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

	DESIGN SPEED (MPH)	MINIMUM RADIUS		(12) MINIMUM STOPPING SIGHT DISTANCE	(11) MIN. WIDTH OF LANE	(3) (10) STANDARD CURB & GUTTER		BUFFER STRIP WIDTH		(4) MINIMUM SIDEWALK WIDTH	(5) SLOPE	NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
		U	ULS									
STREETS WITH CURB & GUTTER	60	1204’	-	570’	12’	CG-7		(10)		5’	2:1	See Footnote (6)
	50	929’	-	425’								
	45	713’	795’	360’	(1) (2) 11’							
	40	536’	593’	305’		CG-6						
	35	373’	408’	250’								
	30	251’	273’	200’								
	DESIGN SPEED (MPH)	MINIMUM RADIUS		MINIMUM STOPPING SIGHT DISTANCE	MIN. WIDTH OF LANE	(7) (13) MINIMUM WIDTH GRADED SHOULDER		(8) PAVED SHOULDER WIDTH		(9) MINIMUM WIDTH OF DITCH FRONT SLOPE	(5) SLOPE	
		U	ULS			FILL W/GR	CUT & FILL	LT.	RT.			
(13) STREETS WITH SHOULDER DESIGN	60	1204’	-	570’	12’	13’	10’	4’	8’	10’	2:1	
	50	929’	-	425’						6’		
	45	713’	795’	360’	(1) (2) 11’							
	40	536’	593’	305’								
	35	373’	408’	250’								
	30	251’	273’	200’								

GENERAL NOTES*

Design Speeds for Urban Arterials generally range from 40 to 60 mph and occasionally may be as low as 30 mph. The lower (40 mph 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-5.11R (Rural) superelevation based on 8% maximum is to be used for 60 mph design speed.

Standard TC-5.11U (Urban) superelevation based on 4% maximum is to be used for design speeds less than 60 mph.

Standard TC-5.11ULS (Urban Low Speed) superelevation based on 2% maximum may be used for design speeds less than or equal to 45 mph.

Clear Zone and Recoverable Area information can be found in Appendix A, Section A-2 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 33.2-319.

For maximum grades relative to terrain and design speed, see AASHTO Green Book, Chapter 7, Section 7.3.3, page 7-29, Table 7-4.

FOOTNOTES

(1) Lane width to be 12' at all interchanges.
(2) Heavy truck traffic or buses are anticipated, an additional 1' width is desirable.
(3) Or equivalent City or Town design.
(4) A width of 8' or more may be needed in commercial areas.
(5) Slopes 3:1 and flatter 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) See *Manual of the Structure and Bridge Division* – Volume V – Part 2 Design Aids – Chapter 6 Geometrics.
(7) If graded median is used, the width of median shoulder is to be 8' (See Standard GS-11 for shoulder design).
(8) When the mainline is 4 lanes (2 lanes in each direction) a minimum 8' wide paved shoulder will be provided on the right of traffic and a minimum 4' wide paved shoulder on the median side. Where the mainline is 6 or more lanes, both right and median paved shoulders will be 8' in width. For additional guidance on shoulder widths/reductions, see AASHTO Green Book, Chapter 7, Section 7.2.11, page 7-13.
(9) Ditch slope to be 6:1 - 10' width and 4:1 - 6' 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 11’ lanes.
(12) For additional information on sight distance requirements on grades of 3 percent or greater, see AASHTO Green Book, Chapter 3, Section 3.2.2, page 3-3, Table 3-2.
(13) For information on reduced shoulder widths, see AASHTO Green Book, Chapter 7, Section 7.2.3, page 7-5, Table 7-3.

FIGURE A - 1 - 6

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