REV. 1/07
802.42

TC-5.01

# TRANSITION CURVES - RURAL
# 60 MPH DESIGN SPEED

VIRGINIA DEPARTMENT OF TRANSPORTATION

## DESIGN FACTORS FOR A DESIGN SPEED OF 60 MPH (RURAL) USING E- 8% MAX.

| DESIGN VELOCITY -60 | | WIDTH- 18 FT | | | WIDTH-20 FT | | | WIDTH-22 FT | | | WIDTH-24 FT | | | WIDTH-48 FT | | | WIDTH-72 FT | | | INTERCHANGE RAMPS WIDTH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DESIGN SOFTWARE EQUIVALENTS (NUMBER OF LANES AT LANE WIDTH) | | | | | | | | | | | | | | | | | | | | | |
| | | 1 @ 9' | | | 1 @ 10' | | | 1 @ 11' | | | 1 @ 12' | | | 2 @ 12' | | | 3 @ 12' | | | 16 FT | | 18 FT | |
| RADIUS(FT) | E(%) | Lt | Lr | w | Lt | Lr | w | Lt | Lr | w | Lt | Lr | w | Lt | Lr | w | Lt | Lr | w | Lt | Lr | Lt | Lr |
| 12000 | NC | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| 8480 | 2.0 | 40 | 40 | 0.0 | 45 | 45 | 0.0 | 49 | 49 | 0.0 | 54 | 54 | 0.0 | 80 | 80 | 0.0 | 107 | 107 | 0.0 | 63 | 63 | 67 | 67 |
| 8048 | 2.1 | 40 | 42 | 0.0 | 45 | 47 | 0.0 | 49 | 52 | 0.0 | 54 | 56 | 0.0 | 80 | 84 | 0.0 | 107 | 112 | 0.0 | 63 | 66 | 67 | 70 |
| 7654 | 2.2 | 40 | 44 | 0.0 | 45 | 49 | 0.0 | 49 | 54 | 0.0 | 54 | 59 | 0.0 | 80 | 88 | 0.0 | 107 | 118 | 0.0 | 63 | 70 | 67 | 74 |
| 7294 | 2.3 | 40 | 46 | 0.0 | 45 | 52 | 0.0 | 49 | 57 | 0.0 | 54 | 62 | 0.0 | 80 | 92 | 0.0 | 107 | 123 | 0.0 | 63 | 73 | 67 | 77 |
| 6965 | 2.4 | 40 | 48 | 0.0 | 45 | 54 | 0.0 | 49 | 59 | 0.0 | 54 | 64 | 0.0 | 80 | 96 | 0.0 | 107 | 128 | 0.0 | 63 | 76 | 67 | 80 |
| 6661 | 2.5 | 40 | 50 | 0.0 | 45 | 56 | 0.0 | 49 | 62 | 0.0 | 54 | 67 | 0.0 | 80 | 100 | 0.0 | 107 | 134 | 0.0 | 63 | 79 | 67 | 84 |
| 6381 | 2.6 | 40 | 52 | 0.0 | 45 | 58 | 0.0 | 49 | 64 | 0.0 | 54 | 70 | 0.0 | 80 | 104 | 0.0 | 107 | 139 | 0.0 | 63 | 82 | 67 | 87 |
| 6121 | 2.7 | 40 | 54 | 0.0 | 45 | 60 | 0.0 | 49 | 66 | 0.0 | 54 | 72 | 0.0 | 80 | 108 | 0.0 | 107 | 144 | 0.0 | 63 | 85 | 67 | 90 |
| 5879 | 2.8 | 40 | 56 | 0.0 | 45 | 63 | 0.0 | 49 | 69 | 0.0 | 54 | 75 | 0.0 | 80 | 112 | 0.0 | 107 | 150 | 0.0 | 63 | 88 | 67 | 94 |
| 5654 | 2.9 | 40 | 58 | 0.0 | 45 | 65 | 0.0 | 49 | 71 | 0.0 | 54 | 78 | 0.0 | 80 | 116 | 0.0 | 107 | 155 | 0.0 | 63 | 91 | 67 | 97 |
| 5444 | 3.0 | 40 | 60 | 0.0 | 45 | 67 | 0.0 | 49 | 74 | 0.0 | 54 | 80 | 0.0 | 80 | 120 | 0.0 | 107 | 160 | 0.0 | 63 | 95 | 67 | 100 |
| 5247 | 3.1 | 40 | 62 | 0.0 | 45 | 69 | 0.0 | 49 | 76 | 0.0 | 54 | 83 | 0.0 | 80 | 124 | 0.0 | 107 | 166 | 0.0 | 63 | 98 | 67 | 104 |
| 5063 | 3.2 | 40 | 64 | 0.0 | 45 | 72 | 0.0 | 49 | 79 | 0.0 | 54 | 86 | 0.0 | 80 | 128 | 0.0 | 107 | 171 | 0.0 | 63 | 101 | 67 | 107 |
| 4889 | 3.3 | 40 | 66 | 0.0 | 45 | 74 | 0.0 | 49 | 81 | 0.0 | 54 | 88 | 0.0 | 80 | 132 | 0.0 | 107 | 176 | 0.0 | 63 | 104 | 67 | 110 |
| 4725 | 3.4 | 40 | 68 | 0.0 | 45 | 76 | 0.0 | 49 | 84 | 0.0 | 54 | 91 | 0.0 | 80 | 136 | 0.0 | 107 | 182 | 0.0 | 63 | 107 | 67 | 114 |
| 4571 | 3.5 | 40 | 70 | 0.0 | 45 | 78 | 0.0 | 49 | 86 | 0.0 | 54 | 94 | 0.0 | 80 | 140 | 0.0 | 107 | 187 | 0.0 | 63 | 110 | 67 | 117 |
| 4424 | 3.6 | 40 | 72 | 0.0 | 45 | 80 | 0.0 | 49 | 88 | 0.0 | 54 | 96 | 0.0 | 80 | 144 | 0.0 | 107 | 192 | 0.0 | 63 | 113 | 67 | 120 |
| 4286 | 3.7 | 40 | 74 | 0.0 | 45 | 83 | 0.0 | 49 | 91 | 0.0 | 54 | 99 | 0.0 | 80 | 148 | 0.0 | 107 | 198 | 0.0 | 63 | 117 | 67 | 124 |
| 4155 | 3.8 | 40 | 76 | 0.0 | 45 | 85 | 0.0 | 49 | 93 | 0.0 | 54 | 102 | 0.0 | 80 | 152 | 0.0 | 107 | 203 | 0.0 | 63 | 120 | 67 | 127 |
| 4030 | 3.9 | 40 | 78 | 0.0 | 45 | 87 | 0.0 | 49 | 96 | 0.0 | 54 | 104 | 0.0 | 80 | 156 | 0.0 | 107 | 208 | 0.0 | 63 | 123 | 67 | 130 |
| 3911 | 4.0 | 40 | 80 | 0.0 | 45 | 89 | 0.0 | 49 | 98 | 0.0 | 54 | 107 | 0.0 | 80 | 160 | 0.0 | 107 | 214 | 0.0 | 63 | 126 | 67 | 134 |
| 3798 | 4.1 | 40 | 82 | 0.0 | 45 | 92 | 0.0 | 49 | 101 | 0.0 | 54 | 110 | 0.0 | 80 | 164 | 0.0 | 107 | 219 | 0.0 | 63 | 129 | 67 | 137 |
| 3690 | 4.2 | 40 | 84 | 0.0 | 45 | 94 | 0.0 | 49 | 103 | 0.0 | 54 | 112 | 0.0 | 80 | 168 | 0.0 | 107 | 224 | 0.0 | 63 | 132 | 67 | 140 |
| 3587 | 4.3 | 40 | 86 | 0.0 | 45 | 96 | 0.0 | 49 | 106 | 0.0 | 54 | 115 | 0.0 | 80 | 172 | 0.0 | 107 | 230 | 0.0 | 63 | 135 | 67 | 144 |
| 3488 | 4.4 | 40 | 88 | 0.0 | 45 | 98 | 0.0 | 49 | 108 | 0.0 | 54 | 118 | 0.0 | 80 | 176 | 0.0 | 107 | 235 | 0.0 | 63 | 139 | 67 | 147 |
| 3394 | 4.5 | 40 | 90 | 0.0 | 45 | 100 | 0.0 | 49 | 110 | 0.0 | 54 | 120 | 0.0 | 80 | 176 | 0.0 | 107 | 240 | 0.0 | 63 | 142 | 67 | 150 |
| 3303 | 4.6 | 40 | 92 | 0.0 | 45 | 103 | 0.0 | 49 | 113 | 0.0 | 54 | 123 | 0.0 | 80 | 184 | 0.0 | 107 | 246 | 0.0 | 63 | 145 | 67 | 154 |
| 3216 | 4.7 | 40 | 94 | 0.0 | 45 | 105 | 0.0 | 49 | 115 | 0.0 | 54 | 126 | 0.0 | 80 | 188 | 0.0 | 107 | 251 | 0.0 | 63 | 148 | 67 | 157 |
| 3133 | 4.8 | 40 | 96 | 0.0 | 45 | 107 | 0.0 | 49 | 118 | 0.0 | 54 | 128 | 0.0 | 80 | 192 | 0.0 | 107 | 256 | 0.0 | 63 | 151 | 67 | 160 |
| 3053 | 4.9 | 40 | 98 | 0.0 | 45 | 109 | 0.0 | 49 | 120 | 0.0 | 54 | 131 | 0.0 | 80 | 196 | 0.0 | 107 | 262 | 0.0 | 63 | 154 | 67 | 164 |
| 2975 | 5.0 | 40 | 100 | 0.0 | 45 | 112 | 0.0 | 49 | 123 | 0.0 | 54 | 134 | 0.0 | 80 | 200 | 0.0 | 107 | 267 | 0.0 | 63 | 157 | 67 | 167 |
| 2901 | 5.1 | 40 | 102 | 0.0 | 45 | 114 | 0.0 | 49 | 125 | 0.0 | 54 | 136 | 0.0 | 80 | 204 | 0.0 | 107 | 272 | 0.0 | 63 | 160 | 67 | 170 |
| 2866 | 5.2 | 40 | 104 | 0.0 | 45 | 116 | 0.0 | 49 | 128 | 0.0 | 54 | 139 | 0.0 | 80 | 208 | 0.0 | 107 | 278 | 0.0 | 63 | 164 | 67 | 174 |
| 2865 | 5.2 | 68 | 176 | 2.3 | 45 | 116 | 0.0 | 49 | 128 | 0.0 | 54 | 139 | 0.0 | 80 | 208 | 0.0 | 107 | 278 | 0.0 | 63 | 164 | 67 | 174 |
| 2829 | 5.2 | 68 | 176 | 2.4 | 45 | 116 | 0.0 | 49 | 128 | 0.0 | 54 | 139 | 0.0 | 80 | 208 | 0.0 | 107 | 278 | 0.0 | 63 | 164 | 67 | 174 |
| 2759 | 5.3 | 67 | 176 | 2.4 | 45 | 118 | 0.0 | 49 | 130 | 0.0 | 54 | 142 | 0.0 | 80 | 212 | 0.0 | 107 | 283 | 0.0 | 63 | 167 | 67 | 177 |
| 2692 | 5.4 | 66 | 176 | 2.4 | 45 | 120 | 0.0 | 49 | 132 | 0.0 | 54 | 144 | 0.0 | 80 | 216 | 0.0 | 107 | 288 | 0.0 | 63 | 170 | 67 | 180 |
| 2627 | 5.5 | 64 | 176 | 2.4 | 45 | 123 | 0.0 | 49 | 135 | 0.0 | 54 | 147 | 0.0 | 80 | 220 | 0.0 | 107 | 294 | 0.0 | 63 | 173 | 67 | 184 |
| 2565 | 5.6 | 63 | 176 | 2.4 | 45 | 125 | 0.0 | 49 | 137 | 0.0 | 54 | 150 | 0.0 | 80 | 224 | 0.0 | 107 | 299 | 0.0 | 63 | 176 | 67 | 187 |
| 2504 | 5.7 | 62 | 176 | 2.4 | 45 | 127 | 0.0 | 49 | 140 | 0.0 | 54 | 152 | 0.0 | 80 | 228 | 0.0 | 107 | 304 | 0.0 | 63 | 179 | 67 | 190 |
| 2445 | 5.8 | 61 | 176 | 2.5 | 45 | 129 | 0.0 | 49 | 142 | 0.0 | 54 | 155 | 0.0 | 80 | 232 | 0.0 | 107 | 310 | 0.0 | 63 | 182 | 67 | 194 |
| 2387 | 5.9 | 60 | 176 | 2.5 | 45 | 132 | 0.0 | 49 | 145 | 0.0 | 54 | 158 | 0.0 | 80 | 236 | 0.0 | 107 | 315 | 0.0 | 63 | 186 | 67 | 197 |
| 2332 | 6.0 | 59 | 176 | 2.5 | 45 | 134 | 0.0 | 49 | 147 | 0.0 | 54 | 160 | 0.0 | 80 | 240 | 0.0 | 107 | 320 | 0.0 | 63 | 189 | 67 | 200 |
| 2277 | 6.1 | 58 | 176 | 2.5 | 45 | 136 | 0.0 | 49 | 150 | 0.0 | 54 | 163 | 0.0 | 80 | 244 | 0.0 | 107 | 326 | 0.0 | 63 | 192 | 67 | 204 |
| 2225 | 6.2 | 57 | 176 | 2.5 | 45 | 138 | 0.0 | 49 | 152 | 0.0 | 54 | 166 | 0.0 | 80 | 248 | 0.0 | 107 | 331 | 0.0 | 63 | 195 | 67 | 207 |
| 2173 | 6.3 | 56 | 176 | 2.6 | 45 | 140 | 0.0 | 49 | 154 | 0.0 | 54 | 168 | 0.0 | 80 | 252 | 0.0 | 107 | 336 | 0.0 | 63 | 198 | 67 | 210 |
| 2122 | 6.4 | 55 | 176 | 2.6 | 45 | 143 | 0.0 | 49 | 157 | 0.0 | 54 | 171 | 0.0 | 80 | 256 | 0.0 | 107 | 342 | 0.0 | 63 | 201 | 67 | 214 |
| 2072 | 6.5 | 55 | 176 | 2.6 | 45 | 145 | 0.0 | 49 | 159 | 0.0 | 54 | 174 | 0.0 | 80 | 260 | 0.0 | 107 | 347 | 0.0 | 63 | 204 | 67 | 217 |
| 2022 | 6.6 | 54 | 176 | 2.6 | 45 | 147 | 0.0 | 49 | 162 | 0.0 | 54 | 176 | 0.0 | 80 | 264 | 0.0 | 107 | 352 | 0.0 | 63 | 208 | 67 | 220 |
| 1974 | 6.7 | 53 | 176 | 2.6 | 45 | 149 | 0.0 | 49 | 164 | 0.0 | 54 | 179 | 0.0 | 80 | 268 | 0.0 | 107 | 358 | 0.0 | 63 | 211 | 67 | 224 |
| 1925 | 6.8 | 52 | 176 | 2.7 | 45 | 152 | 0.0 | 49 | 167 | 0.0 | 54 | 182 | 0.0 | 80 | 272 | 0.0 | 107 | 363 | 0.0 | 63 | 214 | 67 | 227 |
| 1877 | 6.9 | 52 | 176 | 2.7 | 45 | 154 | 0.0 | 49 | 169 | 0.0 | 54 | 184 | 0.0 | 80 | 276 | 0.0 | 107 | 368 | 0.0 | 63 | 217 | 67 | 230 |
| 1830 | 7.0 | 51 | 176 | 2.7 | 45 | 156 | 0.0 | 49 | 172 | 0.0 | 54 | 187 | 0.0 | 80 | 280 | 0.0 | 107 | 374 | 0.0 | 63 | 220 | 67 | 234 |
| 1782 | 7.1 | 50 | 176 | 2.7 | 45 | 158 | 0.0 | 49 | 174 | 0.0 | 54 | 190 | 0.0 | 80 | 284 | 0.0 | 107 | 379 | 0.0 | 63 | 223 | 67 | 237 |
| 1735 | 7.2 | 49 | 176 | 2.8 | 45 | 160 | 0.0 | 49 | 176 | 0.0 | 54 | 192 | 0.0 | 80 | 288 | 0.0 | 107 | 384 | 0.0 | 63 | 226 | 67 | 240 |
| 1687 | 7.3 | 49 | 176 | 2.8 | 45 | 163 | 0.0 | 49 | 179 | 0.0 | 54 | 195 | 0.0 | 80 | 292 | 0.0 | 107 | 390 | 0.0 | 63 | 230 | 67 | 244 |
| 1638 | 7.4 | 48 | 176 | 2.8 | 45 | 165 | 0.0 | 49 | 181 | 0.0 | 54 | 198 | 0.0 | 80 | 296 | 0.0 | 107 | 395 | 0.0 | 63 | 233 | 67 | 247 |
| 1588 | 7.5 | 47 | 176 | 2.9 | 45 | 167 | 0.0 | 49 | 184 | 0.0 | 54 | 200 | 0.0 | 80 | 300 | 0.0 | 107 | 400 | 0.0 | 63 | 236 | 67 | 250 |
| 1537 | 7.6 | 47 | 177 | 2.9 | 45 | 169 | 0.0 | 49 | 186 | 0.0 | 54 | 203 | 0.0 | 80 | 304 | 0.0 | 107 | 406 | 0.0 | 63 | 239 | 67 | 254 |
| 1482 | 7.7 | 47 | 179 | 2.9 | 45 | 172 | 0.0 | 49 | 189 | 0.0 | 54 | 206 | 0.0 | 80 | 308 | 0.0 | 107 | 411 | 0.0 | 63 | 242 | 67 | 257 |
| 1422 | 7.8 | 47 | 182 | 3.0 | 49 | 191 | 2.0 | 49 | 191 | 0.0 | 54 | 208 | 0.0 | 80 | 312 | 0.0 | 107 | 416 | 0.0 | 63 | 245 | 67 | 260 |
| 1350 | 7.9 | 47 | 185 | 3.0 | 49 | 194 | 2.0 | 49 | 194 | 0.0 | 54 | 211 | 0.0 | 80 | 316 | 0.0 | 107 | 422 | 0.0 | 63 | 248 | 67 | 264 |
| 1204 | 8.0 | 48 | 189 | 3.2 | 50 | 198 | 2.2 | 49 | 196 | 0.0 | 54 | 214 | 0.0 | 80 | 320 | 0.0 | 107 | 427 | 0.0 | 63 | 251 | 67 | 267 |

NOTE:
Lt, Lr & w VALUES IN FEET. LISTED RADIUS IS THE MINIMUM ALLOWABLE RADIUS FOR THE CORRESPONDING E, Lt, Lr, AND w VALUES.

SPECIFICATION REFERENCE