

The financial situation of some of the local authorities, and the unwillingness of others which are financial, to embark at the present time on large works are, of course, also partially responsible for the curtailment in bridge-construction.

The following are the most important structures built during the year :—

*Mangawara Bridge.*—This reinforced-concrete bridge, situated on the main route between Auckland and Hamilton, replaced an obsolete wooden structure with very dangerous approaches. The problem of the alignment for the new bridge was difficult on account of the road being confined to a very narrow strip of land between the railway and the Waikato River. It was finally solved by building the whole structure on a curve of 6 chains radius. There are 5 spans each of 40 ft., with a carriage-way 24 ft. in width and a footpath. The deck of the bridge is super-elevated at the rate of 1 in. to the foot. The cost was £5,187.

*Tuakau Bridge.*—This bridge over the Waikato River on the Pukekohe—Glenmurray (via Tuakau) Main Highway consists of six reinforced-concrete bowstring-truss spans, each 110 ft. in length, and one 35 ft. beam span. The roadway is 18 ft. in width; and the cost of the structure was £27,925.

*Wairoa River Bridge.*—This bridge, situated in the Borough of Wairoa, consists of ten 60 ft. and two 40 ft. plate-girder spans with reinforced-concrete deck. It was seriously damaged during construction by the second earthquake of the 16th September, 1932. Several of the piers were affected to such an extent that the pier-tops were as much as 6 ft. out of position. Two completed spans were dropped off their piers. The distance between the abutments was shortened by 13½ in., necessitating cutting of the girders already fabricated. The work was finally completed and opened for traffic on the 31st May, 1933. The cost returns are not yet complete, but it is estimated that the total expenditure will be about £42,000.

*Mangatainoka Bridge.*—This is a reinforced-concrete bowstring-truss bridge, situated on the road between Pahiatua and Pahiatua Railway-station. It consists of seven spans of 68 ft. and has a 20 ft. roadway with two 4 ft. 6 ft. footpaths. The cost was £13,638.

Contracts have recently been let for two other large reinforced-concrete structures. The Fitzherbert Bridge over the Manawatu River at Palmerston North consists of four 112 ft. bowstring-truss spans and seven 55 ft. beam spans. The carriage-way is 22 ft. in width, and, in addition, one footpath and a pipeway are provided. The lowest tender for the bridge was £30,517, and in addition £3,335 will be required for approaches, &c., making a total anticipated cost of £33,852.

The Balclutha Bridge, situated in the Balclutha Borough on the Dunedin—Invercargill Main Highway, comprises six 124 ft. reinforced-concrete bowstring-truss spans with a carriage-way of 22 ft. and two 4 ft. footpaths. The contract price is £39,379.

An interesting and important work practically completed during the year and opened to traffic on the 1st April, 1933, is the Dashwood Deviation on the Picton—Bluff Main Highway, south of Blenheim. This deviation reduces the length of the main road by 4½ miles.

#### RAILWAY-CROSSING ELIMINATION AND PROTECTION.

The elimination of railway-crossings is a work which has been financed in the past jointly by the Railways Department, the Main Highways Board, and local authorities. On account of the financial stringency, no works of this nature were undertaken during the year.

#### ADVANCES TO LOCAL AUTHORITIES.

The Main Highways Amendment Act, 1926, as amended by the Main Highways Amendment Act of 1928 confers upon the Board the power of advancing to local authorities their shares of the cost of works upon Main Highways, and under the provisions of this legislation the Board during the financial year under review advanced a total sum of £10,836 13s. 1d. Of this amount £5,958 5s. 10d. was advanced to North Island authorities and £4,877 7s. 3d. to South Island authorities. The rate of interest for such advances was reduced to 4½ per cent. in compliance with recent legislation for general interest reduction. The total amount of principal outstanding at the 31st March, 1933, in respect of past advances was £78,377 16s. 7d.

#### TRAFFIC-CONTROL.

As explained in previous reports, the Board has encouraged local authorities to form into groups for the purpose of appointing full-time Traffic Inspectors with a view to more efficient administration of the traffic regulations. The wages and travelling-expenses of Inspectors operating under such approved schemes are subsidized by the Board on the basis of £2 for £1, except in special circumstances. During the past year two additional group schemes have been inaugurated, and the Thames Group has been extended to include the Coromandel County. The following list shows the group traffic schemes which are now in operation :—

*Otamatea Group*, including Otamatea, Whangarei, and Hobson Counties.

*Waikato Group*, including Waikato, Waipa, and Raglan Counties and Ngaruawahia and Huntly Boroughs.

*Thames Group*, including Thames, Ohinemuri, and Coromandel Counties.

*Rotorua Group*, including Rotorua and Taupo Counties and Rotorua Borough.

*Cook Group*, including Cook, Waikohu, Uawa, and Waiapu Counties.