

TAPER, BUFFER ZONE & SIGN SPACING CHART

ROAD TYPE	POSTED SPEED MPH (S)	MINIMUM TAPER LENGTH (L)	LENGTH OF BUFFER (BZ)*	MINIMUM SIGN SPACING (SS)**				TAPER LENGTH
		12 FT LANE CLOSURE		A	B	C	D	
		FT	FT	FT	FT	FT	FT	FT
CONVENTIONAL	30 AND LOWER	180	200	100	100	100	100	50
	35	245	250	350	350	350	175	
	40	320	305					
	45	540	360	500	500	500	250	100
	50	600	425					
	55	660	495					
	60	720	570					
65	780	645						
65	780	645	1000	1640	2640	500		
FREEWAY/ EXPRESSWAY	70	840					730	
75	900	820						
	80	960	910					

* THE LENGTH OF BUFFER (BZ) MAY BE REDUCED WITH THE APPROVAL OF THE ENGINEER
 ** MAXIMUM SPACING IS THE GIVEN VALUE (SS) MULTIPLIED BY 1.5

1- TAPER LENGTH FORMULAS

SPEED	FORMULA
FOR SPEEDS OF 40 MPH AND LESS	$L = \frac{WS^2}{60}$
FOR SPEEDS OF 45 MPH AND GREATER	$L = WS$

L = TAPER LENGTH IN FEET
 W = WIDTH OF OFFSET IN FEET
 S = SPEED IN MPH

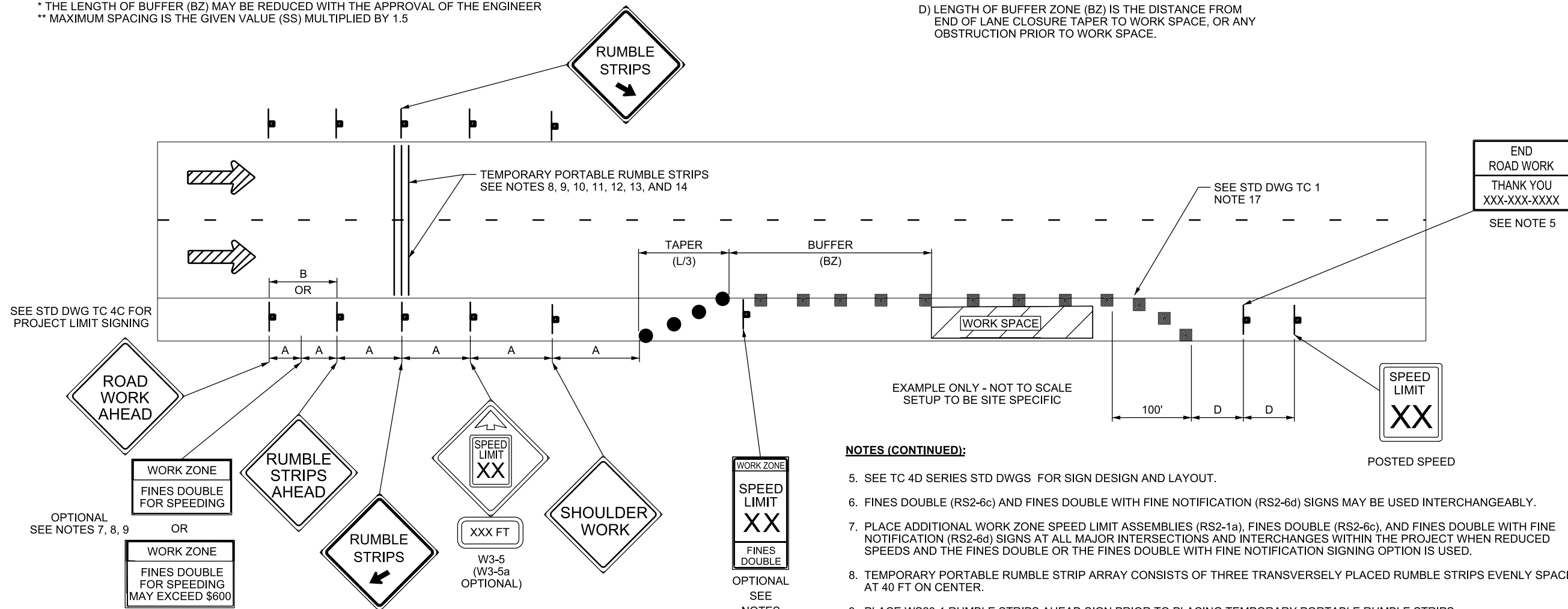
$\frac{1}{3}$ L = FOR SHOULDER CLOSURE TAPER
 $\frac{1}{2}$ L = FOR LANE SHIFT TAPER

2- CHANNELIZING DEVICES

- A) MERGING AND SHIFTING TAPERS: USE A MINIMUM OF ONE DEVICE PER FT OF LANE CLOSURE WIDTH, PLUS ONE ADDITIONAL DEVICE TO START.
- B) SHOULDER, ONE-LANE TWO-WAY, AND DOWNSTREAM TAPERS: USE A MINIMUM OF ONE DEVICE PER 3 FT OF WIDTH (OR PORTION THEREOF), PLUS ONE ADDITIONAL DEVICE TO START.
- C) ON TANGENT: $S \times 2 =$ SPACING UP TO 120 FT MAXIMUM.
- D) LENGTH OF BUFFER ZONE (BZ) IS THE DISTANCE FROM END OF LANE CLOSURE TAPER TO WORK SPACE, OR ANY OBSTRUCTION PRIOR TO WORK SPACE.

TRAFFIC CONTROL DEVICE LEGEND

- SIGN (FIXED OR PORTABLE)
- CHANNELIZING DEVICE (SEE STD DWG TC 2A)
- DRUMS OR DIRECTIONAL INDICATOR BARRICADE
- FLAGGING STATION
- ARROW BOARD
- BARRIER
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- DIRECTION OF WORK VEHICLE



NOTES (CONTINUED):

- SEE TC 4D SERIES STD DWGS FOR SIGN DESIGN AND LAYOUT.
- FINES DOUBLE (RS2-6c) AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS MAY BE USED INTERCHANGEABLY.
- PLACE ADDITIONAL WORK ZONE SPEED LIMIT ASSEMBLIES (RS2-1a), FINES DOUBLE (RS2-6c), AND FINES DOUBLE WITH FINE NOTIFICATION (RS2-6d) SIGNS AT ALL MAJOR INTERSECTIONS AND INTERCHANGES WITHIN THE PROJECT WHEN REDUCED SPEEDS AND THE FINES DOUBLE OR THE FINES DOUBLE WITH FINE NOTIFICATION SIGNING OPTION IS USED.
- TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE TRANSVERSELY PLACED RUMBLE STRIPS EVENLY SPACED AT 40 FT ON CENTER.
- PLACE WS28-1 RUMBLE STRIPS AHEAD SIGN PRIOR TO PLACING TEMPORARY PORTABLE RUMBLE STRIPS.
- REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO REMOVING WS28-1 RUMBLE STRIPS AHEAD SIGN.
- RESET THE TEMPORARY PORTABLE RUMBLE STRIPS AS NECESSARY TO MAINTAIN PROPER ALIGNMENT, SPACING, AND LOCATION.
- DO NOT USE TEMPORARY PORTABLE RUMBLE STRIPS ON HORIZONTAL CURVES UNLESS APPROVED BY REGION TRAFFIC ENGINEER.
- REFER TO SPECIAL PROVISION 01554M FOR MAINTENANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.
- DO NOT PLACE TEMPORARY PORTABLE RUMBLE STRIPS DURING SNOW EVENTS.
- RELOCATE THE TEMPORARY PORTABLE RUMBLE STRIPS AND ASSOCIATED SIGNING WHEN VEHICLE QUEUES ARE EXPECTED OR OCCUR IN ADVANCE OF TEMPORARY PORTABLE RUMBLE STRIPS.

NOTES:

- USE THE PRE-CONSTRUCTION POSTED SPEED LIMIT PRIOR TO WORK ZONE TO COMPUTE THE SIGN SPACING, TAPER LENGTH, BUFFER ZONE, AND WORK CLEAR ZONE DISTANCES. USE THE WORK ZONE REDUCED SPEED LIMIT TO DETERMINE THE TANGENT SPACING FOR CHANNELIZING DEVICES.
- REMOVE OR COVER ALL WORK ZONE REDUCED SPEED LIMIT ASSEMBLIES (RS2-1a) AND THE WORK ZONE REDUCED SPEED LIMIT AHEAD (W3-5 SERIES) SIGNS WHEN NO ONE IS WORKING, EXCEPT AS APPROVED BY THE REGION TRAFFIC ENGINEER. DO NOT COVER PRE-CONSTRUCTION POSTED SPEED LIMIT ASSEMBLIES (RS2-1a).
- ADDITIONAL SIGNS MAY BE USED IN THE WORK ZONE FOR SUPPLEMENTAL NOTIFICATION OF THE WORK ZONE SPEED LIMITS.
- USE SUPPLEMENTAL LEFT SIDE SIGNING FOR HIGH-SPEED DIVIDED HIGHWAYS.

SUPPLEMENTAL DRAWING

NO.	DATE	APPR.	REMARKS
1	6/28/18	RT	REPLACED WS28-2 AND W16-7 ASSEMBLY WITH NEW WS28-2 SIGN.

UTAH DEPARTMENT OF TRANSPORTATION
 STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
 SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL
 CHAIRMAN STANDARDS COMMITTEE
 APPROVED

DEPUTY DIRECTOR

JUNE 28, 2018
 DATE

JUNE 28, 2018
 DATE

SHOULDER WORK ZONE
 TEMPORARY PORTABLE
 RUMBLE STRIPS
 FREEWAY/DIVIDED
 HIGHWAY

STANDARD DRAWING TITLE

STD. DWG. NO.
 TC 4B4

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