

When any grade limits the weight of the train over any section, it is termed the ruling or limiting grade. Steep grades which can be operated with assistance or doubling, need not be the ruling grade.

On new lines where certain main divides must be crossed, the immediate approach to which is steep, compared to the general country through which line passes, it is advisable to adopt as low a ruling grade as possible, surmounting the immediate summit by using a continuous heavy grade, as by this, distance can be saved, and work reduced. The rating on this grade should be from 50 to 60% that of ruling grade, and trains on it will be operated with assistance.

When pusher grades are necessary, it is advisable to have them adjacent to divisional points, and divisional points and pusher grades should be so located when possible. Pusher grades should be located out of, rather than into, divisional points.

Ruling grades should be arranged to economically handle probable traffic; over adjacent main line sections they should be similar, and at junction points, to suit increased or decreased traffic. A greater percentage of same ruling grade on different sections will also cause reduction in train rating.

Train stops on ruling grades should be compensated according to proportion of ruling grade to length of section, varying from zero to 10 feet.

If ruling grade one way is 70% of section, compensate stops = 0.

If ruling grade one way is 40% of section, compensate stops = 5'.

If ruling grade one way is 10% of section, compensate stops = 10'.

At intersections on grades, in which the difference in rate exceeds 0.4, vertical curves will be used, which will have the following change in rate per 100':—

Main Line, grades under 0.6, vertical curves 0.05 in sags, 0.1 on summits.

Main Line, grades 0.6 to 1.2 and Branch Lines, 0.1 in sags, 0.2 on summits.