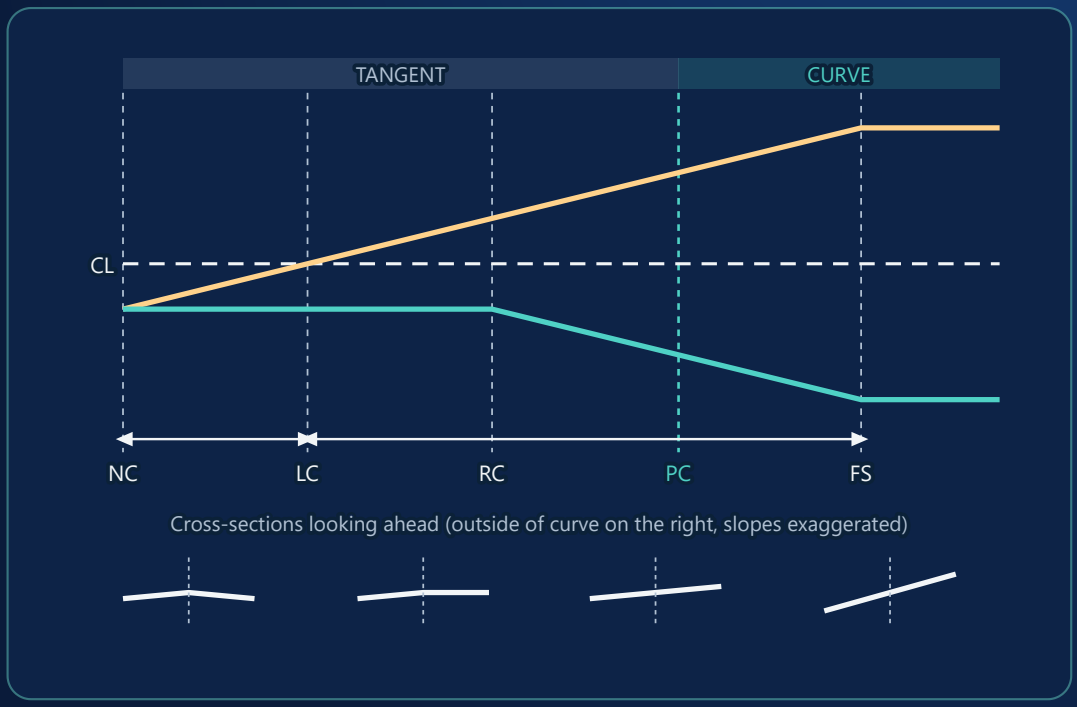
Superelevation Runoff Report

Superelevation rate, runoff and tangent runout lengths (AASHTO Green Book).



Sample Project

Client: Urban City

PREPARED & SUBMITTED BY

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ISSUE

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Superelevation Runoff & Tangent Runout

Design report · AASHTO Green Book, 7th Ed. (2018) §3.3.8 · Generated 11/5/2026 3:17:22 PM

1. Project

Project / road	Sample Project
Prepared by	SP Consultant
Date	11/5/2026

2. Design inputs

Design speed V	80 kph
Design superelevation e_d	6 %
Normal crown cross slope e_NC	2 %
Type of carriageway	Single carriageway
Direction of curve	Left-hand curve (LHC)
Total lanes	2
Lane width w	3.65 m
AASHTO adjustment factor b_w	Applied
Runoff on the tangent	67 %
Chainage of PC	1000.0 m

3. Calculation

Lanes rotated n1	1
Axis of rotation	Centreline
Width for SE, w × n1	3.65 m
Adjustment factor b_w	1.00
Effective width W_e = w × n1 × b_w	3.65 m
Maximum relative gradient Δ	0.50 % (edge rise 1 : 200)
L_r = W_e × e_d / Δ	3.65 × 6 / 0.50 = 43.8 m
Runoff on tangent / on curve	29.3 m / 14.5 m

4. Results

L_r = **43.8 m** · L_t = **14.6 m** · Total = **58.4 m**

Superelevation runoff L_r	43.8 m
Tangent runout L_t	14.6 m
Total transition L_t + L_r	58.4 m
2-s travel distance (appearance check)	44.4 m — L_r is shorter; consider lengthening

Sample report: illustrative data, not for design use

5. Key cross-sections — chainages

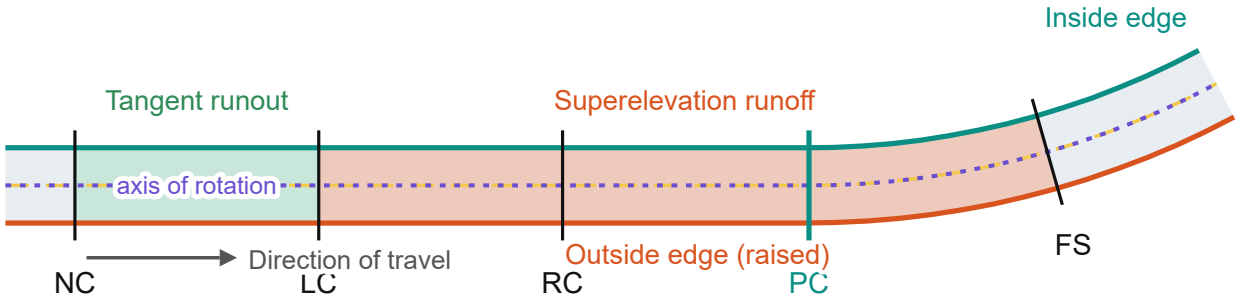
Point	Description	From PC (m)	Chainage (m)	Inside lane	Outside lane
NC	Normal crown – start of tangent runout	-43.9	**956.1**	-2 %	-2 %
LC	Level crown – start of runoff	-29.3	**970.7**	-2 %	0 %
RC	Reverse crown – plane section	-14.7	**985.3**	-2 %	+2 %
PC	Start of curve	0.0	**1000.0**	-4.02 %	+4.02 %
FS	Full superelevation	14.5	**1014.5**	-6 %	+6 %

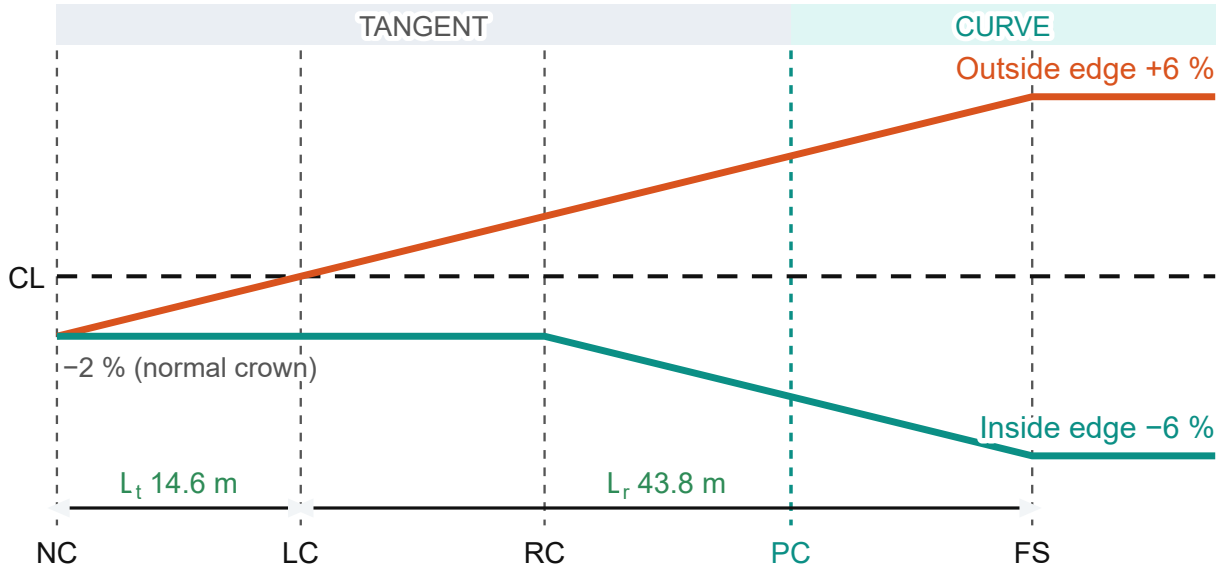
6. Plan view & superelevation diagram (not to scale)

2 lanes, two-way · left-hand curve

Curve centre ↑ (inside of curve)

Axis of rotation: centreline





Cross-sections looking ahead (outside of curve on the right, slopes exaggerated)



NC: −2 / −2 %

LC: −2 / 0 %

RC: +2 % plane

FS: +6 % plane

7. Method & notes

Single carriageway (two-way): rotated about the **centreline**, so the width used is the lanes on one side of it (half the total). It starts from a normal crown (−2 % both sides): over the tangent runout the outside lane is brought to level, then the whole section rotates to +6 % on this left-hand curve.

Effective width $W_e = w \cdot n_1 \cdot b_w$, with $b_w = [1 + 0.5\,(n_1 - 1)] / n_1$ when applied. **Runoff** $L_r = W_e \cdot e_d / \Delta$ (e_d and Δ in %); for a ramp on a left-hand curve $L_r = W_e \cdot (e_d - e_{NC}) / \Delta$. **Runout** $L_t = (e_{NC} / e_d) \cdot L_r$ (zero for a ramp on a left-hand curve). Δ is the maximum relative gradient between the edge of the travelled way and the axis of rotation for the design speed. AASHTO recommends placing 60–80 % of the runoff on the tangent for curves without spirals.

NC = normal crown · LC = level crown · RC = reverse crown · PC = start of curve · FS = full superelevation.

8. Superelevation runoff L_r (m) for this carriageway

Highlighted = current design speed and superelevation. Rows: e_d (%); columns: V (kph) with Δ.

e_d (%) ↓ V (kph) →	20 Δ 0.8	30 Δ 0.75	40 Δ 0.7	50 Δ 0.65	60 Δ 0.6	70 Δ 0.55	80 Δ 0.5	90 Δ 0.47	100 Δ 0.44	110 Δ 0.41	120 Δ 0.38	130 Δ 0.35
2	9	10	10	11	12	13	15	16	17	18	19	21
3	14	15	16	17	18	20	22	23	25	27	29	31
4	18	19	21	22	24	27	29	31	33	36	38	42
5	23	24	26	28	30	33	37	39	41	45	48	52
6	27	29	31	34	37	40	**44**	47	50	53	58	63
7	32	34	37	39	43	46	51	54	58	62	67	73
8	37	39	42	45	49	53	58	62	66	71	77	83
9	41	44	47	51	55	60	66	70	75	80	86	94
10	46	49	52	56	61	66	73	78	83	89	96	104
11	50	54	57	62	67	73	80	85	91	98	106	115
12	55	58	63	67	73	80	88	93	100	107	115	125

Generated with the Superelevation Runoff & Tangent Runout Calculator — https://shahidpervaiz.net/EngineeringDesignTools/superelevation_runoff_calculator. Results should be checked by a qualified engineer before use.

Sample report: illustrative data, not for design use