVICES SHALL NOT BE USED.

E. WHEN POSITIONED BEHIND CHANNELIZATION DEVICES, TEMPORARY SIGNS SHOULD BE MOUNTED AT 5' MINIMUM.

F. PER MUTCD 6H-33, USING PCMS FOR FREEWAY LANE CLOSURES IS NOT REQUIRED. PCMS IS OPTIONAL, AND INTENDED ONLY TO BE USED WHEN WORK ZONE TRAFFIC QUEUES ARE EXPECTED TO EXTEND BEYOND THE WORK ZONE. CONTACT STEVE HAAPALA (HAAPALA@WSDOT.WA.GOV) OR FRED LINTZ (LINTZF@WSDOT.WA.GOV) FOR ADDITIONAL INFORMATION. PCMS 3 IS RECOMMENDED. FREEWAY LANE CLOSURES DO NOT REQUIRE A PCMS.

G. WHEN MAINTAINING THE EXISTING SPEED LIMIT (NO WORK ZONE SPEED LIMIT REDUCTIONS), THE WORK ZONE DESIGN SPEED SHOULD BE POSTED TO MATCH THE SPEED LIMIT SIGNAL SPACING, TAPERS, CHANNELIZATION DEVICES SPACING, BUFFER, AND ROLL AHEAD DISTANCES.

H. WARNING LIGHTS ON CHANNELIZATION DEVICES ARE OPTIONAL; CONTACT REGION TRAFFIC OFFICES FOR THEIR POLICY.

I. CHANNELIZATION DEVICES MAY BE MODIFIED FROM THOSE SHOWN ON THESE TYPICAL PLANS. PER MUTCD, THE MINIMUM REQUIRED DEVICE ON HIGH-SPEED ROADWAYS IS A 20' REFLECTIVE CONE.

J. VERTICAL PANEL CHANNELIZATION DEVICES SHALL NOT BE USED.

K. CHANNELIZATION DEVICE SPACING TABLE IS BASED ON WAC 468-95-301; HOWEVER, DEVICE SPACING MAY BE REDUCED.

L. TAPER LENGTHS ARE BASED ON MUTCD TABLES 6C-3 AND 6C-4. TAPER LENGTHS WILL MEET OR EXCEED THIS SPECIFIED RATE WITHOUT EXCEPTION. THE TAPER DISTANCES PROVIDED ON THIS TYPICAL TRAFFIC CONTROL PLAN WERE BASED ON THE ASSUMPTION OF 12 LANES. BECAUSE SHOULDER WIDTHS VARY, A SHOULDER CLOSURE TAPER TABLE IS INCLUDED TO ADDRESS VARIOUS WIDTHS.

M. PER MUTCD FIGURE 6H-33, SEQUENTIAL ARROW BOARDS SHALL BE USED FOR ALL FREEWAY LANE CLOSURE TAPERS. EACH LANE CLOSURE SHALL HAVE A SEPARATE SEQUENTIAL ARROW BOARD. SEQUENTIAL ARROW BOARDS SHALL NOT BE USED FOR LANE SHIFTS, RAMP SHIFTS, OR ON-RAMP MERGES.

N. THE "2L" TANGENT BETWEEN LANE CLOSURE TAPERS MAY BE REDUCED TO "L" IN TIGHT GEOMETRIC SITUATIONS, BUT "2L" SHOULD BE OBTAINED WHEN POSSIBLE.

O. PER MUTCD FIGURE 6H-33, LONGITUDINAL BUFFER SPACES ARE OPTIONAL. THEIR USE IS RECOMMENDED WHEN FEASIBLE, IF THE DESIGN BUFFER IS NOT AVAILABLE, THE BUFFER SHOULD BE MAXIMIZED. THE BUFFER CAN EXCEED THE DESIGN BUFFER DISTANCE (THUS "MIN" IS USED).

P. THE TRANSVERSE BUFFER (LATERALLY BETWEEN TRAVEL LANE AND WORK AREA) IS RECOMMENDED AS 2-FOOT BUT MAY BE INCREASED AS DESIRED.

Q. PER MUTCD FIGURE 6H-33, TRANSPORTABLE ATTENUATORS ARE OPTIONAL BUT THEIR USE IS STRONGLY RECOMMENDED FOR FREEWAY LANE CLOSURES. TRANSPORTABLE ATTENUATORS SHOULD BE PLACED IN CLOSED LANE ADJACENT TO TRAFFIC PRIOR TO SEPARATE WORK ZONE CHANNELIZATION DEVICES. IF TRANSPORTABLE EXIT-RAMPS AND OPEN TEMPORARY ON-RAMPS, EITHER PROTECTIVE VEHICLES OR TRANSPORTABLE ATTENUATORS CAN BE PLACED IN THE ADDITIONAL CLOSED LANES EXCEPT THE CLOSED LANE ADJACENT TO TRAFFIC.

R. PLACING CHANNELIZATION DEVICES TRANSVERSLY (AT 45° AND 5-FOOT SPACING) IS AN EFFECTIVE TECHNIQUE TO MOVE ERRANT DRIVERS BACK OUT OF CLOSED LANES AND SHOULDERS.

S. PER MUTCD FIGURE 6H-33, THE REOPENING TAPER IS OPTIONAL.

T. A TAPERED TEMPORARY EXIT-RAMP IS TYPICALLY USED WITH A TYPICAL 20:1 TAPER RATE.

U. THE ON-RAMP SHIFT CAN OCCUR THROUGH THE PAVED GORE INSTEAD OF THE GORE CROSS-SLOPE IF TRANVERSIBLE. PAVEMENT THICKNESS IS ADEQUATE, CATCH BASIN BOXES ARE TRAFFIC BEARING TYPES.

V. A PARALLEL TEMPORARY ON-RAMP IS TYPICALLY USED. THE PARALLEL TEMPORARY ON-RAMP IS BASED ON WSDOT DESIGN MANUAL, EQUITABLE 1000. THE ON-RAMP IS SHIFTED ACROSS EACH CLOSED LANE AT L/2 PER CLOSED LANE SHIFT RATE THEN AN ACCELERATION TANGENT OF L/2 IS FOLLOWED BY AN L/2 ON-RAMP MERGE TAPER. IT IS IMPORTANT TO UNDERSTAND MUTCD FIGURE 6H-44 TYPICAL APPLICATION IS GUIDANCE PER MUTCD SECTION 6H.01.

W. TO DISCOURAGE WORK ZONE INTRUSIONS DEVICE SPACING IS REDUCED BY HALF ACROSS CLOSED EXIT-RAMPS BETWEEN THE "EXIT CLOSED" SIGN AND THE END OF THE EXIT-RAMP'S PAVED GORE.

X. ACTUAL WORK AREA LIMITS CAN BE MODIFIED.

Y. RAMP DETOUR SIGNAGE IS RECOMMENDED BY MUTCD 6C.05. IT IS RECOMMENDED TO USE ROUTE SPECIFIC DETOUR SIGNAGE FOR SIGNIFICANT RAMP CLOSURES.

Z. THE ROUTE SPECIFIC DETOUR ROUTE SIGN INCLUDES EITHER AN INTERSTATE SIGN (FOR FREEWAY RAMPS) OR HIGHWAY SIGNS (FOR STATE HIGHWAY RAMPS) OR ROADWAY DESCRIPTION, IF THE RAMP IS TO A SPECIFIC WORK ROUTE, INCLUDE ITS DIRECTION, MAXIMIZE THE SHIELDS, TEXT SIZE, AND ARROWS TO FIT ON THE 48"x48" SIGN.

AA. THIS TRAFFIC CONTROL PLAN IS NOT APPLICABLE WHEN HOV-RESTRICTED LANES ARE PRESENT. FOR FREEWAYS WITH LEFT LANE HOV RESTRICTIONS, SEPARATE TYPICAL TRAFFIC CONTROL PLANS ARE PROVIDED IN THE WORK ZONE LIBRARY. FOR UNIQUE HOV WAY CONFIGURATIONS (SUCH AS HOV LANE-CHANGES, INCLUDING A BUFFER SEPARATION, DIRECT ACCESS HOV RAMPS, OR RIGHT LANES THAT ARE HOV-RESTRICTED) CONTACT REGION TRAFFIC OFFICE WHEN DEVELOPING PLANS.

BB. THIS TRAFFIC CONTROL PLAN IS NOT APPLICABLE WHEN EXPRESS TOLL LANE(S) PRESENT. FOR FREEWAYS WITH EXPRESS TOLL LANE(S), CONTACT REGION TRAFFIC OFFICE WHEN DEVELOPING PLANS.

FREEWAY (3+ LANES): DOUBLE RIGHT LANE CLOSURE WITH NO LANE SHIFTS

(THESE APPLICATIONS ARE GUIDANCE PER MUTCD SECTION 6H.10)

NOT TO SCALE

Washington State Department of Transportation

DESIGNER GUIDANCE

FILE NAME: C:\Users\LintzF\Desktop\Work Zone TCPs\108Fwy2RtLanes.dgn

DATE: 10/15/23

FED.AID PROJ.NO. 10 WASH

PLOTTED BY: LINTZ

DESIGNED BY: HAAPALA & LINTZ

CHECKED BY: HAAPALA

ENTERED BY: LINTZ

PROJECT NUMBER: 108Fwy2RtLanes.dgn

DATE: 10/15/23

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

DESIGNER: STEVE HAAPALA (HAAPALA@WSDOT.WA.GOV) OR FRED LINTZ (LINTZF@WSDOT.WA.GOV)

ADDRESS: 719 W 5TH AVENUE, SPOKANE, WA 99201

PHONE: (509) 324-3300

FAX: (509) 324-3336

EMAIL: WSDOT.INFO@WSDOT.WA.GOV

CONTRACT NO.: 1360-13b

DATE MODIFIED: 01/10/16

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

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