

**INDIANA DEPARTMENT OF TRANSPORTATION**



INTER-DEPARTMENT COMMUNICATION

*Standards Section – Room N642*



*Writer's Direct Line  
232-6775*

August 26, 2005

**DESIGN MEMORANDUM No. 05-28  
TECHNICAL ADVISORY**

**TO:** All Design, Operations, District Personnel, and Consultants

**FROM:** /s/ Anthony L. Uremovich  
Anthony L. Uremovich  
Design Policy Engineer  
Contracts and Construction Division

**SUBJECT:** Geometric Design Criteria for Recreational Roads

**SUPERSEDES:** *Indiana Design Manual* Figure 51-6B

**EFFECTIVE:** Immediately

*Indiana Design Manual* Figure 51-6B, Geometric Design Criteria for Recreational Roads, has been revised to be placed into accordance with the AASHTO *Policy on Geometric Design of Highways and Streets*, 2001 edition.

Attached hereto is a PDF copy of *Indiana Design Manual* pages 51-6(3) and 51-6(4), which shows the revisions as highlighted in yellow on page 51-6(4).

Please print a hardcopy of the subject PDF document and substitute it for the like-numbered pages in your copy of *Manual Part V, Volume 2*.

alu  
Attachment

Design Element	Manual Section	Area Road		Circulation Road	Primary Access Road		
		1-Lane (1a)	2-Lanes (1b)				
Design Year Traffic (Current AADT)	40-2.0	< 100	≥ 100	2-Lanes (1b) ≥ 100	2-Lanes (1b) ≥ 100		
Design Forecast Year	40-2.0	Current					
Design Speed (km/h)	40-3.0	20-30	20-30	40-60	50-70		
Access Control	40-5.0	None (2)					
Level of Service	40-2.0	Desirable: B; Minimum: D					
Section Elements	Travel Lane	Width		3.6 to 4.2 m (3)	2.7 to 3.6 m	3.0 or 3.3 m	3.3 or 3.6 m
		Typical Surface Type		HMA / Aggregate		HMA	HMA
	Shoulder	Width (4)		0.3 m		0.6 to 1.2m	0.6 to 1.2 m
		Typical Surface Type		Aggregate/Earth			
	Cross Slopes	Travel Lane		2% if HMA; 6% if Aggregate			
		Shoulder		6% if Aggregate; 8% if Earth			
	Auxiliary Lanes	Lane Width		Desirable: 3.0 m			
		Shoulder Width		Desirable: 0.6 m; Minimum: 0.3 m			
	Obstruction Free Zone (5)	Desirable: 1.0 m		Desirable: 2.0 m		Desirable: 3.0 m	
		Side Slopes	Cut	Foreslope		Desirable: 4:1; Maximum: 1½:1	
Ditch Width				Minimum: 0 m (V-Ditch)			
Backslope		Desirable: 4:1; Maximum: 1½:1		Desirable: 4:1; Maximum: 1½:1			
Bridges	New and Reconstructed Bridges	Structural Capacity		HS-20			
		Clear Roadway Width		Travelway + 1.5 m		Travelway + Shoulders	
	Existing Bridges to Remain in Place	Structural Capacity		HS-15			
		Clear Roadway Width		Minimum: Travelway			
Vertical Clearance (Recreational Road Under)	New and Replaced Overpassing Bridges		4.45 m				
	Existing Overpassing Bridges		4.30 m				
Vertical Clearance (Recreational Road Over Railroad) (6)	Ch. 69	7.00 m					

GEOMETRIC DESIGN CRITERIA FOR RECREATIONAL ROADS

Figure 51-6B

Design Element		Manual Section	20 km/h	30 km/h	40 km/h	50 km/h	60 km/h	70 km/h	
			20 m	35 m	50 m	65 m	85 m	105 m	
Stopping Sight Distance	2-Lane (1b)	51-6.02(02), 42-1.0	20 m	35 m	50 m	65 m	85 m	105 m	
	1-Lane (1a)		40 m	70 m	n/a	n/a	n/a	n/a	
Passing Sight Distance		42-3.0	n/a	n/a	n/a	345 m	410 m	485 m	
Intersection Sight Distance		46-10.0	45 m	65 m	85 m	105 m	130 m	150 m	
Minimum Radius (e=4%)		51-6.02(04), 43-2.0	15 m	35 m	60 m	100 m	150 m	215 m	
Superelevation Rate		51-6.02(04), 43-3.0	n/a	emax = 4%					
Horizontal Sight Distance		51-6.02(04), 43-4.0	(7)						
Vertical Curvature (K-values)	Crest	2-Lane (1b)	1	2	4	7	11	17	
		1-Lane (1a)	2	7	n/a	n/a	n/a	n/a	
	Sag	2-Lane (1b)	3	6	9	13	18	23	
		1-Lane (1a)	6	13	n/a	n/a	n/a	n/a	
Maximum Grade	Level	44-1.02	8%	8%	7%	7%	7%	7%	
	Rolling		12%	11%	10%	10%	9%	8.5%	
Minimum Grade		44-1.03	Desirable: 0.5%; Minimum: 0.0%						

### GEOMETRIC DESIGN CRITERIA FOR RECREATIONAL ROADS

Figure 51-6B (Continued)