PCMS 1
PCMS 2

LEGEND

- TEMPORARY SIGN LOCATION
- TEMPORARY SIGN LOCATION (3/MIN HEIGHT)
- 42" REFLECTIVE TRAFFIC CONE
- 42" TALL CHANNELIZATION DEVICE
- TRAFFIC SAFETY DRUM
- RADAR SPEED DISPLAY SIGN
- PORTABLE CHANGABLE MESSAGE SIGN
- PORTABLE CHANGABLE MESSAGE SIGN

1. DISTANCE BETWEEN LANE CLOSURE/SWITCH TAPERS AND ALL OPEN RAMPS SHALL BE SUCH THAT ONLY 3 LANE CLOSURES ARE REQUIRED FROM EACH WORK CREW WITHIN WORK AREA.
2. IF FEASIBLE, AVOID PLACING LANE CLOSURE/SWITCH TAPERS WITHIN LIMITS OF CURVING HORIZON.
3. 42" REFLECTIVE TRAFFIC CONE MAY BE PLACED BETWEEN WORK CREW WITHIN WORK AREA.
4. TRAFFIC SAFETY DRUM MAY BE USED 500' PRIOR TO WORK CREW WITHIN WORK AREA.
5. PRIOR TO TRANSITIONING TRAFFIC RIGHT SHOULDER AND RIGHT RAMPS SHALL BE NARROWED THROUGHOUT LIMITS OF TRAFFIC SHORT-TERM/LIMITED TIME DURATION LANE CLOSURES ON 3 DAYS OR LESS

FREeway (3 LANES): DOUBLE LEFT LANE CLOSURE WITH 9' MAX SHIFT ONTO RIGHT SHOULDER
(70 MPH TO 55 MPH VARIABLE WORK ZONE SPEED LIMIT REDUCTION, 40 MPH ADVISORY SPEED)

11. FOR ROADWAY WIDTH RESTRICTIONS OF LESS THAN 15 FEET, COMMERCIAL VEHICLE SERVICES IN ADVANCE FOR OVERSIZED FREIGHT WITH RESTRICTIONS
12. WHEN TRAFFIC SHIFTS ONTO PAVED SHOULDERS OR ACROSS JUNCAWHY CROSS-PLATE IS TRANSFERABLE
13. IF ROADWAY NARROWS PARA BRIDGES ETC.) WHEN TRAFFIC SHIFTS TOUCH VALVE SHOULDERS MAINTAIN 22 MINIMUM LANE WIDTHS BY SHIFTS OPEN BE OPEN AT 5+ TO ABBEY NEEDED WITH APPROPRIATE 4"-4" AND 4"-4" SPEEDS PLACEMENT 500' PRIOR
14. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED
15. THIS TRAFFIC CONTROL PLAN IS APPLICABLE TO SHORT-TERM AND INTERMITTENT DURATION LANE CLOSURES OF 3 DAYS OR LESS
NOTES:
1. FOR LEGEND, TABLES, AND ADDITIONAL NOTES: SEE TC235, SHEET 1.

OPEN RIGHT EXIT-RAMP DETAIL
NOT TO SCALE

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

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

CLOSED RIGHT ON-RAMP DETAIL
NOT TO SCALE

FREEWAY (3 LANES): DOUBLE LEFT LANE CLOSURE WITH 9' MAX SHIFT ONTO RIGHT SHOULDER
(70 MPH TO 55 MPH VARIABLE WORK ZONE SPEED LIMIT REDUCTION, 40 MPH ADVISORY SPEED)
NOT TO SCALE
NOTES:
1. FOR LEGEND, TABLES, AND ADDITIONAL NOTES SEE TC235, SHEET 1.
2. SEE DETOUR PLAN FOR ADDITIONAL RAMP CLOSURE DETOUR SIGNAGE.

FILE NAME: C:\Users\LintzF\Desktop\Work Zone TCPs\235Fwy2LtLanes9MaxRtShift70to55WZSL40Adv.dgn
TIME: 3/19/2019 10:19:34 AM
DATE: TC235

Washington State Department of Transportation
TYPICAL TRAFFIC CONTROL PLANS
TC235

NOT TO SCALE

CLOSED LEFT EXIT-RAMP DETAIL
NOT TO SCALE

OPEN LEFT EXIT-RAMP DETAIL
NOT TO SCALE

FREeways (3 LANES): DOUBLE LEFT LANE CLOSURE WITH 9'-MAX SHIFT ONTO RIGHT SHOULDER
(70 MPH TO 55 MPH VARIABLE WORK ZONE SPEED LIMIT REDUCTION, 40 MPH ADVISORY SPEED)
NOT TO SCALE
**DESIGNER NOTES:**

A. SEE WSDOT PROJECT DELIVERY MEMO 19-01 INREGARDS TO FREEWAY WORK ZONE VARIABLE REGULATORY SPEED LIMIT AND ADVISORY SPEED IMPLEMENTATION. IN ADDITION SEE WSDOT EXECUTIVE ORDER 1660.2 IN REGARDS TO AUTHORIZATION FOR VARIABLE REGULATORY AND ADVISORY SPEEDS IN WORK ZONES CONTACT WSDOT REGION TRAFFIC OFFICES FOR ADDITIONAL INFORMATION.

B. THESE TRAFFIC CONTROL PLANS ARE TYPICAL AND MAY BE MODIFIED FOR SITE SPECIFIC SITUATIONS, INCLUDING BUT NOT LIMITED TO: APPROPRIATE SIGNAL INSTALLATION, TRAFFIC CONTROL, HANDLING DELAYS, WORK ZONES AND ADDRESSING OPERATIONS.

C. THE SIGN SIZES SHOWN ARE TYPICAL AND MIGHT MINIMUM SIZES REQUIRED PER MUTCD ON FREEWAYS FOR TEMPORARY TRAFFIC CONTROL.

D. IN REGARDS TO ADVANCED WARNING SIGN SPACING: PER MUTCD SECTION 6E.04 PARAGRAPH 06. THE LANE-INVOLVING GAP BETWEEN WAC 468-95-300 (TABLE 6-1) IS THE REQUIRED DISTANCES AND INTENDED FOR GUIDANCE PURPOSES ONLY AND SHOULD BE ADJUSTED FOR FIELD CONDITIONS REQUIRING. THEommutcd Sign spacing to 100' +/- IS ACCEPTABLE. A MINIMUM OF 500' SHOULD BE USED ON FREEWAY MAINLINES ONLY WHEN NECESSARY. ADVISORY SIGNS AND RADAR SPEED DISPLAY SIGNS MAY BE SPACED AT 300’ +/-.

E. PER WAC 468-95-300, ALL SIGN SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMPS, ON-RAMP SPACING IS TYPICALLY 200' +/-. EVEN IN SUBURBAN AND RURAL AREAS, BUT CAN BE REDUCED AS NEEDED TO FIT.

F. WHEN POSITIONED BEHIND CHANNELIZATION DEVICES, TEMPORARY SIGNS SHOULD BE MOUNTED AT 5’ MINIMUM.

G. PER MUTCD 6H-33, USING PCMS FOR FREEWAY LANE CLOSURES IS NOT REQUIRED. PCMS 1 IS OPTIONAL AND INTENDED ONLY TO BE USED WHEN WORK ZONE TRAFFIC VOLUMES ARE EXPECTED TO EXTEND BEHIND THE WSD-1 SIGN. FOR ADDITIONAL INFORMATION REGARDING ACTIVE QUEUE DETECTION TECHNOLOGY, CONTACT STEVE HAAPALA (HAAPALA@WSDOT.WA.GOV) OR FREDDY LINTZ (LINTZ@WSDOT.WA.GOV). PCMS 2 IS RECOMMENDED FOR FREEWAY LANE CLOSURES DO NOT REQUIRE A PCMS. PCMS 3 IS OPTIONAL TO HIGHLIGHT EXIT-RAMP CLOSURES. PCMS 4 IS RECOMMENDED WHEN SPEED LIMITS SLOW DOWN OPEN ON-RAMPS WHENEVER MAINLINE TRAFFIC SHIFTED ON SHOULDER.

H. THE RADAR SPEED DISPLAY SIGNS (RSDS) IS REQUIRED FOR FREEWAY LANE CLOSURES WHEN A SINGLE LANE IS OPENED IS SHIFTED ONTO THE SHOULDER.

I. WARNING LIGHTS ON CHANNELIZATION DEVICES ARE OPTIONAL: CONTACT REGION TRAFFIC OFFICE FOR GUIDANCE. PCMS DEVICE BASED ON RECOMMENDATIONS FROM TRANSPORTATION RESEARCH BOARD REPORT 2455 PAGE 65-71 AND FREEWAY SIGN HIGHLIGHT TECHNIQUE TO MOVE ERRANT DRIVERS BACK OUT OF CLOSED LANES AND SHOULDERS.

J. CHANNELIZATION DEVICES MAY BE MODIFIED FROM THOSE SHOWN ON THESE TYPICAL PLANS. PER MUTCD, THE MINIMUM REQUIRED DEVICE ON HIGH-SPEED ROADWAYS IS A 28" REFLECTIVE CONE.

K. VERTICAL PANEL CHANNELIZATION DEVICES SHALL NOT BE USED.

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

M. TAPER LENGTHS ARE BASED ON MUTCD TABLES 6C.3 AND 6C.4 TAPER LENGTHS SHALL MEET OR EXCEED THIS SPECIFIED RATE WITHOUT EXCEPTION. THE TAPER DISTANCES PROVIDED ON THIS TYPICAL TRAFFIC CONTROL PLAN WERE BASED ON THE ASSUMPTION OF 300' LANES. BECAUSE SHOULDER WIDTHS VARY BETWEEN THE MODIFIED HOV LANE BORDERS, IS INCLUDED TO ADDRESS VARIOUS WIDTHS. LANE SHIF TAPER DISTANCES PROVIDED WERE BASED ON A 5-Foot MAXIMUM SHIFT.

N. 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 AT ON-RAMP MEGERS.

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

P. PER MUTCD FIGURE 6H-33, LONGITUDINAL BUFFER SPACES ARE OPTIONAL, THEIR USE IS RECOMMENDED WHEN THE DEVICE IS AVAILABLE AND SHOULDER WIDTHS SHOULD BE MAXIMIZED. THE BUFFER CAN EXCEED THE DESIGN BUFFER DISTANCE (THUS "MIN" IS USED).

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

R. PER MUTCD FIGURE 6H-33, TRANSPORTABLE ATTENUATORS ARE OPTIONAL BUT THEIR USE IS STRONGLY RECOMMENDED FOR FREEWAY LANE CLOSURES. TRANSPORTABLE ATTENUATOR SHOULD BE PLACED IN CLOSED LANE ADJACENT TO TRAFFIC PRIOR TO SEPARATE WORK AREAS, PARTICULARLY AFTER OPEN TEMPORARY EXIT-RAMS AND OPEN TEMPORARY ON-RAMPS. EITHER PROTECTIVE OR TRANSPORTABLE ATTENUATORS CAN BE PLACED IN THE ADDITIONAL CLOSED LANES EXCEPT THE CLOSED SHOULDER.

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

T. TEMPORARY SIGNS CAN BE PLACED ADJACENT TO THE PAVED RIGHT SHOULDER (SIGN IS NOT TO PROTRUDE INTO TRAVEL WAY) INSTEAD OF WITHIN THE CLOSED LANES IN CONFLICTING WITH WORK OPERATIONS.

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

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

W. THE ON-RAMP SHIFT CAN OCCUR THROUGH THE PAVED GORE INSTEAD OF THE END OF THE GORE MARKINGS.

X. WHEN SHIFTING TRAFFIC ONTO PAVED SHOULDER OR ACROSS CLOSED RAMPS GORES, VERIFY CROSS-SLOPE, TRAVESMENT, PAVEMENT THICKNESS IS ADEQUATE, CATCH BASINS BOXES ARE TRAFFIC BEARING TYPES.

Y. A PARALLEL TEMPORARY ON-RAMP IS TYPICALLY USED. THE PARALLEL TEMPORARY ON-RAMP IS BASED ON WSDOT DESIGN MANUAL EXHIBIT 1366-136. THE ON-RAMP IS SHIFTED ACROSS EACH CLOSING LANE AT L/2 PER CLOSED LANE SHIFT RATE THEN AN ACCELERATION TANGET OF L/3 IS FOLLOWED BY AN L/2 ON-RAMP MERGE TAPER. IT IS IMPORTANT TO UNDERSTAND MUTCD FIGURE 6H-04 TYPICAL APPLICATION IS GUIDANCE PER MUTCD SECTION 6H.01.

Z. TO DISCOURAGE WORK ZONE INTRUSIONS, DEVICE SPACING IS REDUCED BY HALF ACROSS CLOSED EXTRADISTANCES BETWEEN THE "CLOSED" SIGN AND THE END OF THE EXIT-RAMPS PAVED GORE. AA. ACTUAL WORK AREA LIMITS CAN BE MODIFIED.

BB. RAMP DETOUR SIGNAGE IS RECOMMENDED BY MUTCD 6E.09. IT IS RECOMMENDED TO USE ROUTE SPECIFIC DETOUR SIGNAGE FOR SIGNIFICANT RAMPS CLOSURES.

CC. THE ROUTE SPECIFIC DETOUR ROUTE SIGN INCLUDES EITHER AN INTERSTATE SHIELD (FOR FREEWAY RAMPS) OR HIGHWAY SHIELDS (FOR STATE HIGHWAY RAMPS). THE LIMIT DESCRIPTION SHOWN FOR THE MASKING IS TO A SPECIFIC ROUTE DIRECTION, INCLUDE ITS DIRECTION. MAXIMIZE THE SHIELDS, TEXT SIZE, AND ARROWS TO FIT ON THE 48" SIGN.

DD. THE CHANNELIZATION DEVICE ON THE RIGHT SIDE OF THE SHUTTED LANE MAY ALSO BE PLACED ON THE GRADE ADJACENT TO THE RIGHT SHOULDER PAVEMENT. NOTE THOUGH GUARDRAILS AND BARRIERS TEND TO BE PLACED WITH THE EDGE OF THE RIGHT SHOULDER SO IT IS PREFERRED THE CHANNELIZATION DEVICE BE PLACED ON THE EDGE OF RIGHT PAVED SHOULDER.

EE. FOR FREEWAYS WITH RIGHT SHOULDER 6-FEET OR NARROWER, SEPARATE TRAFFIC CONTROL PLANS FOR 5-Foot MAX RIGHT SHOULDER SHIFTS ARE PROVIDED IN THE WORK ZONE LIBRARY.

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

GG. 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.