

**GEOMETRIC DESIGN STANDARDS FOR INTERCHANGE RAMPS (GS-R)**

	RAMP DESIGN SPEED (MPH)	MINIMUM RADIUS	(6) MINIMUM STOPPING SIGHT DISTANCE	(1) MINIMUM RAMP PAVEMENT WIDTHS	MINIMUM WIDTH OF SHOULDER				(5) MINIMUM WIDTH OF DITCH FRONT SLOPE	NEW AND RECONSTRUCTED MINIMUM BRIDGE WIDTHS AND VERTICAL CLEARANCES	
					LEFT OF TRAFFIC		RIGHT OF TRAFFIC				
					GRADED WIDTH CUT & FILL		(2) (3) PAVED WIDTH	(7) GRADED WIDTH			(2) (3) PAVED WIDTH
					With GR	Without GR					
INTERCHANGE RAMPS	60	1204'	570'	16'	10'	6'	4'	10'	8'	10' @ 6:1	See Footnote (4)
	50	760'	425'								
	45	589'	360'								
	40	446'	305'								
	35	316'	250'								
	30	215'	200'								
	25	135'	155'	18'							
20	77'	125'									
AUXILIARY LANES (ACCEL/ DECEL)	(8) GEOMETRIC DESIGN ELEMENTS ARE TO BE THE SAME AS MAINLINE THROUGH LANES. SEE APPLICABLE FUNCTIONAL CLASSIFICATION GS STANDARDS.									AUXILIARY LANE SHOULDER WIDTHS ARE TO BE THE SAME AS MAINLINE THROUGH LANES	

**GENERAL NOTES**

The determination of the proper design speed for any particular ramp should be made using guidelines shown in the AASHTO Green Book, Chapter 10, Section 10.9.6, pg. 10-89, Table 10-1.

Standard TC-5.11R is to be used. Maximum ramp superelevation is to be 8%.

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

RELATIONSHIP OF MAXIMUM GRADES TO DESIGN SPEED			
DESIGN SPEED (MPH)			
15 - 20	25 - 30	35 - 40	45 - 60
GRADES (PERCENT)			
6 - 8	5 - 7	4 - 6	3 - 5

Where topographic conditions dictate, grades steeper than those above may be used. One-way descending gradients on ramps should be held to the same general maximums, but in special cases they may be 2 percent greater. However, downgrades with sharp horizontal curvature and significant heavy truck or bus traffic should be limited to 4 percent. See page 10-92 of the AASHTO Green Book.

See the AASHTO Green Book Chapter 10, Section 10.9.6, page 10-87 for further guidance on ramp design.

**FOOTNOTES**

- (1) Interchange ramp widths shown are for one lane traffic. For two lane or other conditions see Table 3-29 in the AASHTO Green Book.
- (2) Paved shoulder widths on ramps with a design speed of 40 mph or less may be reduced to 6' right, or 3' left, when justifiable. However, the sum of the right and left shoulder shall not be less than 10'. See AASHTO Green Book, Chapter 10, Section 10.9.6, page 10-102.
- (3) On ramps with a radius of less than 500', consider (depending on degree of curvature, percent of trucks) the extension of the full pavement structure (on the same slope as the pavement) through the inside paved shoulder area to eliminate raveling of the pavement edge.
- (4) See [Manual of the Structure and Bridge Division – Volume V – Part 2 Design Aids – Chapter 6 Geometrics](#).
- (5) A hydraulic analysis is necessary to determine actual depth requirement.
- (6) For additional information on sight distance requirements on grades of 3 percent or greater, see the AASHTO Green Book, Chapter 3, Section 3.2.2, page 3-2, Table 3-2.
- (7) Graded shoulder width to be increased additional 4' when guardrail is required.
- (8) See 2011 AASHTO Green Book, Chapter 10, Section 10.9.5, page 10-76 for further guidance on Auxiliary Lanes.

**FIGURE A - 1 - 10\***