



- FOOTNOTES**
- ① SEE GUARDRAIL STANDARD DRAWINGS FOR TYPICAL GUARDRAIL PLACEMENT.
 - ② SEE DETAILS A, B, C, OR D FOR ROUNDING.
 - ③ THE HIGHER HIGHWAY DESIGN SPEED SHOULD BE THE CONTROL.
 - ④ SEE STANDARD DRAWINGS RD01-S-11 AND RD01-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, AND SPECIAL ROCK CUT TREATMENT.
 - ⑤ SEE STANDARD DRAWING RD01-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
 - ⑥ THE SLOPES OF THE SHOULDER AND ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07 FOOT PER FOOT.
 - ⑦ WHEN THE RAMP PAVEMENT IS ADJACENT TO MAINLINE ROADWAY PAVEMENT, THE PROFILE GRADE WILL BE LOCATED ALONG THE MAINLINE EDGE OF PAVEMENT.
 - ⑧ DOES NOT PERTAIN TO THE RAMP TERMINALS WHICH SHOULD BE PROPERLY TRANSITIONED AND PROVIDED WITH SPEED CHANGE FACILITIES ADEQUATE FOR THE HIGHWAY SPEED INVOLVED.
 - ⑨ THE SIGHT DISTANCE ON A FREEWAY PRECEDING THE APPROACH NOSE OF AN EXIT RAMP SHOULD EXCEED THE MINIMUM FOR THE THROUGH TRAFFIC DESIGN SPEED DESIRABLY BY 25 PERCENT OR MORE.
 - ⑩ CLEAR ZONE WIDTH SHALL BE DETERMINED FROM STANDARD DRAWING RD01-S-12. SEE THE "ROADSIDE DESIGN GUIDE," AASHTO, 2002 FOR FURTHER INFORMATION.
 - ⑪ SEMI-DIRECT CONNECT AND DIRECT CONNECT AND 2-LANE RAMPs, USE MIDDLE RANGE AS MINIMUM. UPPER RANGE IS PREFERRED. LOWER RANGE MAY BE USED FOR RAMPs NOT CONNECTING TO FREEWAYS OR EXPRESSWAYS. LOOP DESIGN SPEED SHALL NOT BE LESS THAN 25 MILES PER HOUR.
 - ⑫ FOR RAMPs WITH COMPOUND CURVES, THE PREFERRED RATIO OF THE FLATTER RADIUS TO THE SHARPER RADIUS IS NOT TO EXCEED 1.75:1; HOWEVER, A 2:1 MINIMUM RATIO MAY BE USED (SEE PAGE 192).
 - ⑬ MAY BE 2% OR GREATER IN SPECIAL CASES OR WHERE TOPOGRAPHY LIMITS CONDITIONS. DOWN GRADES SHOULD DESIRABLY BE LIMITED TO 3 OR 4 PERCENT ON RAMPs WITH SHARP HORIZONTAL CURVATURE AND SIGNIFICANT HEAVY TRUCK OR BUS TRAFFIC.
 - ⑭ FOR DESIGN SPEEDS GREATER THAN 45 MILES PER HOUR, USE VALUES FOR OPEN HIGHWAY CONDITIONS.
 - ⑮ SUPERELEVATION ASSUMED OF 8%.

- GENERAL NOTES**
- A FOR SPECIFIC CONDITIONS NOT COVERED ON THIS SHEET, REFERENCE SHOULD BE MADE TO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS," AASHTO, 2001.
 - B PAGE NUMBERS REFERRED TO ON THIS DRAWING ARE FROM "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS," AASHTO, 2001, UNLESS OTHERWISE NOTED.
 - C REFERENCE SHOULD ALSO BE MADE TO THE "ROADSIDE DESIGN GUIDE," AASHTO, 2002.
 - D SECTIONS DRAWN LOOKING IN DIRECTION OF TRAVEL.

TABLE I. GUIDE VALUES FOR RAMP DESIGN SPEED AS RELATED TO HIGHWAY DESIGN SPEED (SEE PAGE 830)

③ HIGHWAY DESIGN SPEEDS, MPH	30	35	40	45	50	55	60	65	70	
⑪ RAMP DESIGN SPEED, MPH										
UPPER RANGE (85%)	25	30	35	40	45	48	50	55	60	SEE PAGE 830
MIDDLE RANGE (70%)	20	25	30	35	35	40	45	45	50	
LOWER RANGE (50%)	15	20	20	25	25	30	30	30	35	
CORRESPONDING MINIMUM RADIUS (FT)	230	310	450	565	⑭	⑭	⑭	⑭	⑭	SEE PAGE 201

TABLE II. STOPPING SIGHT DISTANCE FOR RAMPs (SEE PAGE 112)

⑨ DESIGN SPEEDS, MPH	15	20	25	30	35	40	45	50	55	60	65	70
MINIMUM, FEET	80	115	155	200	250	305	360	425	495	570	645	730

TABLE III. LENGTHS OF CURVE FOR DIFFERENT COMPOUND CURVE RADII (SEE PAGE 192)

RADIUS, FEET	100	150	200	250	300	400	500 OR MORE
MINIMUM LENGTH OF CIRCULAR ARC							
ACCEPTABLE, FEET	40	50	60	80	100	120	140
DESIRABLE, FEET	60	70	90	120	140	180	200

TABLE IV. RECOMMENDED DESIGN GRADES ON RAMPs (SEE PAGES 832-833)

DESIGN SPEED (MPH)	UPGRADE	DOWNGRADE ⑬
15-25	6-8%	6-8%
25-30	5-7%	5-7%
40	4-6%	4-6%
45 OR GREATER	3-5%	3-5%

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.