

There are at the present moment no less than 35 miles 71 chains of grade steeper than 1 in 40; 79 miles 36 chains of grade between 1 in 40 and 1 in 50; 68 miles 41 chains of grade between 1 in 50 and 1 in 60; 90 miles 40 chains of grade between 1 in 60 and 1 in 70; 59 miles 72 chains of grade between 1 in 70 and 1 in 80; 30 miles 52 chains of grade between 1 in 80 and 1 in 90; 29 miles 41 chains of grade between 1 in 90 and 1 in 99: making a total of 394 miles 33 chains of grades steeper than 1 in 100 on the principal main lines of the Dominion. About 250 miles of these grades occur on the trunk lines connecting Auckland with Invercargill, the balance on the Rotorua, Thames, New Plymouth, and Napier lines. As these lines are traversed daily by the major portion of our train-services, the baneful influence the grades have on the operating-capacity and working-expenses will be at once apparent.

The continued expansion of railway traffic renders it essential that works such as are referred to which will contribute to safe and economical operation of the lines, be remunerative in character, and materially increase the efficiency and capacity of the existing lines, should be put in hand at the earliest possible date.

I therefore recommend that a special vote be taken for the purpose of these works, and that the sum of £25,000 annually be spent in reducing grades and otherwise improving the alignment of the trunk lines, commencing with the Auckland-Wellington Main Trunk line and afterwards continuing on the Rotorua, New Plymouth, Napier, and Hurunui-Bluff lines in order of importance. The table of engine-loads, and practical experience in connection with the Milburn bank in the South Island, indicate clearly that a considerable reduction in train-mileage, with corresponding saving in operating-expenses for all time, will result from carrying out the proposals. Other material advantages incidental to the work will be—

- (1.) Removal of necessity for double-heading a large number of trains;
- (2.) Quicker transport of traffic consequent on increasing hauling-capacity of locomotives;
- (3.) Increased capacity of rolling-stock owing to reduction of time taken in transport of traffic;
- (4.) Reduction in train and engine mileage, fuel and stores;
- (5.) Saving in operating-expenses, which on the basis of existing business is estimated at £25,000 per annum when the trunk-line grades are reduced, and will be an increasing amount as traffic expands and grades on other lines enumerated are lowered;
- (6.) Increasing the capacity of existing lines, thus providing for largely increasing business, and delaying for many years the time when extensive duplication of portions of the main lines will be necessary.

Preliminary surveys and plans dealing with the reduction of grades and improvement of curves on those portions of the North Island Main Trunk line, on which it is desirable operations for reductions should first commence, have been completed. It is proposed that the grades shall be reduced to a minimum of 1 in 70 on straight roads and 1 in 80 on curves, and the radius of curves shall be flattened to 1 in 15 where practicable and 1 in 12 where it is found that the cost of flattening to 1 in 15 would be excessive.

One of the first works undertaken by the original Board of Commissioners, over which Mr. Eddy presided, in New South Wales, was the reduction of grades and improvement of curves. Considerably over £2,000,000 was spent in carrying-out the alterations, which have been highly remunerative to the Department, and at the present time about £480,000 is being spent in deviating the track over the Blue Mountains to cut out the well-known Zig-zag, and enable still further advantage to be obtained from the previous expenditure. A computation of the benefits accruing from the alterations made some years ago showed that at least £100,000 per annum was being saved at the end of five years; that saving has since steadily increased with business, and the results accruing from the expenditure incurred have fully justified and amply repaid the outlay.

I earnestly commend these proposals to the careful consideration of the House, being firmly convinced that if effect is given thereto the financial results