PROFILES (left)

Straight Line Superelevation Transition L (Varies, 100' Min.) Outside Half Of Pavement From Normal Crown Slope To Superelevation Slope

Normal Crown | 0.8 L (Tangent) | 0.2 L (Curve) | Full Superelevation

A | B | C

Outside Edge Of Pavement

Centerline & Profile Grade

Pavement Edges

Pavement Rotated About ℄

Inside Edge Of Pavement

Hold Normal Cross Slope On Inside Half Of Pavement

Straight Line Transition On Inside Edge Of Pavt.

PROFILES

SLOPE RATIOS FOR SUPERELEVATION TRANSITIONS

SECTION	DESIGN SPEED, MPH		
	45-50	55-60	65-70
	1 : d		
2 Lane & 4 Lane	1:200	1:225	1:250
6 Lane	1:160	1:180	1:200
8 Lane	1:150	1:170	1:190

The length of superelevation transition is to be determined by the relative slope between the travel way edge of pavement and the profile grade, except that the minimum length of transition shall be 100 ft.

* Short Vertical Curves Are To Be Used On Construction To Avoid Angular Breaks In Edge Profiles

PROFILES (right)

Straight Line Superelevation Transition L₁ (Varies, 100' Min.) From Normal Pavement To Superelevation Slope

Normal Pavement Slope | 0.8 L₁ (Tangent) | 0.2 L₁ (Curve) | Full Superelevation

A | B — Outside Edge Of Pavement, Outer Roadway

Inside Pavement Edges & Profile Grade

Superelevated Pav't., Inside Edge Of Pavement, Both Outer Roadway — Roadways & Profile Grade

Outside Pavement Edges

Superelevated Pav't., Inner Roadway — Outside Edge Of Pavement, Inner Roadway

0.8 L₂ (Tangent) | 0.2 L₂ (Curve)

Straight Line Superelevation Transition L₂ (Varies, 100' Min.)

Normal Pavement Slope | Full Superelevation

PROFILES

Sections (left)

NORMAL CROWN SECTION AA — Pavement Width, Profile Grade Point, W/2 ℄ W/2, 0.06 | 0.06

REVERSE CROWN SECTION BB — Pavement Width, Profile Grade Point, W/2 ℄ W/2

FULLY SUPERELEVATED SECTION CC — Pavement Width, Profile Grade Point, W/2 ℄ W/2, See SHOULDER CONSTRUCTION WITH SUPERELEVATION, 0.06 (Or Steeper To Match Pavt. Slope)
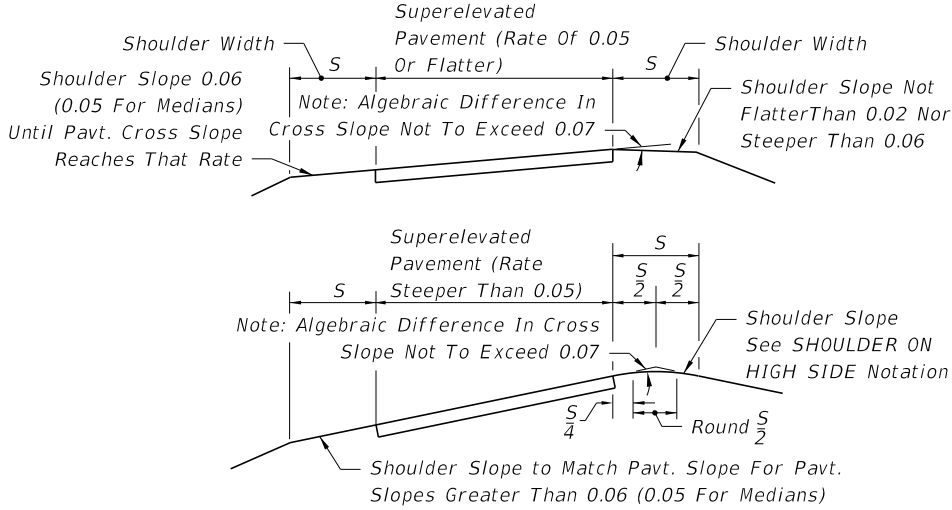
2-LANE, 4-LANE OR 6-LANE PAVEMENT, NO MEDIAN

THESE TRANSITION DETAILS ARE TO APPLY IN ALL CASES, EXCEPT UNDER THE FOLLOWING CONDITIONS:
1. Curves of insufficient length.
2. Insufficient tangent length between curves.
3. Deficient transition distance between a curve and other control point(s).
4. At PCC's or PRC's (Runoff rates are applicable).

Transitions for these exceptions are to be as detailed in the plans.

SUPERELEVATION TRANSITIONS

Sections (right)

NORMAL SECTION SECTION AA — Profile Grade Points, Pavement Width, Median, Pavement Width, 0.05 0.05, 0.06 | 0.06, Slope As Indicated On Plans

FULLY SUPERELEVATED SECTION BB — See SHOULDER CONSTRUCTION WITH SUPERELEVATION, Profile Grade Points, 0.06 (Or Steeper To Match Pavt. Slope), 0.05 (Or Steeper To Match Pavt. Slope), See SHOULDER CONSTRUCTION WITH SUPERELEVATION

4-LANE OR 6-LANE PAVEMENT WITH MEDIAN

Shoulder notes (left column)

SHOULDER ON HIGH SIDE: A shoulder slope of 0.06 downward from the edge of travel way will be maintained until a 0.07 break in slope at the pavement edge is reached due to superelevation of the pavement. As the pavement superelevation increases, the 0.07 break in slope will be maintained and the shoulder flattened until the shoulder slope reaches the minimum of 0.02 downward from the edge of travel way. Any further increase in pavement superelevation will necessitate sloping the inside half of the shoulder toward the travel way and the outer half outward, both at 0.02 for superelevations 0.06–0.09 and both at 0.03 for superelevation 0.10. For shoulders with paved widths 5 feet o less see Special Shoulder Break Over Details on Sheet 2 of 2.
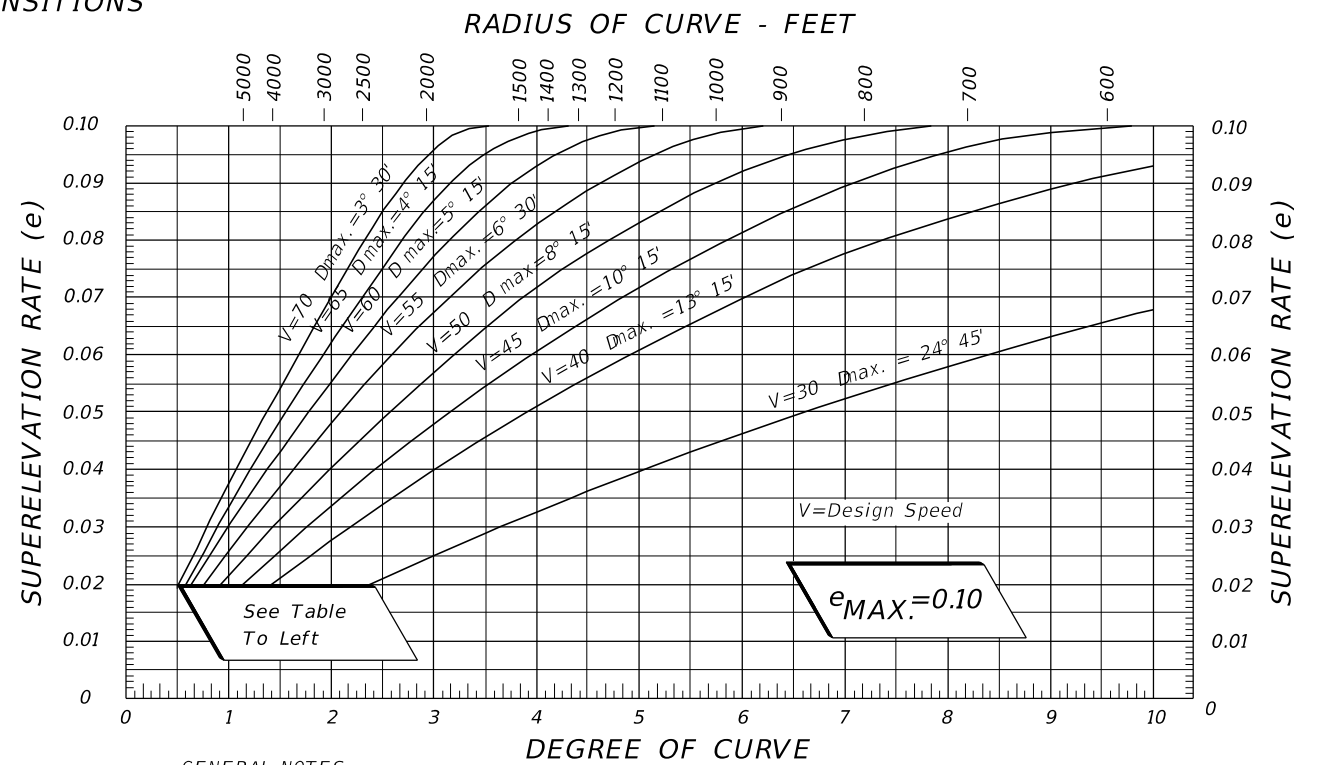
SHOULDER ON LOW SIDE: Maintain 0.06 drop across inside shoulder until pavement cross slope reaches 0.06. For pavement cross slopes greater than 0.06, shoulder to have same slope as pavement.

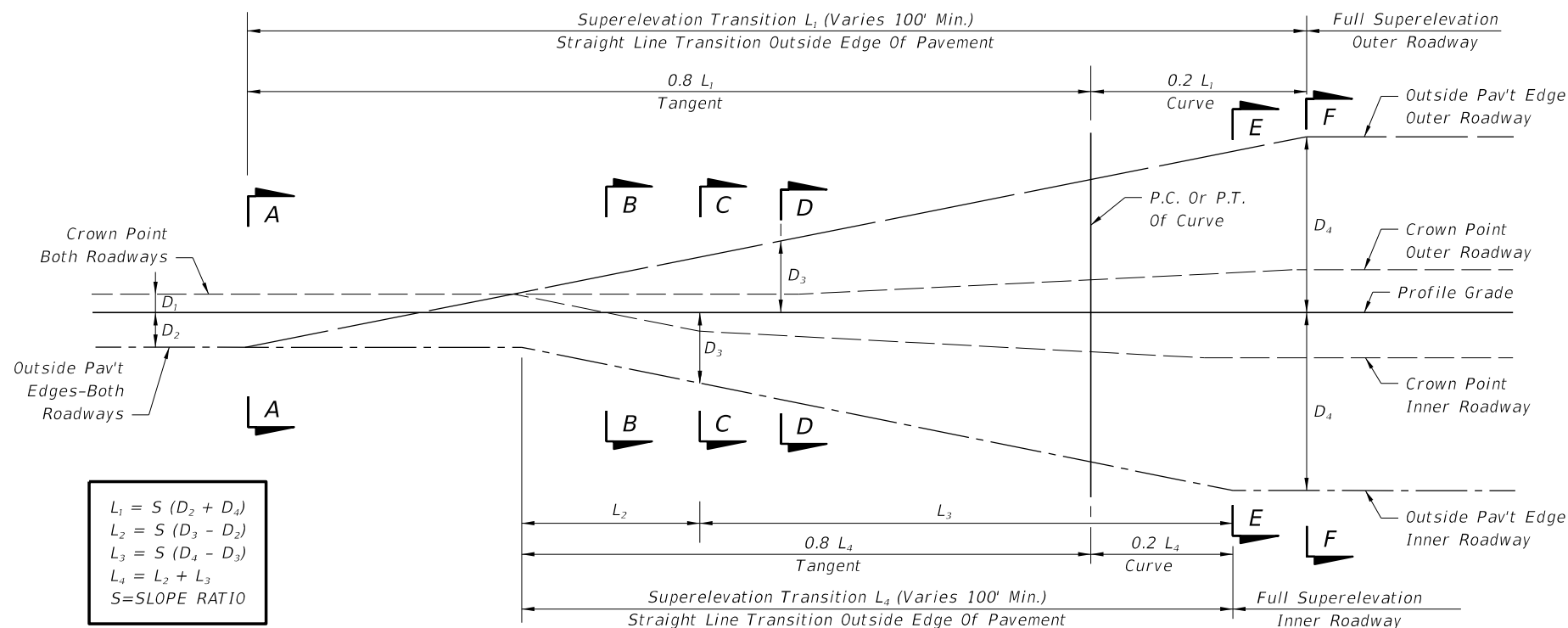These slopes are the same as those shown pictorially on Sheet 2 of 2.

NOTE:
These details apply to both paved and grassed shoulders. For median shoulders use 0.05 in lieu of 0.06.

DEGREE OF CURVE table

DEGREE OF CURVE (D)	DESIGN SPEED, V MPH						
	30	40	45/50	55	60	65	70
0°15'	NC	NC	NC	NC	NC	NC	NC
0°30'	NC	NC	NC	NC	NC	RC	RC
0°45'	NC	NC	RC	RC	0.023	0.025	0.028
1°00'	NC	NC	0.021	0.025	See Table To Right		
1°30'	NC	0.021					
2°00'	RC						

SHOULDER CONSTRUCTION WITH SUPERELEVATION details

Shoulder Width | S | Superelevated Pavement (Rate Of 0.05 Or Flatter) | Shoulder Width | S

Shoulder Slope 0.06 (0.05 For Medians) Until Pavt. Cross Slope Reaches That Rate

Note: Algebraic Difference In Cross Slope Not To Exceed 0.07

Shoulder Slope Not Flatter Than 0.02 Nor Steeper Than 0.06

S | Superelevated Pavement (Rate Steeper Than 0.05) | S/2 S/2

Note: Algebraic Difference In Cross Slope Not To Exceed 0.07

Shoulder Slope See SHOULDER ON HIGH SIDE Notation

S/4 | Round S/2

Shoulder Slope to Match Pavt. Slope For Pavt. Slopes Greater Than 0.06 (0.05 For Medians)

SHOULDER CONSTRUCTION WITH SUPERELEVATION

Superelevation chart

RADIUS OF CURVE - FEET

Radius values: 5000 4000 3000 2500 2000 1500 1400 1300 1200 1100 1000 900 800 700 600

SUPERELEVATION RATE (e): 0.10, 0.09, 0.08, 0.07, 0.06, 0.05, 0.04, 0.03, 0.02, 0.01, 0

Curve labels: V=70 Dmax.=3° 30', V=65 Dmax.=4° 15', V=60 Dmax.=5° 15', V=55 Dmax.=6° 30', V=50 Dmax.=8° 15', V=45 Dmax.=10° 15', V=40 Dmax.=15° 15', V=30 Dmax.=24° 45'

See Table To Left

e_MAX.=0.10

V=Design Speed

DEGREE OF CURVE: 0 1 2 3 4 5 6 7 8 9 10

GENERAL NOTES:
1. For curves in Urban Highways and high speed Urban Streets, see Index 000-511.

DESIGN SUPERELEVATION RATES FOR RURAL HIGHWAYS, URBAN FREEWAYS AND HIGH SPEED URBAN HIGHWAYS
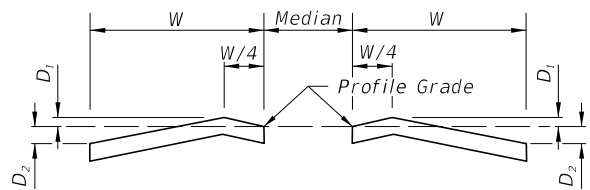
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Superelevation Transition L_1 (Varies 100' Min.)
Straight Line Transition Outside Edge Of Pavement

Full Superelevation
Outer Roadway

0.8 L_1
Tangent

0.2 L_1
Curve

Outside Pav't Edge
Outer Roadway

A   B   C   D   E   F

P.C. Or P.T.
Of Curve

D_4

Crown Point
Both Roadways

Crown Point
Outer Roadway

D_1

Profile Grade

D_2

D_3

D_3

Outside Pav't
Edges–Both
Roadways

A

Crown Point
Inner Roadway

D_4

B   C   D

L_2 L_3

0.8 L_4
Tangent

0.2 L_4
Curve

E   F

Outside Pav't Edge
Inner Roadway

$L_1 = S (D_2 + D_4)$
$L_2 = S (D_3 - D_2)$
$L_3 = S (D_4 - D_3)$
$L_4 = L_2 + L_3$
S=SLOPE RATIO

Superelevation Transition L_4 (Varies 100' Min.)
Straight Line Transition Outside Edge Of Pavement

Full Superelevation
Inner Roadway

W   Median   W
W/4   W/4
D_1 Profile Grade D_1
D_2 D_2

SECTION A-A
NORMAL CROWNED SECTION
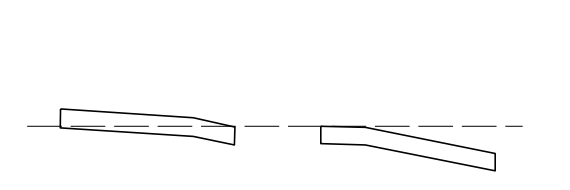
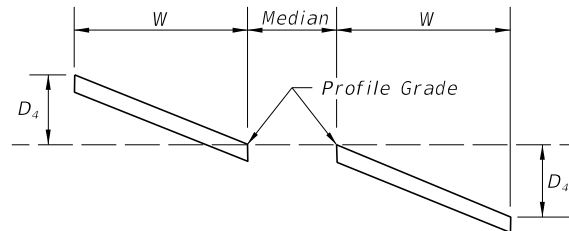SECTION B-B
SUPERELEVATION SECTION LT. & RT.

W
D_3
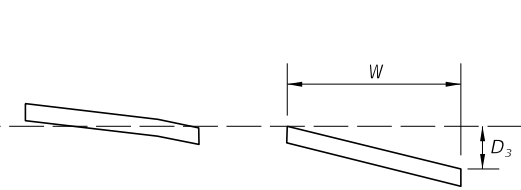
SECTION C-C
SUPERELEVATION SECTION LT.
PLANE INCLINED SECTION RT.

W
D_3
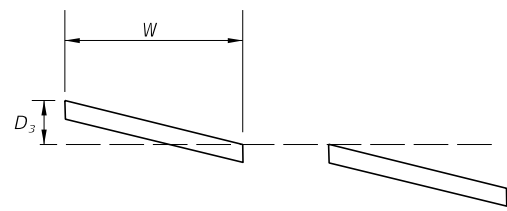
SECTION D-D
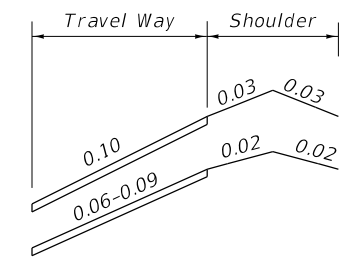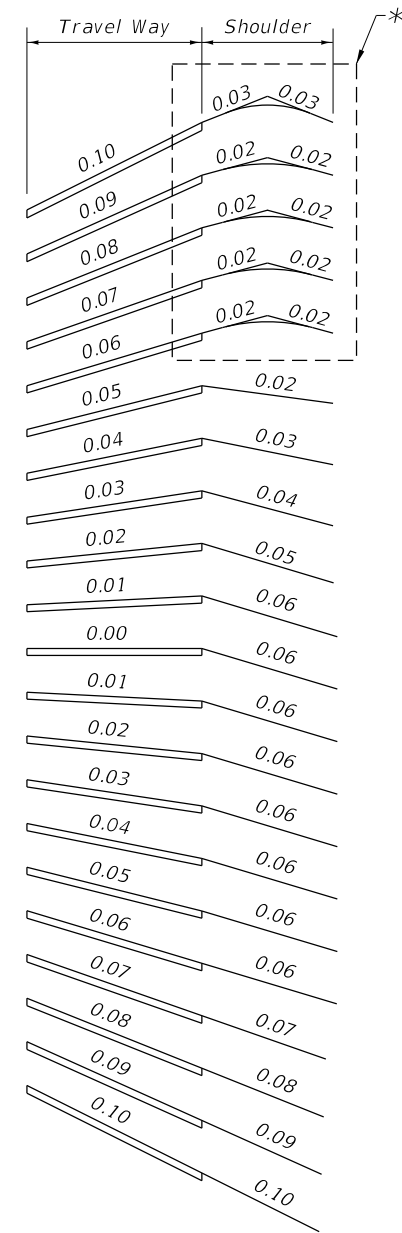PLANE INCLINED SECTION LT.
SUPERELEVATION TRANSITION RT.
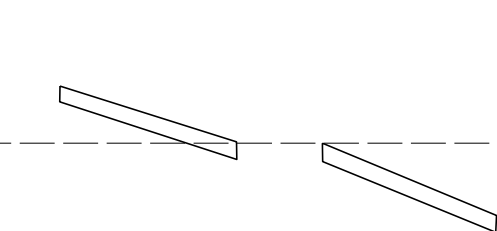
SECTION E-E
SUPERELEVATION TRANSITION LT.
FULL SUPERLEVATION RT.

W   Median   W
Profile Grade
D_4 D_4

SECTION F-F
FULL SUPERELEVATION LT. & RT.

8-LANE PAVEMENT WITH ONE LANE SLOPED TO MEDIAN

Travel Way   Shoulder   *

0.03   0.03
0.10   0.02   0.02
0.09   0.02   0.02
0.08   0.02   0.02
0.07   0.02   0.02
0.06   0.02   0.02
0.05   0.02
0.04   0.03
0.03   0.04
0.02   0.05
0.01   0.06
0.00   0.06
0.01   0.06
0.02   0.06
0.03   0.06
0.04   0.06
0.05   0.06
0.06   0.06
0.07   0.06
0.08   0.07
0.09   0.08
0.10   0.09
0.10

SLOPES OF TRAVELED WAY
AND ABUTTING SHOULDERS

SHOULDER SLOPES ON
SUPERELEVATION SECTIONS

* FOR SHOULDERS WITH PAVED WIDTHS
5 FEET OR LESS SEE SPECIAL
SHOULDER BREAK OVER DETAILS

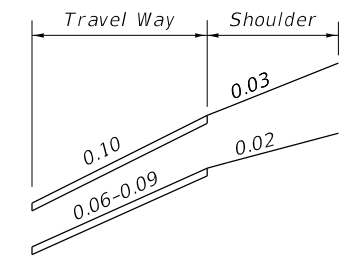Travel Way   Shoulder
0.03   0.03
0.10   0.02   0.02
0.06-0.09

a) 12' AND 10' FULL WIDTH
SHOULDERS WITH 5' OR
LESS PAVED WIDTHS,

b) 8' FULL WIDTH SHOULDERS
WITH 4' OR LESS PAVED
WIDTHS,

Travel Way   Shoulder
5'
0.03   0.03
0.10   0.02   0.02
0.06-0.09
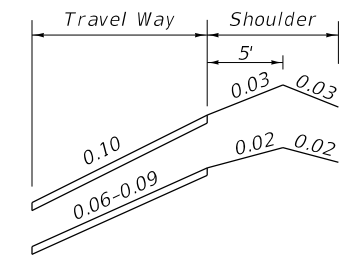
8' FULL WIDTH SHOULDER
WITH 5' PAVED WIDTH

Travel Way   Shoulder
0.03
0.10   0.02
0.06-0.09

6' FULL WIDTH SHOULDER
WITH 5' OR LESS PAVED WIDTH

SPECIAL SHOULDER
BREAK OVER DETAILS