TECHNICAL MEMORANDUM

Road Design Series

TRANSPORT SERVICES

Superelevation calculations

TM-2501 - 1 AUGUST 2021

Purpose

This memorandum provides information for practitioners on the calculation of road superelevation appropriate for a vehicle speed and curve radius.

This information should be used in place of that given in the Austroads Guide to Road Design Part 3 Section 7.7.1.

Background

The Austroads Guide to Road Design Part 3 Section 7.7.1 refers to the continuation of current practice in New Zealand in using a maximum value of 10% and the absolute maximum values for the friction factor. Note that there is an error in the reference given in Section 7.7.1; this should read:
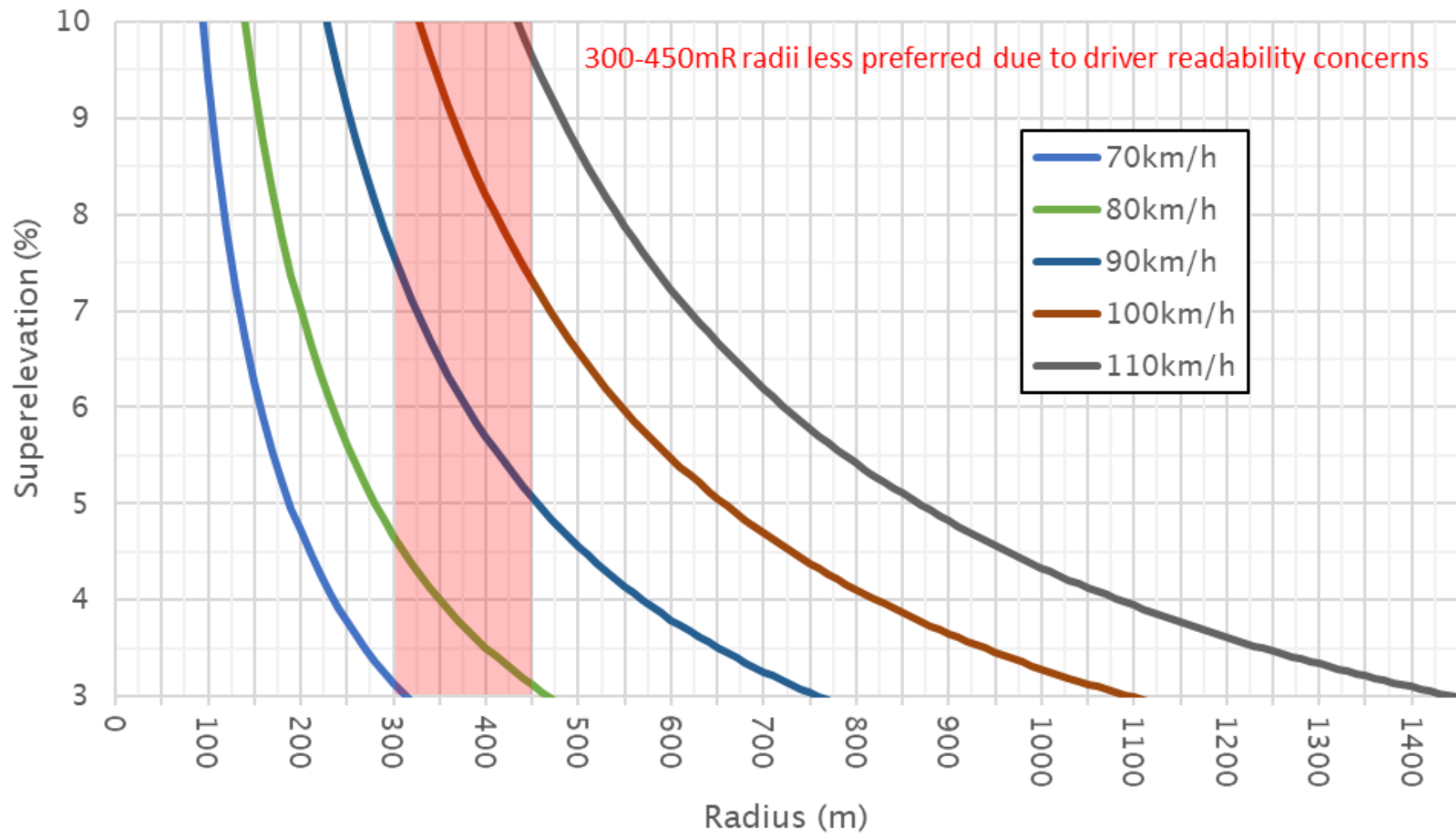
> In New Zealand we will continue to reduce the side friction demand at radii greater than the minimum for any design speed using the factor $e_{max}/(e_{max}+f)$ as a constant given in Table 2.8; where $e_{max}=0.1$ (10%) and f = **abs max** value from Table 2.6.

Recommended practice

Designers should continue to use Section 2 of the *NZ Transport Agency Highway Geometric Design Manual* (Draft) (2000) until further notice. This includes the use of adverse superelevation (Table 2.7). Attention is also drawn to sub-section 4.6. Superelevation, of Section 4 of the *NZ Transport Agency Highway Geometric Design Manual* (Draft) (2000), which gives advice on common practice.

Chapter 2 of the SHGDM has been reproduced on this page of the website. The associated charts are reproduced in this document.

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NZ Design Speed / Curve Radius / Superelevation Relationship

300-450mR radii less preferred due to driver readability concerns

Legend:
- 70km/h
- 80km/h
- 90km/h
- 100km/h
- 110km/h

Superelevation (%) — vertical axis: 3 to 10

Radius (m) — horizontal axis: 0 to 1400

NZ Design Speed / Curve Radius / Superelevation Relationship