

GEOMETRIC DESIGN STANDARDS - URBAN MINOR ARTERIAL STREET SYSTEM (GS-6M)

	DESIGN SPEED (km/h)	MINIMUM RADIUS		(12) STOPPING SIGHT DISTANCE	(11) MIN. WIDTH OF LANE	(3) STANDARD CURB & GUTTER (10)	BUFFER STRIP WIDTH		(4) MINIMUM SIDEWALK WIDTH	(5) SLOPE	(6) NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES	
		U	ULS	MIN.			RT.	LT.				
STREETS WITH CURB & GUTTER	100	394	-	185	3.6m	CG-7	(10)	1.5m	2: 1	SAME AS CURB TO CURB OF APPROACHES		
	80	280	-	130								
	70	222	227	105								
	60	150	149	85								
	50	99	94	65								
					(1) (2) 3.3m	CG-6						
	DESIGN SPEED (km/h)	MINIMUM RADIUS		STOPPING SIGHT DISTANCE	MIN. WIDTH OF LANE	(7) (13) MINIMUM WIDTH GRADED SHOULDERS		(8) PAVED SHOULDER WIDTH		(9) MINIMUM WIDTH OF DITCH FRONT SLOPE	(5) SLOPE	(6) (13) NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
		U	ULS	MIN.		FILL W/GR	CUT & FILL	RT.	LT.			
(13) STREETS WITH SHOULDER DESIGN	100	394	-	185	3.6m	3.9m	3.0m	2.4m	1.2m	3.0m	2: 1	3.0m + PAVEMENT WIDTH + 3.0m
	80	280	-	130								
	60	150	149	85								
	50	99	94	65								
					(1) (2) 3.3m							

GENERAL NOTES

Design Speeds for Urban Arterials generally range from 60 to 80 km/h and occasionally may be as low as 50 km/h. The lower (60 km/h and below) speeds apply in the central business district and intermediate areas. The higher speeds are more applicable to the outlying business and developing areas.

Standard TC-5.01R (M) (2001 AASHTO Green Book) superelevation based on 8% maximum is to be used for 100 km/h design speed.

Standard TC-5.01U (M) (Urban) (2001 AASHTO Green Book) superelevation based on 4% maximum is to be used for design speeds less than 100 km/h.

Standard TC-5.04ULS (M) (Urban Low Speed) (2004 AASHTO Green Book) superelevation based on 2% maximum may be used for design speeds less than or equal to 70 km/h.

Clear Zone and Recoverable Area information can be found in Appendix A (M), Section A-2 (M) of the Road Design Manual.

If medians are included, see [Section 2E-3 of Chapter 2E](#) of the Road Design Manual.

For minimum widths for roadway and right of way used within incorporated cities or towns to qualify for maintenance funds see [Code of Virginia Section 33.1-41.1](#).

For maximum grades relative to terrain and design speed, see AASHTO Green Book, Chapter 7, Exhibit 7-10.

FOOTNOTES

- (1) Lane width to be 3.6 m at all interchanges.
- (2) If heavy truck traffic **or buses are** anticipated, an additional 0.3 m width is desirable.
- (3) Or equivalent City or Town design.
- (4) A width of 2.4 m or more may be needed in commercial areas.
- (5) 3:1 and flatter slopes shall be used when the right of way is behind the sidewalk (or sidewalk space) in residential or other areas where slopes will be maintained by the property owner.
- (6) Vertical clearance at roadway underpasses for new and reconstructed bridges is to be 5.05 m (0.3 m additional clearance required for non-vehicular overpasses).
- (7) If graded median is used, the width of median shoulder is to be 2.4 m (See Standard GS-11 for shoulder design).
- (8) The Paved widths shown are the widths to be used if the Materials Division recommends the shoulders be paved or stabilized. When the mainline is 4 lanes (both directions) a minimum 2.4 m wide paved shoulder will be provided on the right of traffic and a minimum 1.2 m wide paved shoulder on the median side. Where the mainline is 6 or more lanes, both the right and median paved shoulders will be 2.4 m in width. If paved shoulders are not recommended by the Materials Division, the mainline pavement structure will be extended 0.3 m at the same slope into the shoulder to eliminate raveling of the pavement edge.
- (9) Ditch slope to be 6:1 - 3.0 m width and 4:1 - 1.8 m width. A hydraulic analysis is necessary to determine actual depth requirement.
- (10) For buffer strip widths see Appendix A, Section A-5 Bicycle & Pedestrian Facility Guidelines.
- (11) Situations having restrictions on trucks may allow the use of lanes **3.3 m lanes**.
- (12) For additional information on sight distance requirements on grades of 3 percent or greater, see Exhibit 3-2 of the 2004 AASHTO, Green Book.
- (13) For information on reduced shoulder widths, see Exhibit 7-3 of the 2004 AASHTO Green Book.

FIGURE A - 1 - 6M*

* Rev. 1/11