

STANDARD RATES OF SUPERELEVATION AND
MINIMUM LENGTH OF RUNOFF FOR RURAL HIGHWAYS

REV. 4-1-88: DELETED LAST NOTE
AND HEAVY LINES FOR 40 MPH.
REV. 8-30-91: REDREW SHEET.
ADDED GENERAL NOTE (E).

E MAX=0.08 DESIRABLE

D	R (FT.)	V=20 (MPH)				V=30 (MPH)				V=40 (MPH)				V=50 (MPH)				V=60 (MPH)				V=70 (MPH)											
		$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)										
			2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN		2-LN	4-LN	6-LN	2-LN	4-LN	6-LN					
0°-15'	22,918	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0				
0°-30'	11,459	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	175	175	215	RC	200	200	240								
0°-45'	7,639	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	150	150	195	.022	175	175	225	.028	200	220	290								
1°-00'	5,730	NC	0	0	0	NC	0	0	0	RC	125	130	170	.021	150	150	200	.029	175	200	265	.036	200	255	340								
1°-30'	3,820	NC	0	0	0	RC	100	110	145	.021	125	130	175	.030	150	180	240	.041	175	245	325	.051	215	320	430								
2°-00'	2,865	NC	0	0	0	RC	100	110	145	.027	125	150	200	.038	150	210	280	.051	190	285	380	.065	255	385	510								
2°-30'	2,292	NC	0	0	0	.021	100	115	150	.033	125	170	225	.046	160	240	320	.061	220	325	435	.075	285	430	570								
3°-00'	1,910	RC	65	100	130	.025	100	125	165	.038	125	185	245	.053	180	265	355	.068	235	355	470	.080	300	450	600								
3°-30'	1,637	RC	65	100	130	.028	100	130	175	.043	135	200	265	.058	190	285	375	.074	255	380	505	D(MAX)=3°-00'											
4°-00'	1,432	RC	65	100	130	.031	100	140	185	.047	145	215	285	.063	200	300	400	.078	265	395	525												
5°-00'	1,146	.021	70	100	135	.038	105	160	210	.055	160	240	315	.071	220	330	440	D(MAX)=4°-45'															
6°-00'	955	.025	75	110	145	.043	115	175	230	.062	175	260	345	.077	235	350	470																
7°-00'	819	.028	80	120	155	.048	125	185	245	.067	185	275	370	.080	240	360	480																
8°-00'	716	.031	85	125	165	.053	135	200	265	.071	195	290	385	D(MAX)=7°-30'																			
9°-00'	637	.035	90	135	180	.056	140	210	275	.075	200	300	400																				
10°-00'	573	.037	95	140	185	.060	145	220	290	.078	210	310	415																				
11°-00'	521	.040	100	145	195	.063	150	225	300	.079	210	315	420																				
12°-00'	477	.043	105	155	205	.065	155	230	310	.080	210	315	420																				
13°-00'	441	.045	105	160	210	.068	160	240	320	D(MAX)=12°-15'																							
14°-00'	409	.047	110	165	215	.070	165	245	325																								
16°-00'	358	.051	115	175	230	.074	170	255	340																								
18°-00'	318	.054	120	180	240	.077	175	265	350																								
20°-00'	286	.057	125	185	250	.079	180	270	360																								
22°-00'	260	.060	130	195	260	.080	180	270	360																								
24°-00'	239	.062	135	200	265	D(MAX)=22°-45'																											
28°-00'	205	.067	140	210	280																												
32°-00'	179	.070	145	220	290																												
36°-00'	159	.074	155	230	305																												
40°-00'	143	.076	155	235	310																												
44°-00'	130	.078	160	240	315																												
48°-00'	119	.079	160	240	320																												
52°-00'	110	.080	160	240	320																												
		D(MAX)=53°-30'																															

LEGEND

D	DEGREE OF CURVE
R	RADIUS OF CURVE
V	ASSUMED DESIGN SPEED
e	RATE OF SUPERELEVATION
L	MINIMUM LENGTH OF RUNOFF
NC	NORMAL CROWN
RC	REMOVE ADVERSE CROWN, SUPERELEVATE AT NORMAL CROWN SLOPE

LEGEND	
D	DEGREE OF CURVE
R	RADIUS OF CURVE
V	ASSUMED DESIGN SPEED
e	RATE OF SUPERELEVATION
L	MINIMUM LENGTH OF RUNOFF
NC	NORMAL CROWN
RC	REMOVE ADVERSE CROWN, SUPERELEVATE AT NORMAL CROWN SLOPE

E MAX=0.10 ALLOWABLE

D	R (FT.)	V=20(MPH)				V=30(MPH)				V=40(MPH)				V=50(MPH)				V=60(MPH)				V=70(MPH)							
		$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)			$\frac{e}{F}$	L(FT.)						
		$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN	$\frac{F}{F}$	2-LN	4-LN	6-LN
0°-15'	22,918	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0
0°-30'	11,459	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	175	175	215	RC	200	200	240	RC	200	200	240
0°-45'	7,639	NC	0	0	0	NC	0	0	0	NC	0	0	0	NC	0	0	0	RC	150	150	195	.023	175	175	230	.028	200	220	290
1°-00'	5,730	NC	0	0	0	NC	0	0	0	RC	125	130	170	.021	150	150	200	.030	175	200	270	.037	200	260	345	.043	225	335	445
1°-30'	3,820	NC	0	0	0	RC	100	110	145	.021	125	130	175	.031	150	185	245	.043	175	255	340	.054	225	335	445	.067	270	405	540
2°-00'	2,865	NC	0	0	0	RC	100	110	145	.028	125	155	205	.040	150	220	290	.055	200	300	400	.070	270	405	540	.085	315	475	630
2°-30'	2,292	NC	0	0	0	.021	100	115	150	.034	125	175	230	.049	170	250	335	.067	235	350	465	.085	315	475	630	.100	360	540	720
3°-00'	1,910	RC	65	100	130	.025	100	125	165	.040	130	190	255	.057	185	280	370	.077	260	390	520	.096	350	525	700	.110	405	540	720
3°-30'	1,637	RC	65	100	130	.029	100	135	180	.046	140	210	280	.065	205	310	410	.086	285	425	565	.100	360	540	720	D(MAX)=3°-30'			
4°-00'	1,432	RC	65	100	130	.033	100	145	195	.051	150	225	300	.072	225	335	445	.093	305	455	605	D(MAX)=3°-30'							
5°-00'	1,146	.022	70	105	135	.040	110	165	220	.061	175	260	345	.083	250	375	495	.098	315	475	630	D(MAX)=3°-30'							
6°-00'	955	.026	75	115	150	.046	120	180	240	.070	190	285	380	.092	270	405	540	D(MAX)=5°-15'											
7°-00'	819	.029	80	120	160	.053	135	200	265	.078	210	310	415	.098	285	425	570	D(MAX)=5°-15'											
8°-00'	716	.033	85	130	170	.058	145	215	285	.084	220	330	440	.100	290	435	580	D(MAX)=5°-15'											
9°-00'	637	.036	90	135	180	.063	150	225	300	.089	230	345	460	D(MAX)=8°-15'															
10°-00'	573	.040	100	145	195	.068	160	240	320	.094	240	360	480	D(MAX)=8°-15'															
11°-00'	521	.043	105	155	205	.072	170	250	335	.097	250	370	495	D(MAX)=8°-15'															
12°-00'	477	.046	110	160	215	.076	175	260	350	.099	250	375	500	D(MAX)=8°-15'															
13°-00'	441	.049	115	170	225	.080	180	270	360	.100	255	380	505	D(MAX)=8°-15'															
14°-00'	409	.052	120	175	235	.083	190	280	375	D(MAX)=13°-15'																			
16°-00'	358	.057	125	185	250	.089	200	295	395	D(MAX)=13°-15'																			
18°-00'	318	.062	135	200	265	.093	205	310	410	D(MAX)=13°-15'																			
20°-00'	286	.066	140	210	280	.097	215	320	425	D(MAX)=13°-15'																			
22°-00'	260	.070	145	220	290	.099	215	325	430	D(MAX)=13°-15'																			
24°-00'	239	.073	150	225	300	.100	220	325	435	D(MAX)=13°-15'																			
28°-00'	205	.079	160	240	320	D(MAX)=24°-45'																							
32°-00'	179	.084	170	250	335	D(MAX)=24°-45'																							
36°-00'	159	.089	175	265	350	D(MAX)=24°-45'																							
40°-00'	143	.092	180	270	360	D(MAX)=24°-45'																							
44°-00'	130	.095	185	280	370	D(MAX)=24°-45'																							
48°-00'	119	.098	190	285	380	D(MAX)=24°-45'																							
52°-00'	110	.099	195	290	385	D(MAX)=24°-45'																							
56°-00'	102	.100	195	290	385	D(MAX)=24°-45'																							
		D(MAX)=58°-00'																											

GENERAL NOTES

(A) ALL HORIZONTAL CURVES SHALL BE DESIGNED IN ACCORDANCE WITH THIS TABLE UNLESS OTHERWISE SHOWN ON THE PLANS.

(B) SPIRALS ARE NOT REQUIRED EXCEPT WHERE SHOWN ABOVE THE HEAVY LINE FOR HIGHWAY CROSS SECTIONS.

(C) LENGTHS ROUNDED TO NEAREST FEET TO PERMIT SIMPLER CALCULATION.

(D) ALIGNMENT DESIGNS SHOULD BE MADE TO AVOID SUPERELEVATION TRANSITION DECKS, IN ORDER TO PREVENT AREAS OF ZERO SUPERELEVATION CHANGE ZONE.

(E) USE RURAL SUPERELEVATION FACTORS FOR FREEWAYS AND EXPRESSWAYS EXCEPT WHERE SHOWN OTHERWISE.

The diagram illustrates two cross-sections of a road. The left section is labeled 'NORMAL' and shows a standard road cross-section with a centerline and shoulders. The right section is labeled 'FULL S.E. LEFT LANE' and shows a cross-section with a full super-elevation on the left lane, indicated by a dashed line and arrows. The two sections are connected by a horizontal line labeled 'EQUAL'.

SECTIONS