802.44

REV. 3/03

TC-5.01

# TRANSITION CURVES - RURAL
# 70 MPH DESIGN SPEED

VIRGINIA DEPARTMENT OF TRANSPORTATION

## DESIGN FACTORS FOR A DESIGN SPEED OF 70 MPH (RURAL) USING E- 8% MAX.

| DESIGN VELOCITY -70 | | 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(%) | CR | LS | w | CR | LS | w | CR | LS | w | CR | LS | w | CR | LS | w | CR | LS | w | CR | LS | CR | LS |
| 17000 | 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 |
| 10731 | 2.0 | 45 | 45 | 0.0 | 50 | 50 | 0.0 | 55 | 55 | 0.0 | 60 | 60 | 0.0 | 90 | 90 | 0.0 | 120 | 120 | 0.0 | 72 | 72 | 75 | 75 |
| 10194 | 2.1 | 45 | 48 | 0.0 | 50 | 53 | 0.0 | 55 | 58 | 0.0 | 60 | 63 | 0.0 | 90 | 95 | 0.0 | 120 | 126 | 0.0 | 72 | 75 | 75 | 79 |
| 9706 | 2.2 | 45 | 50 | 0.0 | 50 | 55 | 0.0 | 55 | 61 | 0.0 | 60 | 66 | 0.0 | 90 | 99 | 0.0 | 120 | 132 | 0.0 | 72 | 79 | 75 | 83 |
| 9260 | 2.3 | 45 | 52 | 0.0 | 50 | 58 | 0.0 | 55 | 64 | 0.0 | 60 | 69 | 0.0 | 90 | 104 | 0.0 | 120 | 138 | 0.0 | 72 | 82 | 75 | 87 |
| 8851 | 2.4 | 45 | 54 | 0.0 | 50 | 60 | 0.0 | 55 | 66 | 0.0 | 60 | 72 | 0.0 | 90 | 108 | 0.0 | 120 | 144 | 0.0 | 72 | 86 | 75 | 90 |
| 8474 | 2.5 | 45 | 57 | 0.0 | 50 | 63 | 0.0 | 55 | 69 | 0.0 | 60 | 75 | 0.0 | 90 | 113 | 0.0 | 120 | 150 | 0.0 | 72 | 89 | 75 | 94 |
| 8127 | 2.6 | 45 | 59 | 0.0 | 50 | 65 | 0.0 | 55 | 72 | 0.0 | 60 | 78 | 0.0 | 90 | 117 | 0.0 | 120 | 156 | 0.0 | 72 | 93 | 75 | 98 |
| 7805 | 2.7 | 45 | 61 | 0.0 | 50 | 68 | 0.0 | 55 | 75 | 0.0 | 60 | 81 | 0.0 | 90 | 122 | 0.0 | 120 | 162 | 0.0 | 72 | 96 | 75 | 102 |
| 7506 | 2.8 | 45 | 63 | 0.0 | 50 | 70 | 0.0 | 55 | 77 | 0.0 | 60 | 84 | 0.0 | 90 | 126 | 0.0 | 120 | 168 | 0.0 | 72 | 100 | 75 | 105 |
| 7227 | 2.9 | 45 | 66 | 0.0 | 50 | 73 | 0.0 | 55 | 80 | 0.0 | 60 | 87 | 0.0 | 90 | 131 | 0.0 | 120 | 174 | 0.0 | 72 | 104 | 75 | 109 |
| 6967 | 3.0 | 45 | 68 | 0.0 | 50 | 75 | 0.0 | 55 | 83 | 0.0 | 60 | 90 | 0.0 | 90 | 135 | 0.0 | 120 | 180 | 0.0 | 72 | 107 | 75 | 113 |
| 6724 | 3.1 | 45 | 70 | 0.0 | 50 | 78 | 0.0 | 55 | 86 | 0.0 | 60 | 93 | 0.0 | 90 | 140 | 0.0 | 120 | 186 | 0.0 | 72 | 111 | 75 | 117 |
| 6495 | 3.2 | 45 | 72 | 0.0 | 50 | 80 | 0.0 | 55 | 88 | 0.0 | 60 | 96 | 0.0 | 90 | 144 | 0.0 | 120 | 192 | 0.0 | 72 | 114 | 75 | 120 |
| 6281 | 3.3 | 45 | 75 | 0.0 | 50 | 83 | 0.0 | 55 | 91 | 0.0 | 60 | 99 | 0.0 | 90 | 149 | 0.0 | 120 | 198 | 0.0 | 72 | 118 | 75 | 124 |
| 6079 | 3.4 | 45 | 77 | 0.0 | 50 | 85 | 0.0 | 55 | 94 | 0.0 | 60 | 102 | 0.0 | 90 | 153 | 0.0 | 120 | 204 | 0.0 | 72 | 121 | 75 | 128 |
| 5888 | 3.5 | 45 | 79 | 0.0 | 50 | 88 | 0.0 | 55 | 97 | 0.0 | 60 | 105 | 0.0 | 90 | 158 | 0.0 | 120 | 210 | 0.0 | 72 | 125 | 75 | 132 |
| 5708 | 3.6 | 45 | 81 | 0.0 | 50 | 90 | 0.0 | 55 | 99 | 0.0 | 60 | 108 | 0.0 | 90 | 162 | 0.0 | 120 | 216 | 0.0 | 72 | 128 | 75 | 135 |
| 5537 | 3.7 | 45 | 84 | 0.0 | 50 | 93 | 0.0 | 55 | 102 | 0.0 | 60 | 111 | 0.0 | 90 | 167 | 0.0 | 120 | 222 | 0.0 | 72 | 132 | 75 | 139 |
| 5376 | 3.8 | 45 | 86 | 0.0 | 50 | 95 | 0.0 | 55 | 105 | 0.0 | 60 | 114 | 0.0 | 90 | 171 | 0.0 | 120 | 228 | 0.0 | 72 | 136 | 75 | 143 |
| 5222 | 3.9 | 45 | 88 | 0.0 | 50 | 98 | 0.0 | 55 | 108 | 0.0 | 60 | 117 | 0.0 | 90 | 176 | 0.0 | 120 | 234 | 0.0 | 72 | 139 | 75 | 147 |
| 5076 | 4.0 | 45 | 90 | 0.0 | 50 | 100 | 0.0 | 55 | 110 | 0.0 | 60 | 120 | 0.0 | 90 | 180 | 0.0 | 120 | 240 | 0.0 | 72 | 143 | 75 | 150 |
| 4937 | 4.1 | 45 | 93 | 0.0 | 50 | 103 | 0.0 | 55 | 113 | 0.0 | 60 | 123 | 0.0 | 90 | 185 | 0.0 | 120 | 246 | 0.0 | 72 | 146 | 75 | 154 |
| 4805 | 4.2 | 45 | 95 | 0.0 | 50 | 105 | 0.0 | 55 | 116 | 0.0 | 60 | 126 | 0.0 | 90 | 189 | 0.0 | 120 | 252 | 0.0 | 72 | 150 | 75 | 158 |
| 4679 | 4.3 | 45 | 97 | 0.0 | 50 | 108 | 0.0 | 55 | 119 | 0.0 | 60 | 129 | 0.0 | 90 | 194 | 0.0 | 120 | 258 | 0.0 | 72 | 153 | 75 | 162 |
| 4558 | 4.4 | 45 | 99 | 0.0 | 50 | 110 | 0.0 | 55 | 121 | 0.0 | 60 | 132 | 0.0 | 90 | 198 | 0.0 | 120 | 264 | 0.0 | 72 | 157 | 75 | 165 |
| 4443 | 4.5 | 45 | 102 | 0.0 | 50 | 113 | 0.0 | 55 | 124 | 0.0 | 60 | 135 | 0.0 | 90 | 203 | 0.0 | 120 | 270 | 0.0 | 72 | 160 | 75 | 169 |
| 4332 | 4.6 | 45 | 104 | 0.0 | 50 | 115 | 0.0 | 55 | 127 | 0.0 | 60 | 138 | 0.0 | 90 | 207 | 0.0 | 120 | 276 | 0.0 | 72 | 164 | 75 | 173 |
| 4226 | 4.7 | 45 | 106 | 0.0 | 50 | 118 | 0.0 | 55 | 130 | 0.0 | 60 | 141 | 0.0 | 90 | 212 | 0.0 | 120 | 282 | 0.0 | 72 | 168 | 75 | 177 |
| 4125 | 4.8 | 45 | 108 | 0.0 | 50 | 120 | 0.0 | 55 | 132 | 0.0 | 60 | 144 | 0.0 | 90 | 216 | 0.0 | 120 | 288 | 0.0 | 72 | 171 | 75 | 180 |
| 4027 | 4.9 | 45 | 111 | 0.0 | 50 | 123 | 0.0 | 55 | 135 | 0.0 | 60 | 147 | 0.0 | 90 | 221 | 0.0 | 120 | 294 | 0.0 | 72 | 175 | 75 | 184 |
| 3933 | 5.0 | 45 | 113 | 0.0 | 50 | 125 | 0.0 | 55 | 138 | 0.0 | 60 | 150 | 0.0 | 90 | 225 | 0.0 | 120 | 300 | 0.0 | 72 | 178 | 75 | 188 |
| 3843 | 5.1 | 45 | 115 | 0.0 | 50 | 128 | 0.0 | 55 | 141 | 0.0 | 60 | 153 | 0.0 | 90 | 230 | 0.0 | 120 | 306 | 0.0 | 72 | 182 | 75 | 192 |
| 3756 | 5.2 | 45 | 117 | 0.0 | 50 | 130 | 0.0 | 55 | 143 | 0.0 | 60 | 156 | 0.0 | 90 | 234 | 0.0 | 120 | 312 | 0.0 | 72 | 185 | 75 | 195 |
| 3673 | 5.3 | 45 | 120 | 0.0 | 50 | 133 | 0.0 | 55 | 146 | 0.0 | 60 | 159 | 0.0 | 90 | 239 | 0.0 | 120 | 318 | 0.0 | 72 | 189 | 75 | 199 |
| 3592 | 5.4 | 45 | 122 | 0.0 | 50 | 135 | 0.0 | 55 | 149 | 0.0 | 60 | 162 | 0.0 | 90 | 243 | 0.0 | 120 | 324 | 0.0 | 72 | 192 | 75 | 203 |
| 3514 | 5.5 | 45 | 124 | 0.0 | 50 | 138 | 0.0 | 55 | 152 | 0.0 | 60 | 165 | 0.0 | 90 | 248 | 0.0 | 120 | 330 | 0.0 | 72 | 196 | 75 | 207 |
| 3439 | 5.6 | 45 | 126 | 0.0 | 50 | 140 | 0.0 | 55 | 154 | 0.0 | 60 | 168 | 0.0 | 90 | 252 | 0.0 | 120 | 336 | 0.0 | 72 | 200 | 75 | 210 |
| 3366 | 5.7 | 45 | 129 | 0.0 | 50 | 143 | 0.0 | 55 | 157 | 0.0 | 60 | 171 | 0.0 | 90 | 257 | 0.0 | 120 | 342 | 0.0 | 72 | 203 | 75 | 214 |
| 3296 | 5.8 | 45 | 131 | 0.0 | 50 | 145 | 0.0 | 55 | 160 | 0.0 | 60 | 174 | 0.0 | 90 | 261 | 0.0 | 120 | 348 | 0.0 | 72 | 207 | 75 | 218 |
| 3228 | 5.9 | 45 | 133 | 0.0 | 50 | 148 | 0.0 | 55 | 163 | 0.0 | 60 | 177 | 0.0 | 90 | 266 | 0.0 | 120 | 354 | 0.0 | 72 | 210 | 75 | 222 |
| 3163 | 6.0 | 45 | 135 | 0.0 | 50 | 150 | 0.0 | 55 | 165 | 0.0 | 60 | 180 | 0.0 | 90 | 270 | 0.0 | 120 | 360 | 0.0 | 72 | 214 | 75 | 225 |
| 3099 | 6.1 | 45 | 138 | 0.0 | 50 | 153 | 0.0 | 55 | 168 | 0.0 | 60 | 183 | 0.0 | 90 | 275 | 0.0 | 120 | 366 | 0.0 | 72 | 217 | 75 | 229 |
| 3037 | 6.2 | 45 | 140 | 0.0 | 50 | 155 | 0.0 | 55 | 171 | 0.0 | 60 | 186 | 0.0 | 90 | 279 | 0.0 | 120 | 372 | 0.0 | 72 | 221 | 75 | 233 |
| 2977 | 6.3 | 45 | 142 | 0.0 | 50 | 158 | 0.0 | 55 | 174 | 0.0 | 60 | 189 | 0.0 | 90 | 284 | 0.0 | 120 | 378 | 0.0 | 72 | 224 | 75 | 237 |
| 2919 | 6.4 | 45 | 144 | 0.0 | 50 | 160 | 0.0 | 55 | 176 | 0.0 | 60 | 192 | 0.0 | 90 | 288 | 0.0 | 120 | 384 | 0.0 | 72 | 228 | 75 | 240 |
| 2866 | 6.5 | 45 | 147 | 0.0 | 50 | 163 | 0.0 | 55 | 179 | 0.0 | 60 | 195 | 0.0 | 90 | 293 | 0.0 | 120 | 390 | 0.0 | 72 | 232 | 75 | 244 |
| 2865 | 6.5 | 64 | 205 | 2.5 | 50 | 163 | 0.0 | 55 | 179 | 0.0 | 60 | 195 | 0.0 | 90 | 293 | 0.0 | 120 | 390 | 0.0 | 72 | 232 | 75 | 244 |
| 2862 | 6.5 | 64 | 205 | 2.5 | 50 | 163 | 0.0 | 55 | 179 | 0.0 | 60 | 195 | 0.0 | 90 | 293 | 0.0 | 120 | 390 | 0.0 | 72 | 232 | 75 | 244 |
| 2807 | 6.6 | 63 | 205 | 2.5 | 50 | 165 | 0.0 | 55 | 182 | 0.0 | 60 | 198 | 0.0 | 90 | 297 | 0.0 | 120 | 396 | 0.0 | 72 | 235 | 75 | 248 |
| 2753 | 6.7 | 62 | 205 | 2.6 | 50 | 168 | 0.0 | 55 | 185 | 0.0 | 60 | 201 | 0.0 | 90 | 302 | 0.0 | 120 | 402 | 0.0 | 72 | 239 | 75 | 252 |
| 2699 | 6.8 | 61 | 205 | 2.6 | 50 | 170 | 0.0 | 55 | 187 | 0.0 | 60 | 204 | 0.0 | 90 | 306 | 0.0 | 120 | 408 | 0.0 | 72 | 242 | 75 | 255 |
| 2645 | 6.9 | 60 | 205 | 2.6 | 50 | 173 | 0.0 | 55 | 190 | 0.0 | 60 | 207 | 0.0 | 90 | 311 | 0.0 | 120 | 414 | 0.0 | 72 | 246 | 75 | 259 |
| 2590 | 7.0 | 59 | 205 | 2.6 | 50 | 175 | 0.0 | 55 | 193 | 0.0 | 60 | 210 | 0.0 | 90 | 315 | 0.0 | 120 | 420 | 0.0 | 72 | 249 | 75 | 263 |
| 2535 | 7.1 | 58 | 205 | 2.6 | 50 | 178 | 0.0 | 55 | 196 | 0.0 | 60 | 213 | 0.0 | 90 | 320 | 0.0 | 120 | 426 | 0.0 | 72 | 253 | 75 | 267 |
| 2480 | 7.2 | 57 | 205 | 2.7 | 50 | 180 | 0.0 | 55 | 198 | 0.0 | 60 | 216 | 0.0 | 90 | 324 | 0.0 | 120 | 432 | 0.0 | 72 | 256 | 75 | 270 |
| 2423 | 7.3 | 57 | 205 | 2.7 | 50 | 183 | 0.0 | 55 | 201 | 0.0 | 60 | 219 | 0.0 | 90 | 329 | 0.0 | 120 | 438 | 0.0 | 72 | 260 | 75 | 274 |
| 2365 | 7.4 | 56 | 205 | 2.7 | 50 | 185 | 0.0 | 55 | 204 | 0.0 | 60 | 222 | 0.0 | 90 | 333 | 0.0 | 120 | 444 | 0.0 | 72 | 264 | 75 | 278 |
| 2305 | 7.5 | 55 | 205 | 2.7 | 50 | 188 | 0.0 | 55 | 207 | 0.0 | 60 | 225 | 0.0 | 90 | 338 | 0.0 | 120 | 450 | 0.0 | 72 | 267 | 75 | 282 |
| 2242 | 7.6 | 54 | 205 | 2.7 | 50 | 190 | 0.0 | 55 | 209 | 0.0 | 60 | 228 | 0.0 | 90 | 342 | 0.0 | 120 | 456 | 0.0 | 72 | 271 | 75 | 285 |
| 2175 | 7.7 | 54 | 205 | 2.8 | 50 | 193 | 0.0 | 55 | 212 | 0.0 | 60 | 231 | 0.0 | 90 | 347 | 0.0 | 120 | 462 | 0.0 | 72 | 274 | 75 | 289 |
| 2100 | 7.8 | 53 | 205 | 2.8 | 50 | 195 | 0.0 | 55 | 215 | 0.0 | 60 | 234 | 0.0 | 90 | 351 | 0.0 | 120 | 468 | 0.0 | 72 | 278 | 75 | 293 |
| 2010 | 7.9 | 53 | 207 | 2.9 | 50 | 198 | 0.0 | 55 | 218 | 0.0 | 60 | 237 | 0.0 | 90 | 356 | 0.0 | 120 | 474 | 0.0 | 72 | 281 | 75 | 297 |
| 1821 | 8.0 | 53 | 210 | 3.0 | 55 | 220 | 2.0 | 55 | 220 | 0.0 | 60 | 240 | 0.0 | 90 | 360 | 0.0 | 120 | 480 | 0.0 | 72 | 285 | 75 | 300 |

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

SPECIFICATION REFERENCE