REV. 10-15-02: NEW SHEET.
REPLACES RD-SE-3.

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

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)			
		e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/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
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
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′																							

E MAX=0.10 FOR REHABILITATION AND RESURFACING PROJECTS ONLY

D	R (FT.)	V=20(MPH)				V=30(MPH)				V=40(MPH)				V=50(MPH)				V=60(MPH)				V=70(MPH)			
		e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/F	L(FT.)			e/F/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
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
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	.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
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
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
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
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
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
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				
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								
8°-00′	716	.033	85	130	170	.058	145	215	285	.084	220	330	440	.100	290	435	580								
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												
11°-00′	521	.043	105	155	205	.072	170	250	335	.097	250	370	495												
12°-00′	477	.046	110	160	215	.076	175	260	350	.099	250	375	500												
13°-00′	441	.049	115	170	225	.080	180	270	360	.100	255	380	505												
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																
18°-00′	318	.062	135	200	265	.093	205	310	410																
20°-00′	286	.066	140	210	280	.097	215	320	425																
22°-00′	260	.070	145	220	290	.099	215	325	430																
24°-00′	239	.073	150	225	300	.100	220	325	435																
28°-00′	205	.079	160	240	320	D(MAX)=24°-45′																			
32°-00′	179	.084	170	250	335																				
36°-00′	159	.089	175	265	350																				
40°-00′	143	.092	180	270	360																				
44°-00′	130	.095	185	280	370																				
48°-00′	119	.098	190	285	380																				
52°-00′	110	.099	195	290	385																				
56°-00′	102	.100	195	290	385																				
		D(MAX)=58°-00′																							

LEGEND

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

GENERAL NOTES

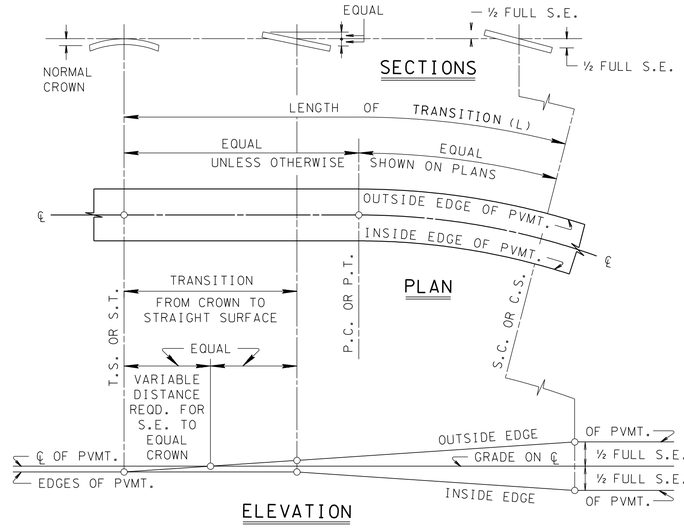
Ⓐ ALL HORIZONTAL CURVES SHALL BE SUPERELEVATED IN ACCORDANCE WITH THIS TABULATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

Ⓑ SPIRALS ARE NOT REQUIRED BELOW 50 MPH AND ABOVE THE HEAVY LINE FOR HIGHER SPEEDS.

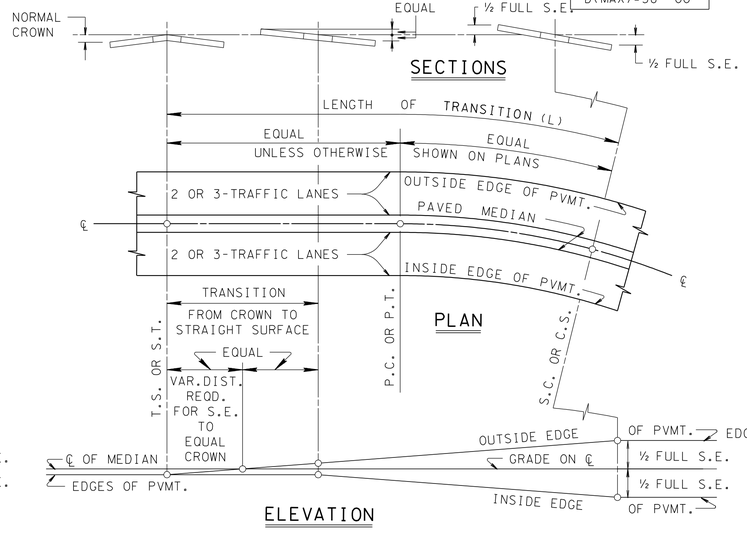
Ⓒ LENGTHS ROUNDED IN MULTIPLES OF 25 OR 50 FEET PERMIT SIMPLER CALCULATIONS.

Ⓓ ALIGNMENT DESIGNS SHOULD BE SO ARRANGED AS TO AVOID SUPERELEVATION TRANSITIONS ON BRIDGE DECKS, IN ORDER TO PREVENT PONDING IN THE AREAS OF ZERO SUPERELEVATION IN THE CROWN CHANGE ZONE.

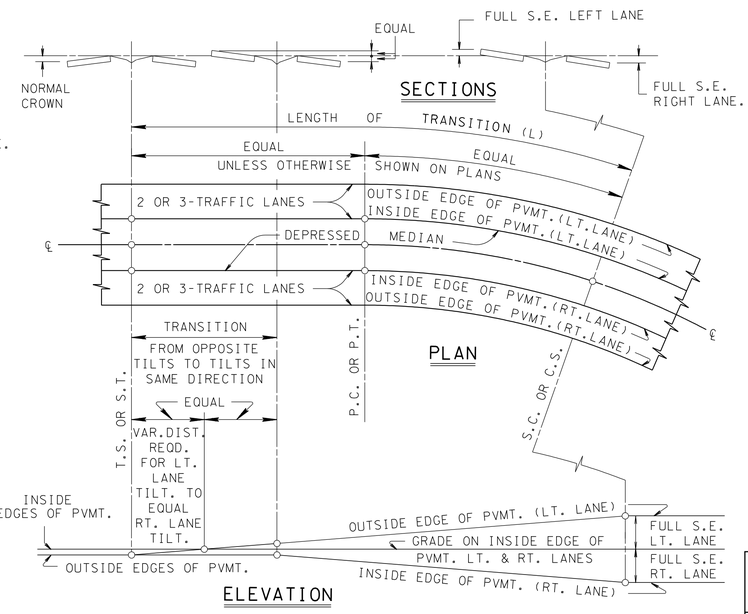
Ⓔ USE RURAL SUPERELEVATION RATES ON ALL URBAN FREEWAYS AND EXPRESSWAYS EXCEPT VIADUCTS.



TYPICAL TRANSITION IN SUPERELEVATION
2-LANE HIGHWAY



TYPICAL TRANSITION IN SUPERELEVATION
4 OR 6-LANE HIGHWAY WITH PAVED MEDIAN



TYPICAL TRANSITION IN SUPERELEVATION
4 OR 6-LANE HIGHWAY WITH DEPRESSED MEDIAN

⊠ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RURAL SUPERELEVATION DETAILS

10-15-02 | RD01-SE-3