

## GEOMETRIC DESIGN STANDARDS FOR URBAN LOCAL STREET SYSTEM (GS-8M)

	DESIGN SPEED (km/h)	MINIMUM RADIUS (METERS)		(1) MAX. PERCENT OF GRADE	(10) STOPPING SIGHT DISTANCE (METERS)	(2) MIN. WIDTH OF LANE	(3) STANDARD CURB & GUTTER	BUFFER STRIP WIDTH	(5) MIN. SIDEWALK WIDTH	(6) SLOPE	(9) (4) NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
		U	ULS								
STREETS WITH CURB & GUTTER	50	99	94	15	58m	3.0m	CG-6	(4)	1.5m	2:1	SAME AS CURB TO CURB OF APPROACHES
	30	34	24		30m						
	DESIGN SPEED (km/h)	MINIMUM RADIUS (METERS)		(1) MAX. PERCENT OF GRADE	STOPPING SIGHT DISTANCE (METERS)	(2) MIN. WIDTH OF LANE	(7) (11) MIN. WIDTH GRADED SHOULDERS		(8) MINIMUM WIDTH OF DITCH FRONT SLOPE	SLOPE	(9) (11) NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES
		U	ULS				FILL W/GR.	CUT & FILL			
(11) STREETS WITH SHOULDER DESIGN	50	99	94	15	58m	3.0m	3.3 m	2.4 m	1.2 m	3:1	2.4 m + PAVEMENT WIDTH +2.4 m
	30	34	24		30m						

### GENERAL NOTES

Design Speeds is not a major factor for local streets. For consistency in design elements, design speeds ranging from 30 to 50 km/h may be used, depending on available right of way, terrain, adjacent development and other area controls.

In the typical street grid, the closely spaced intersections usually limit vehicular speeds, making the effect of a design speed of less significance.

Design speeds exceeding 50 km/h in residential areas may require longer sight distances and increased curve radii, which would be contrary to the basic function of a local street.

Standard TC-5.01U (M) (Urban) (2001 AASHTO Green Book) superelevation based on 4% maximum.

Standard TC-5.04ULS (M) (Urban Low Speed) (2004 AASHTO Green Book) superelevation based on 2% maximum may be used with a design speed of 70 km/h or less.

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](#).

### FOOTNOTES

- (1) Grades in commercial and industrial areas should be less than 8 percent; desirably, less than 5 percent. For maximum grades relative to terrain and design speed, see AASHTO Green Book, Chapter 5, Exhibit 5-4.
- (2) Where feasible, lanes should be 3.3 m wide and in industrial areas should be 3.6 m wide; however, where available or attainable right of way imposes severe limitations, 2.7 m lanes can be used in residential areas and 3.3 m lanes can be used in industrial areas.

- (3) Or equivalent City or Town design.
- (4) For buffer strip widths see Appendix A, Section A-5 Bicycle & Pedestrian Facility Guidelines.
- (5) Widths of 2.4 m or more may be needed in commercial areas.
- (6) 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.
- (7) When Design year ADT exceeds 2000 VPD, with greater than 5% total truck and bus usage: Provide 1.2 m wide paved shoulders when the graded shoulder is 1.5 m wide or greater. All shoulders not being paved will have the mainline pavement structure extended 0.3 m, on the same slope, into the shoulder to eliminate raveling at the pavement edge (See Standard GS-12 for shoulder design).
- (8) Ditch slopes to be 3:1 - 1.2 m width. A hydraulic analysis is necessary to determine actual depth requirement.
- (9) Vertical clearance at roadway underpasses for new and reconstructed bridges is to be 5.05 m desirable and 4.45 m minimum (0.3 m additional clearance required for non-vehicular overpasses).
- (10) For additional information on sight distance requirements on grades of 3 percent or greater, see Exhibit 3-2 of the 2004 AASHTO, Green Book.
- (11) For information on reduced shoulder widths, see Exhibit 5-5 of the AASTHO Green Book

**FIGURE A - 1 - 8M\***

\* Rev. 7/10