

Table 2-9-B
GEOMETRIC DESIGN CRITERIA FOR RURAL ARTERIALS (2-LANE)
(New Construction/Reconstruction)

	DESIGN ELEMENT		Manual Section	Design DHV			
				Under 200	201 – 400	Over 400	
Design Controls	Design Year		2-3.02	20 years			
	*Design Speed		2-2.01	65 mph			
	Control of Access		11-1.05	Control by Regulation (Type 3)			
	Level of Service Threshold		2-3.04	C			
Cross-Section Elements	*Travel Lane Width		2-8.03	12 ft			
	Shoulder Width	*Usable	2-8.03	6 ft	8 ft	10 ft	
		Paved (1)					2 ft
	*Cross Slope	Travel Lane (3)	2-8.03	2%			
		Shoulder		See Note (4)			
	Auxiliary Lanes	Lane Width	2-8.03	12 ft			
		Usable Shoulder Width		6 ft	8 ft	10 ft	
	New and Reconstructed Bridges	*Design Loading Structural Capacity	2-8.03				HL-93
		Minimum Width (6)		36 ft	40 ft	44 ft	
	Existing Bridges to Remain in Place	*Design Loading Structural Capacity	2-8.03	See Note (7)			
		Minimum Width	12-2.03				
	Desirable Right of Way Border Width (beyond toe/top of fill/cut slope)			2-8.03 11-1.01	15 ft – 20 ft		
	Roadside Clear Zone	Guardrail	2-8.03	Usable Shoulder Width			
		Obstruction	9-2.0	See Note (8)			
	Slope Schedule (9)	Cut	Foreslope (within clear zone)	2-8.03	6:1		
			Depth of Ditch		3 ft		
			Backslope		3:1		
		Fill	Safety Slope (within clear zone)		6:1		
			Fill Slope (outside clear zone)		3:1		
Alignment Elements	DESIGN SPEED			65 mph			
	*Stopping Sight Distance		2-8.02	645 ft			
	Intersection Sight Distance (10)		6-6.0	720 ft			
	*Superelevation Rate		2-8.02 3-4.01	e _{max} = 10%			
	*Minimum Horizontal Curve Radius		2-8.02 3-3.0	1340 ft			
	*Maximum Grades	Level	2-8.02	3%			
		Rolling	4-3.01	4%			
	Minimum Grades		4-3.02	See Note (11)			
	Vertical Curve (K-values)	*Crest	2-8.02	193			
		Sag	4-5.0	157			
	*Vertical Clearance (arterial under) (12)	New/Reconstructed Bridges	2-8.02	Desirable: 17 ft Minimum: 16 ft			
		Existing Bridges		Desirable: 17 ft Minimum: 16 ft			
		Sign Truss/ Pedestrian Bridge		19 ft			
	Vertical Clearance (arterial over railroad) (13)			2-8.02	25 ft		

*For application of controlling design criteria, see Section 2-9.02.

Table 2-9-D
GEOMETRIC DESIGN CRITERIA FOR RURAL COLLECTORS (2-LANE)
(New Construction/Reconstruction)

	DESIGN ELEMENT		Manual Section	Design ADT				
				Under 400	400 – 1,500	1,500 – 2,000	Over 2,000	
Design Controls	Design Year		2-3.02	20 Years				
	*Design Speed (1)		2-2.01	55 mph			Level: 60 mph Rolling: 55 mph	
	Control of Access		11-1.05	Control by Regulation (Type 3)				
	Level of Service Threshold		2-3.04	C				
Cross-Section Elements	*Travel Lane Width		2-8.03	12 ft				
	Shoulder Width	*Usable	2-8.03	4 ft	5 ft	6 ft	8 ft	
		Paved (2)		2 ft				
	*Cross Slope	Travel Lane (3)	2-8.03	2%				
		Shoulder		See Note (4)				
	Auxiliary Lanes	Lane Width	2-8.03	11 ft				
		Usable Shoulder Width		4 ft	5 ft	6 ft	8 ft	
	New and Reconstructed Bridges	*Design Loading Structural Capacity	2-8.03	HL-93				
		Minimum Width (6)		32 ft	34 ft	36 ft	40 ft	
	Existing Bridges to Remain in Place	*Design Loading Structural Capacity	2-8.03	See Note (7)				
		Minimum Width	12-2.03					
	Desirable Right of Way Border Width (beyond toe/top of fill/cut slope)			2-8.03 11-1.01	15 ft – 20 ft			
	Roadside Clear Zone	Guardrail	2-8.03	Usable Shoulder Width				
		Obstruction	9-2.0	See Note (8)				
	Slope Schedule (9)	Cut	Foreslope (within clear zone)	2-8.03	V ≤ 55 mph 4:1 V > 55 mph 6:1			
			Depth of Ditch		3 ft			
			Backslope		3:1			
Fill		Safety Slope (within clear zone)	4:1					
		Fill Slope (outside clear zone)	3:1					
Alignment Elements	DESIGN SPEED			55 mph		60 mph		
	*Stopping Sight Distance		2-8.02	495 ft		570 ft		
	Intersection Sight Distance (10)		6-6.0	610 ft		665 ft		
	*Superelevation Rate		2-8.02 3-4.01	e _{max} = 10%				
	*Minimum Horizontal Curve Radius		2-8.02 3-3.0	877 ft		1090 ft		
	*Maximum Grades	Level	2-8.02	6%		5%		
		Rolling	4-3.01	7%		6%		
	Minimum Grades		4-3.02	See Note (11)				
	Vertical Curve (K-values)	*Crest	2-8.02	114		151		
		Sag	4-5.0	115		136		
	* Vertical Clearance (collector under) (12)	New/Reconstructed Bridges	2-8.02	Desirable: 17 ft Minimum: 16 ft				
		Existing Bridges		Desirable: 16 ft Minimum: 14.5 ft				
		Sign Truss/ Pedestrian Bridge		19 ft				
Vertical Clearance (collector over railroad) (13)			2-8.02	25 ft				

*For application of controlling design criteria, see Section 2-9.02.