MINIMUM CLEAR ROADWAY WIDTHS AND DESIGN LOADINGS FOR NEW AND RECONSTRUCTED BRIDGES (SEE PAGE 5-7)

DESIGN ADT (VEH/DAY)	DESIGN LOADING	MINIMUM CLEAR ROADWAY WIDTH OF BRIDGE (F)
UNDER 400	HL-93	TRAVELED WAY + 4 FT. (2 FT. EACH SIDE)
400 TO 2,000	HL-93	TRAVELED WAY + 6 FT. (3 FT. EACH SIDE)
OVER 2,000	HL-93	APPROACH ROADWAY WIDTH (P)

MINIMUM STRUCTURAL CAPACITIES AND MINIMUM ROADWAY WIDTHS FOR EXISTING BRIDGES TO REMAIN IN PLACE (SEE PAGE 5-8) (H)

DESIGN ADT (VEH/DAY)	DESIGN LOADING (STRUCTURAL CAPACITY)	MINIMUM CLEAR ROADWAY WIDTH (FT) (I)
0 TO 50	H-15	20
50 TO 250	H-15	20
250 TO 1,500	H-15	22
1,500 TO 2,000	H-15	24
OVER 2,000	H-15	28

TABLE I MINIMUM DESIGN SPEEDS FOR LOCAL RURAL ROADS (SEE PAGE 5-2)

TYPE OF TERRAIN	DESIGN SPEED (MPH) FOR SPECIFIED DESIGN ADT (VEH/DAY)				
	UNDER 50	50 TO 250	250 TO 400	400 TO 2,000	2,000 AND OVER
LEVEL	30	30	40	50	50
ROLLING	20 (J)	30	30	40	40
MOUNTAINOUS	20 (J)	20 (J)	20 (J)	30	30

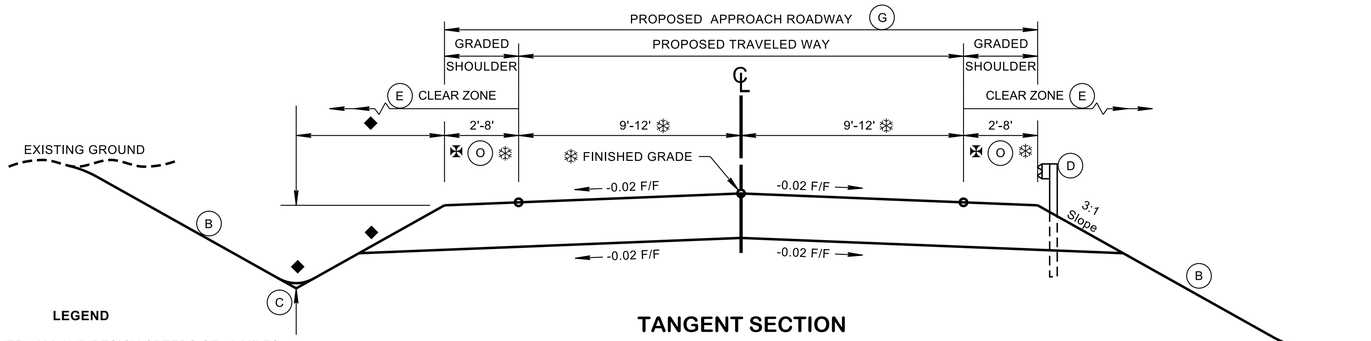
TABLE II LOCAL ROADS AND STREETS - DESIGN STANDARDS (L)

DESIGN STANDARDS (FOR GIVEN DESIGN SPEED)		DESIGN SPEEDS (MPH)							MINIMUM WIDTH OF SHOULDERS FOR ALL SPEEDS (FT) (SEE PAGE 5-6)
		15	20	25	30	35	40	45	
MINIMUM WIDTH OF TRAVELED WAY IN RURAL AREAS (FT) (SEE PAGE 5-6)	DESIGN ADT UNDER 400	18	18	18	18	18	18	20	2 (K)
	DESIGN ADT 400 - 1,500	20 (K)	20 (K)	20 (K)	20 (K)	20 (K)	20 (K)	22	4 (K) (M)
	DESIGN ADT 1,500 - 2,000	20	22	22	22	22	22	22	6
	DESIGN ADT OVER 2,000	22	24 (N)	24 (N)	24 (N)	24 (N)	24 (N)	24 (N)	8
MINIMUM RADIUS (FT) 0.04 MAX. S.E.		42	86	154	250	371	533	711	SEE PAGE 3-32
MINIMUM RADIUS (FT) 0.06 MAX. S.E.		39	81	144	231	340	485	643	
MINIMUM RADIUS (FT) 0.08 MAX. S.E.		38	76	134	214	314	444	587	
MAXIMUM RURAL GRADES %	LEVEL TERRAIN	9	8	7	7	7	7	7	SEE PAGE 5-3
	ROLLING TERRAIN	12	11	11	10	10	10	9	
	MOUNTAINOUS TERRAIN	17	16	15	14	14	13	12	
MINIMUM STOPPING SIGHT DISTANCE (FT)		80	115	155	200	250	305	360	SEE PAGE 5-4
MINIMUM "K" VALUE	CREST VERTICAL CURVE	3	7	12	19	29	44	61	
	SAG VERTICAL CURVE	10	17	26	37	49	64	79	
DESIGN PASSING SIGHT DISTANCE (FT)			400	450	500	550	600	700	SEE PAGE 5-5
MINIMUM "K" VALUE	PASSING SIGHT DISTANCE FOR CREST VERTICAL CURVE		57	72	89	108	129	175	
FOR SUPERELEVATION SEE STANDARD DRAWINGS RD11-SE SERIES									

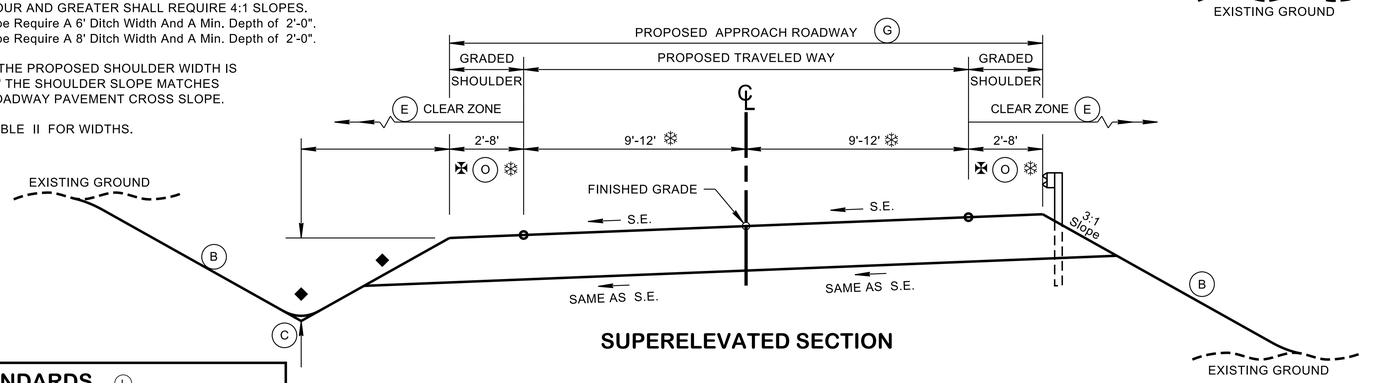
GENERAL NOTES

1. FOR SPECIFIC CONDITIONS NOT COVERED ON THIS SHEET, REFERENCE SHOULD BE MADE TO "A POLICY OF GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AASHTO, 2011 (GREEN BOOK).
2. FOR URBAN AND SPECIAL PURPOSE ROADS (INCLUDING RECREATIONAL ROADS) DESIGN GUIDANCE AND CRITERIA, REFERENCE IS MADE TO "A POLICY OF GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AASHTO, 2011 (GREEN BOOK), PAGES 5-11 TO 5-34.
3. PAGE NUMBERS REFERRED TO ON THIS DRAWING ARE FROM "A POLICY OF GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AASHTO, 2011 (GREEN BOOK).
4. REFERENCE IS ALSO MADE TO THE "ROADSIDE DESIGN GUIDE," AASHTO, 2011.
5. FOR INTERSECTION SIGHT DISTANCE AT INTERSECTIONS SEE PAGES 9-28 THROUGH 9-55 AND STANDARD DRAWING SD-SERIES.
6. IF NO ABOVE GROUND UTILITIES ARE INVOLVED, MINIMUM RIGHT-OF-WAY SHALL BE TRAVELED WAY PLUS CLEAR ZONE (MINIMUM OF 10 FEET EACH SIDE).
7. IF ABOVE GROUND UTILITIES ARE INVOLVED, MINIMUM RIGHT-OF-WAY SHALL BE SUFFICIENT TO ACCOMMODATE THE UTILITIES OUTSIDE THE CLEAR ZONE.
8. DESIRABLE RIGHT-OF-WAY IS SLOPE LINES PLUS TEN FEET.
9. THE DESIGN OF BRIDGES, CULVERTS, WALLS, TUNNELS, AND OTHER STRUCTURES SHOULD BE IN ACCORDANCE WITH THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE DESIGN LOADING SHOULD BE HL-93 CALIBRATED LIVE LOAD DESIGNATION.
10. IF A BIKE ROUTE IS TO BE INCLUDED AS PART OF THE PROPOSED ROADWAY, THE PAVED APPROACH ROADWAY WIDTH SHALL BE A MINIMUM OF 28 FT.

NOT TO SCALE



TANGENT SECTION



SUPERELEVATED SECTION

LEGEND

◆ ADTS OVER 1000 AND DESIGN SPEEDS OF 40 MILES PER HOUR AND GREATER SHALL REQUIRE 4:1 SLOPES. 3:1 Slope Require A 6' Ditch Width And A Min. Depth of 2'-0". 4:1 Slope Require A 8' Ditch Width And A Min. Depth of 2'-0".

✠ WHEN THE PROPOSED SHOULDER WIDTH IS 2' OR 4' THE SHOULDER SLOPE MATCHES THE ROADWAY PAVEMENT CROSS SLOPE.

❄ SEE TABLE II FOR WIDTHS.

DESIGN NOTES

(A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHOULD NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.

(B) SEE STANDARD DRAWING RD11-S-11 FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES, TOE OF FILL SLOPES AND SPECIAL ROCK TREATMENT.

(C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.

(D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

(E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONE.

(F) WHERE THE APPROACH ROADWAY WIDTH (TRAVELED WAY PLUS SHOULDERS) IS SURFACED, THAT SURFACE WIDTH SHOULD BE CARRIED ACROSS THE STRUCTURE.

(G) PROPOSED APPROACH ROADWAY WIDTH WILL NOT BE LESS THAN EXISTING WIDTH.

(H) THESE STRUCTURES SHOULD BE ANALYZED INDIVIDUALLY, TAKING INTO CONSIDERATION THE CLEAR WIDTH PROVIDED, TRAFFIC VOLUMES, REMAINING LIFE OF THE STRUCTURE, PEDESTRIAN VOLUMES, SNOW STORAGE, DESIGN SPEED, ACCIDENT RECORD, AND OTHER PERTINENT FACTORS.

(I) CLEAR WIDTH BETWEEN CURBS OR RAILS, WHICHEVER IS THE LESSER. MINIMUM CLEAR WIDTHS THAT ARE TWO FEET NARROWER MAY BE USED ON ROADS WITH FEW TRUCKS, IN NO CASE SHALL THE MINIMUM CLEAR WIDTH BE LESS THAN THE APPROACH TRAVELED WAY WIDTH.

(J) EFFORTS SHOULD BE MADE TO SELECT A DESIGN SPEED GREATER THAN 20 MILES PER HOUR. SEE PAGE 5-2 FOR FURTHER INFORMATION.

(K) FOR ROADS IN MOUNTAINOUS TERRAIN WITH A DESIGN YEAR ADT OF 0 TO 600 VEHICLES PER DAY AND THE DESIGN SPEED IS GREATER THAN OR EQUAL TO 15 MILES PER HOUR AND LESS THAN OR EQUAL TO 40 MPH, USE 18 FEET TRAVELED WAY WIDTH AND 2 FEET SHOULDER WIDTH.

(L) ALTHOUGH THE SELECTED DESIGN SPEED ESTABLISHES THE LIMITING VALUES OF CURVE RADIUS AND MINIMUM SIGHT DISTANCE THAT SHOULD BE USED IN DESIGN, THERE SHOULD BE NO RESTRICTION ON THE USE OF FLATTER HORIZONTAL CURVES OR GREATER SIGHT DISTANCES WHERE SUCH IMPROVEMENTS CAN BE PROVIDED AS A PART OF AN ECONOMICAL DESIGN (SEE PAGE 2-55).

(M) MAY BE USED TO ACHIEVE A MINIMUM ROADWAY WIDTH OF 30 FEET FOR DESIGN SPEEDS GREATER THAN 40 MILES PER HOUR.

(N) WHERE THE WIDTH OF THE TRAVELED WAY IS SHOWN AS 24 FEET, THE WIDTH MAY REMAIN AT 22 FEET ON RECONSTRUCTED HIGHWAYS WHERE ALIGNMENT AND SAFETY RECORDS ARE SATISFACTORY.

(O) SHOULDER SURFACE TREATMENT TO BE SPECIFIED BY THE ROADWAY DESIGN DIVISION'S PAVEMENT DESIGN SECTION. DESIGNERS SHOULD REFER TO THE DESIGN GUIDELINES FOR PAVEMENT REQUEST PROCEDURES. WHEN SHOULDERS ARE PAVED AND GRADED SHOULDER WIDTH IS 6 FEET OR GREATER, THE SHOULDER SHOULD BE PAVED TO THE GRADED SHOULDER WIDTH MINUS TWO FEET. WHEN SHOULDERS ARE PAVED AND THE GRADED SHOULDER WIDTH IS LESS THAN 6 FEET, THE SHOULDER SHOULD BE PAVED THE FULL WIDTH.

(P) **FOR NEW ROUTE CONSTRUCTION OR ROUTE RECONSTRUCTION PROJECTS:**

THE MINIMUM CLEAR WIDTH FOR NEW BRIDGES SHALL BE EQUAL TO THE FULL WIDTH OF THE APPROACH ROADWAY (CURB-TO-CURB OR FULL SHOULDER WIDTH AS APPLICABLE).

◘ REV. 06-28-19: ADDED FOOT NOTE (P) TO TABLE FOR MINIMUM CLEAR ROADWAY WIDTHS AND DESIGN LOADINGS FOR NEW AND RECONSTRUCTED BRIDGES.

◘ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

DESIGN STANDARDS FOR LOCAL ROADS AND STREETS

01-01-2019 RD11-TS-1A