

PUBLIC WORKS STATEMENT

(BY THE HON. R. SEMPLE, MINISTER OF WORKS)

MR. SPEAKER,—

In accordance with the provisions of section 8 of the Public Works Act, 1928, I submit my report for the year ended 31st March, 1944, together with a statement of expenditure certified by the Controller and Auditor-General.

I wish to record my appreciation of the loyal service rendered and the assistance given by the staff and workmen of my Department, who have again been called upon to work under considerable stress and difficulties.

Up to the present 1,115 members of the staff have served with the Armed Forces, and I very much regret that 59 have made the supreme sacrifice, while many others have been wounded or taken prisoner of war.

So far as constructional activities for defence requirements are concerned, we have now passed the peak period, and whilst there is still a number of defence works to be carried out, these are confined to relatively minor items of a more permanent nature.

I should like to place on record warm appreciation of the magnificent achievements of the past four years in regard to the extensive building of temporary, semi-permanent, and permanent works of all kinds which became imperative in order to enable this Dominion to play its part in the present world struggle.

For obvious reasons it is not possible for me to give here all the details of the tremendous range of works which have had to be done, nor of the substantial number of works which were promoted under conditions of great difficulty, but I can assure honourable members and the people of our country that they have every reason to be proud of and well satisfied with the achievements within our own borders. The following figures, however, will convey an idea of the magnitude of the defence construction programme. They differentiate between the works carried out by the Public Works and the Housing Construction Departments for the three branches of our own Armed Forces and for United States Forces, and cover the period from the outbreak of war up to 31st March last:—

	Public Works Department.	Housing Construction Department.	Total.
	£	£	£
Army	13,447,829	541,418	13,989,247
Navy	2,227,789	..	2,227,789
Air Force	13,418,267	673,724	14,091,991
U.S. Forces	5,253,351	955,108	6,208,459
	<u>£34,347,236</u>	<u>£2,170,250</u>	<u>£36,517,486</u>

While maintaining our efforts overseas, we have had to provide also for our own defence, accommodate our own Forces and those of our Allies, and establish ancillary services, depots, &c. All this had to be done with the utmost speed when our safety was threatened and at a time when the man-power position and the supply of materials was becoming progressively more and more difficult. The response of all who shared in this important work is deserving of the highest praise.

Now that defence construction has tapered off it is possible to give attention to certain civil projects of particular national importance at the present time. I refer to the urgent need for augmenting the supply of electric power, the prosecution of roading and irrigation works for the purpose of assisting in our efforts to increase primary production in view of the world food problem, and the essential construction of roading and other services associated with the acceleration of State housing construction.

Honourable members will recall that while the construction of some railways had to be suspended during the war period efforts were made to complete the relatively small section of the South Island Main Trunk Railway, and thus relieve the transport situation. On 11th March last I had the pleasure of officially opening the Clarence-Kaikoura Section, and, with the exception of the uncompleted length of 13 miles 37 chains between Kaikoura and Oaro, traffic is being operated over the whole of this line. Storm damage has delayed work on the uncompleted section, but it is anticipated that within the next twelve months traffic will be conducted over the whole length of this railway.

During the last session I informed honourable members of what had come to my notice in respect of the Turakina and Fordell railway tunnels, and in my preliminary statement indicated that a thorough investigation would be made in view of the fact that grossly unsatisfactory and inefficient work appeared to have been directly responsible for the situation which had arisen. I have already conveyed to this House the report of the special investigating Committee, of which the Public Service Commissioner was Chairman. The question of disciplinary action based on the Committee's findings is now receiving attention, and measures have been taken which are calculated to ensure that similar incompetence will not recur.

In my statement last year I expressed the hope that a number of catchment districts would shortly be constituted in terms of the Soil Conservation and Rivers Control Act, 1941, as a preliminary step towards the election of Catchment Boards for such districts. I am now in a position to record that six major districts have been established, and the election of representative members for those districts took place in conjunction with the local-body elections in May, 1944. Most of the newly formed Boards have held their initial meetings, and the enthusiasm shown at these meetings by members gives good promise of progress towards the objectives underlying the passage of this legislation—viz., the planned conservation of our agricultural and pastoral areas and the application of scientific remedial and preventive treatment in areas where for years the elements have been destroying the soil and plant life of our Dominion.

Other districts are in the process of delineation, and I hope that within the next twelve months I shall be able to announce the coverage of the greater part of New Zealand by catchment districts. Whole-hearted co-operation is desired in the establishment of catchment districts, but it may be necessary in the event of a break-down in negotiations for the setting-up of districts to use statutory powers for their establishment, since their existence is necessary to a co-ordinated plan for the preservation and regeneration of the soil resources of the Dominion.

Arising from the necessity to replace the bridge over the Hutt River near its mouth, a Commission has been appointed principally to inquire into the question of whether or not harbour facilities should be provided in the vicinity and also to advise on the site of a new traffic bridge. The rapid development of the Hutt Valley area during the past decade or so, both as a residential and as an industrial district, and the prospects of further expansion in the early future, were material factors in deciding to have certain important issues considered by a Commission specially appointed to hear evidence from all interested parties.

It is now over thirty years since the State embarked upon its first major scheme for the supply of electricity in New Zealand, and I am sure that honourable members do not need to be reminded of the enormous development which has since taken place, nor of the important part which this enterprise has played in the expansion of industry and the general well-being of the Dominion. In both the North and South Islands there are now several large inter-connected generating-stations in operation, and practically the whole of the bulk supply of electricity is derived from State-owned plants. In addition, the Public Works Department has been responsible for the retail supply in the large area of Southland, and the whole of these operations represent one of the largest commercial undertakings in New Zealand.

In view of the fact that this industry is now well established it appears that consideration might soon be given to the question of the State's electrical business being administered as a separate Department. Under present circumstances it may not be found practicable to implement such a proposal, but I am of the opinion that the matter should receive further attention as soon as conditions will allow with a view to determining whether it would prove of advantage to constitute a State Department to handle this large and important business.

Despite difficulties experienced in obtaining plant from overseas, the power-producing plant installed by the Hydro-electric Branch of the Public Works Department has increased by 37 per cent. from 31st March, 1939, to 31st March, 1944. In the North Island the plant in operation on 31st March, 1939, was capable of generating 171,000 kW. During the past five years plant to generate an additional 20,000 kW. has been installed at Tuai, while plant to generate 40,000 kW. has been installed at Piripaua. In the South Island installed plant as at 31st March, 1939, was capable of generating 73,560 kW., whilst in the five-year period mentioned plant to generate an additional 30,000 kW. has been installed at Waitaki.

In the North Island two additional units for Arapuni to generate 21,600 kW. each have been on order since 1938. They were expected to be delivered and in operation by 31st March, 1941 and 1942, respectively, but complete delivery has not yet been made, and present indications are that these units will not be in operation until during the years ending 31st March, 1945 and 1946, respectively. The construction of a power-station at Karapiro is in hand and should be in operation with a preliminary output of 60,000 kW. by the winter of 1946, and an ultimate output of 90,000 kW. by 31st March, 1947. There have been so many postponements of dates of delivery of the plant for this station that it became necessary to send the Inspecting Electrical Engineer overseas to endeavour to expedite delivery. Furthermore, a start has been made on a third power-station at Kaitawa, Lake Waikaremoana, while preliminary work is being undertaken for the erection of a third station at Maraetai on the Waikato River.

In the South Island the Cobb Hydro-electric Scheme, generating 9,000 kW., has been completed since the end of the year under review. This scheme is not connected with other hydro-electric schemes in the South Island and will serve only Nelson and Marlborough Provinces. The Highbank Scheme, near Methven, to generate 25,000 kW., will be ready for operation within the course of the next month or so, whilst work has been recommenced on the Lake Tekapo Scheme, which will generate 25,000 kW. These two latter schemes will be inter-connected with the general South Island system.

In order to provide independence of supply and simultaneously to relieve the general system of portion of the load it would otherwise have been required to supply to military camps and hospitals, no less than fifty-eight fuel-burning plants of varying sizes generating a total of 4,316 kW. have been installed throughout the Dominion. Fourteen of the plants, generating 1,281 kW., were installed in the South Island and forty-four, generating 3,035 kW., in the North.

A ten-year plan has been formulated to satisfy our needs for hydro-electric power over that period, and investigations of additional power-sites which will be required beyond that period are constantly being made.

Now that victory in Europe appears to be so much closer I am taking advantage of the Inspecting Electrical Engineer's visit abroad to make further inquiries into the possibility of obtaining modern steam-driven electric-generating plant of substantial capacity, to act as standby on the Government hydro-electric scheme.

During the year the Housing Construction Branch was called upon to undertake an extensive programme in the prefabrication of buildings for use in the Pacific by United States and New Zealand Forces. This programme necessitated the closest collaboration with the Services to the details supplied by the New Zealand Army to suit the particular overseas conditions and the priorities established.

The system adopted allowed for complete flexibility so that parts were interchangeable. The manufacture of the parts had a Dominion-wide spread and they were assembled at marshalling-yards specially constructed for the purpose in Auckland, Wellington, Christchurch, and Dunedin.

The following programme was carried out during the year under review:—

Service.	Floor Area.	Super Feet of Timber.	Cost. £
United States Forces	2,394,000	13,782,000	1,062,008
New Zealand Army	594,000	3,622,000	258,065
R.N.Z.A.F.	370,000	2,474,000	170,317
	<u>3,358,000</u>	<u>19,878,000</u>	<u>£1,490,390</u>

This quantity of timber would have built 2,200 houses.

Many expressions of appreciation were received from the Services concerned with the way in which the job was performed and in the synchronizing of deliveries to meet the uncertain shipping facilities.

However, the net effect of this programme, which was accorded the highest priority, was to delay many of our own local demands, particularly housing, and, unfortunately, it made large inroads in the local supply of dry timber stocks.

Towards the end of the year, with the general improvement in the United Nations' position, there was a rapid tapering off in defence construction both here and overseas, and the men were diverted as rapidly as possible to meet local demand, particularly for the completion of those houses which had been suspended during the Japanese threat to this country.

Of the suspended State houses 880 have been completed to 31st March, but there has been a rapid building-up of contracts let—namely, 2,545—for the first six months of 1944, or at the rate of 100 per week. There will, however, be some time-lag before these houses commence to return at the same rate owing to the difficult position of our supplies, many of which have to come from abroad.

Permits have also been granted for private dwellings on a restricted floor area basis for 1,455 private dwellings during the year under consideration.

The number of dwellings erected during the war period is of interest:—

Year ended 31st March,	Private Dwelling Permits in Urban Areas.	State Houses commenced.	Total.
1940	4,216	3,870	8,086
1941	3,577	3,570	7,147
1942	2,898	2,605	5,503
1943	495	368	863
1944	1,455	1,845	3,300
	<u>12,641</u>	<u>12,258</u>	<u>24,899</u>

It will be seen that during the war period nearly 25,000 houses have been provided for without taking into account those built in rural areas and for which statistics are not available.

Had it not been for the war the number of houses built by private and State enterprise would, at a conservative estimate, have reached at least 9,000 per annum, or 45,000 over the five-year period. The minimum number lost through the war is therefore 20,000, which would have overtaken any serious needs. It is of interest to note that it is estimated the timber and materials used for defence-construction purposes in all its ramifications would have been sufficient to erect 20,450 houses—that is to say, the number of houses lost to New Zealand by reason of the war is almost exactly counterbalanced by defence construction.

After the outbreak of war nearly five years ago the construction of immediate defence works was proceeding according to the normal practice of arranging contracts by competitive tendering, and this procedure was found quite satisfactory for a time. Subsequently it became necessary to adopt other means to secure the degree of urgency required, and a limited amount of work was undertaken on a cost-plus or fixed-fee basis, but this in turn proved an unsuitable method of handling the increasing demands of our Services. The entry of Japan into the war created new and more pressing problems requiring a major programme of works of greater variety and urgency, and early in 1942 the "Master

Schedule" basis was formulated and put into operation with the co-operation of the building construction industry. The adoption of a schedule of basic rates for different items of construction enabled the contractor to commence work immediately with the assurance that, wherever the location of the work itself, he would be recompensed in accordance with the Master rates with adjustments on variable items according to the factors governing each particular work. From the Government's standpoint this system was of special advantage for two principal reasons—firstly, because of the expedition with which urgent defence work could be done, at a time when the safety of the country was in jeopardy, and, secondly, because the cost of work being performed under conditions of urgency and stress was brought under a greater measure of control.

It was not to be expected that the execution of a major programme of this kind under such abnormal circumstances and conditions as regards speed and magnitude would be able to proceed without some difficulties. The time factor alone did not allow of comprehensive specifications such as are usually adopted in public tendering, and the magnitude of our requirements at the time was such that immediate results were demanded irrespective of any other consideration and in the face of acute shortages in both man-power and materials. However, the results obtained were generally satisfactory, but, owing to the pressure under which the work was done, final payments on some contracts were unavoidably delayed pending the settlement of certain matters of detail where checking and verification were required.

The Master Schedule system allowed for a standard rate for overhead and profit and, as far as was found practicable, any particular item was adjusted as circumstances required. It transpired that in the initial stages returns to some contractors were more advantageous than the Master Schedule was designed to provide. In addition to the factors I have already mentioned, the reason for this may have been due partly to the need for further adjustment in the schedule rates which could not have been gauged on the data available at the time, partly to the repetition nature of much of the work once an organization was well developed, and to some extent because of the continuity of work and increased turnover and possibly other relevant circumstances. A very considerable amount of work under the Master Schedule system was carried out by groups of firms and contractors, formed for the express purpose of combining several smaller units in favour of a larger combined unit for the carrying-out of bigger tasks than usual.

It was readily conceded by many of the constructing organizations that undue returns may have accrued on certain contracts during the period of great stress, and they voluntarily agreed that if this were found to be so an endeavour should be made to effect some adjustments. Discussions took place between representatives of my Department and of the New Zealand Federated Builders and Contractors' Industrial Association of Employers, and it was agreed that consideration be given to some means whereby an appreciation of the situation could be established. After consultation it was mutually agreed that a Committee under the chairmanship of Mr. Justice Tyndall should review the results of the Master Schedule system in general to ascertain if there had been undue margins of profit having regard to what could be considered a fair and reasonable return under all the circumstances which governed the matter at the time. The Association was invited to nominate a representative to act on the Committee, and its nominee was duly appointed. In addition, the order of reference for the Committee was discussed with and agreed to by the association. This Committee, which is known as the Contracts Adjustment Commission, has already commenced its task and is reviewing the programme executed since 1st April, 1942, under the schedule system in question.

It might be assumed that a review of work with the object of adjusting any disproportionate returns would be a comparatively simple process. There are so many diverse circumstances directly involved, however, that a simple formula would not meet every case. It was felt that every relevant factor should receive due consideration and that men of wide experience and mature judgment should be entrusted with the review. The personnel of the Commission is such as to ensure that full regard is given to every relevant aspect.

Arising from the exigencies of the war and by common consent, the usual public-works activities have been suspended during the past few years, and only in special cases of national importance has construction work been allowed to proceed. As circumstances have permitted, however, attention has been given to the investigation of projects in connection with the post-war programme, and in a few instances a moderate amount of detailed surveying has been undertaken. The shortage of experienced technical staff and labour generally has not enabled these investigations to proceed as far as required before further considering the relative merits of competing schemes in the field of national development.

During the five years of war the position relating to heavy mechanical plant has seriously deteriorated. Notwithstanding the wide range of parts manufactured in both Government and private engineering shops, the servicing of this plant cannot be maintained without the importation of an appreciable amount of spare parts. Moreover, there is considerable difficulty in procuring new equipment to replace, as well as worn-out plant in New Zealand, the machines valued at over half a million pounds which were sent abroad with the Forces and which must now be regarded as written off, some having been lost by enemy action and the remainder having outlived their economic life. Much other equipment remaining in New Zealand has also outlived its economic life; and until the supply of such equipment from abroad substantially improves our requirements will have to remain largely unfulfilled.

In addition to new plant and equipment, better means of repairing and maintaining such equipment are essential. I am able to report that during the year I have had a thorough survey of the position made and plans prepared for effecting such improvements as are practicable at the moment.

Consequent on the passing of the Ministry of Works Act, 1943, Mr. James Fletcher, formerly Commissioner of Defence Construction was appointed Commissioner of Works. By arrangement between the Wellington City Council and the Government, Mr. E. R. McKillop, Deputy Chief Engineer, has been acting as Deputy Commissioner of Works.

So far the activities of the Ministry of Works have been concerned principally with the Dominion's Defence Construction Programme, but the position has now been reached where attention must be given to construction proposals for the post-war period. In this respect the Ministry of Works may be compared with the Ministry of Works and Planning established in Great Britain and with the National Works Council in Australia, which was formerly the Allied Works Council charged with the carrying-out of Australia's defence-construction programme, but which has now been reconstituted on a peacetime basis for the supervision and planning of that Dominion's post-war constructional activities.

Likewise in New Zealand, the Ministry of Works will devote its attention to an examination of the relative merits of all proposed works from the point of view of essentiality, having particular regard to the availability of man-power and materials; to ensure that as far as is practicable no work is undertaken which conflicts with the interests of the nation; and to determine priorities according to national urgency and importance. Already the constructional activities of all Government Departments are being investigated with a view to bringing down a long-range schedule of works co-ordinated in every way with our ability to proceed with them, and this review of constructional activities will extend to works proposed by local authorities or private persons, in so far as such works are dependent on the Government for financial assistance or for help in obtaining the requisite material.

For the greater part of the past eight years it has been my privilege to serve the Dominion as Minister in charge of public works, and it has become increasingly evident to me that the utmost attention must be given to the planning of developmental works if we are to secure real and lasting benefits from our enterprises.

Prior to the outbreak of war it was my practice to consider the broadest implications of the Government's development policy in relation to public works under my control. For example, the extensive roading and main highways works which were a feature of pre-war years were based upon the urgent needs of our primary producers and town-dwellers alike in respect of transport facilities and of the safe usage of our rural thoroughfares.

Even under normal conditions I would insist that future public works should be examined with due care and judgment, so that those of the greatest merit within the national economy would be given prior consideration.

To-day, however, we are confronted with conditions which are distinctly abnormal, and consequently there is an added responsibility upon those in office to see that wise decisions are applied to our immediate problems. This abnormal situation has been created by the cessation of ordinary construction during the war period, the dislocation of ordinary industrial conditions governing the availability of labour and materials, the buoyant outlook arising from the progressive successes of the Allied Nations, and the tremendous possibilities which will open up immediately after hostilities cease.

It must be realized that in the field of supply alone material will be restricted both as regards selection and quantity, and, at a time when the reconstruction of devastated lands will be paramount, it will be quite impracticable for us as a nation to embark upon projects of purely insular value, or as individuals to embark on building programmes that take no cognizance of national shortages of supply. I need hardly say that every avenue of supply is being exploited to the full and that under the control of the War Assets Realization Board every salvageable class of material that can be recovered from defence projects that are no longer necessary is being recovered and made available to industry.

I have referred to the limited availability of materials, and in some degree to the man-power situation, but I wish to emphasize that to-day, more than ever, these factors affect more than departmental programmes; indeed, they intrude upon every form of enterprise, whether in scope and development they are individual, community, or national.

It will be evident, then, that if we are to derive the greatest advantage in the post-war period, careful attention must be given to the correlation of individual, community, and national planning in such a way that, firstly, wasteful competition for what may be available is avoided, and, secondly, that whatever service is attempted will be the most effective and beneficial under prevailing circumstances.

At the moment there may be some obscurity as to New Zealand's actual part in international rehabilitation after the war, but it is patent to us all that we must be prepared to accept our share of responsibility, no matter in which direction it may rest.

The co-operation of every section of our community will be necessary to ensure that our planning shall be wise and practical, and I am confident that, with a realization of our needs, our obligations, and our limitations, we can make a valuable contribution to world re-establishment and to the further progress and prosperity of our Dominion.

FINANCE

The payments and receipts in connection with the Public Works Account and other associated votes and accounts for the year 1943-44 are shown in the tabulation following.

The expenditure for the year administered through the Department reached a gross total of £24,193,328, of which sum £11,485,447 was on account of the Dominion's defence programme carried out on behalf of the respective Defence Services. The amounts received as credits-in-aid show an aggregate of £4,797,798, leaving net expenditure at £19,395,530.

Revenue collected by the Department totalled £2,462,205 for the year, and of this sum £2,322,921 represents the sale of electrical energy and miscellaneous receipts credited to the Electric Supply Account. The balance is made up of irrigation revenue and miscellaneous receipts exclusive of taxation for Main Highways purposes which is collected by other Departments.

Class of Work	Expenditure, 1943-44.		
	Gross.	Credits.	Net.
EXPENDITURE, PUBLIC WORKS ACCOUNT			
	£	£	£
Public Works, departmental	696,524	690,524	6,000
Railway-construction	444,332	77,559	366,773
Housing construction	1,630,958	198,712	1,432,246
Public buildings	636,608	14,163	622,445
Education buildings	236,137	1,046	235,091
Lighthouses and harbour-works	14,967	190	14,777
Roads, &c.	128,790	52,544	76,246
Soil conservation and rivers control	59,455	47,641	11,814
Lands, miscellaneous	38,636	1,358	37,278
Irrigation, water-supply, and drainage	464,782	123,377	341,405
Linen-flax development	754,441	636,106	118,335
Totals, Public Works Account	5,105,630	1,843,220	3,262,410
Electric Supply Account—			
Construction	1,818,123	115,205	1,702,918
Working-expenses	713,866	24,831	689,035
EXPENDITURE, OTHER VOTES AND ACCOUNTS			
Main Highways Account—			
Annual appropriation—			
Construction, reconstruction, and improvements	141,632	36,334	105,298
Maintenance, repairs, and renewals	1,443,215	211,929	1,231,286
Administration, plant, and miscellaneous expenditure	47,787	26,956	20,831
Interest, fees, &c.	252,008	..	252,008
Permanent appropriations (rate subsidies, interest on transfer from Public Works Fund, &c.)	221,602	..	221,602
Consolidated Fund—			
Maintenance, public buildings, roads, &c.	431,657	93,749	337,908
Plant, material, and miscellaneous services	2,532,361	2,445,574	86,787
Other accounts (expenditure by Public Works Department):			
Amounts not included above	11,485,447	..	11,485,447
Totals, other votes and accounts	19,087,698	2,954,578	16,133,120
Grand total of expenditure, Public Works Account and other votes and accounts, for the year ended 31st March, 1944 ..	24,193,328	4,797,798	19,395,530

Class of Work.	Receipts, 1943-44.
RECEIPTS,* PUBLIC WORKS DEPARTMENT	
Ordinary Revenue Account—	£
Irrigation (receipts for year)	25,611
Miscellaneous receipts for year	96,570
Electric Supply Account (sales of energy, miscellaneous receipts, &c.): Receipts for year	2,322,921
Main Highways Account (repayment of advances, &c., and interest): Receipts for year	17,103
Total receipts	2,462,205

* Excludes motor-spirits tax, registration fees, &c., collected by other Departments.

Summary			
	Public Works Department.	Other Departments.	Total.
	£	£	£
Gross expenditure	23,202,750	990,578	24,193,328
Recoveries and receipts	6,622,851	637,152	7,260,003

Of the net expenditure of £19,395,530 previously mentioned, £16,602,856 may be regarded as having been expended from loan-moneys (£3,262,409 Public Works Account, £1,655,000 Electric Supply Account, £200,000 Main Highways Account, and £11,485,447 War Expenses Account), the balance—i.e., £2,792,674—being expended from loan recoveries, revenue, and taxation.

The ratio which the various classes bear to the whole is shown below. It should be noted that the figures are gross—that is, before deducting recoveries, which, if deducted, would detract from the true portrayal of activities :—

	£	Per Cent.
Roads, including construction and maintenance of main highways	2,235,034	= 8.38
Hydro-electric (construction and working expenses) ..	2,531,989	= 9.50
Railway-construction	444,332	= 1.67
Housing construction	1,630,958	= 6.12
Public buildings, including schools	872,745	= 3.27
Land improvement and soil conservation	98,091	= 0.37
Irrigation	464,782	= 1.74
Linen-flax development	754,441	= 2.83
Public buildings and roads, &c. (maintenance)	431,657	= 1.62
Plant, materials, and services, other Departments ..	2,532,361	= 9.50
Miscellaneous	711,491	= 2.67
Navy, Army, Air, and Civil Defence expenditure	11,485,447	= 43.09
Revenue receipts	2,462,205	= 9.24
	<u>£26,655,533</u>	<u>= 100.00</u>

Summary of Votes under the Control of the Minister of Works, and proposed Ways and Means of raising the Necessary Funds, Year ending 31st March, 1945

Vote.	Loans.	Consolidated Fund.	Special Revenue.	Total.
	£	£	£	£
Departmental	130,000	..	..	130,000
Railway-construction	364,500	..	..	364,500
Housing Construction	3,500,000	..	..	3,500,000
Public Buildings	565,000	..	..	565,000
Lighthouses and Harbour-works	28,700	..	..	28,700
Roads, &c.	100,000	..	..	100,000
Soil Conservation and Rivers Control	50,000	..	..	50,000
Lands, Miscellaneous	51,600	..	..	51,600
Irrigation, Water-supply, and Drainage	500,000	..	..	500,000
Electric Supply	3,035,000	..	1,215,000	4,250,000
Main Highways	300,000	..	1,500,000	1,800,000
Maintenance of Public Works and Services .. .. .	..	660,000	..	660,000
Totals	8,624,800	660,000	2,715,000	11,999,800

For the current financial year 1944-45 a sum of £660,000 will be provided from the Consolidated Fund for expenditure on the purchase of plant and on maintenance of public works and services. The expenditure on main highways (including permanent appropriations estimated at £256,500) is estimated to reach £2,056,500, of which a sum totalling £1,656,500 is expected to be raised by way of special revenue. It is estimated that revenue from the supply of electrical energy will reach a sum of £2,590,000, which will be utilized for the payment of sinking fund, interest, income-tax, &c., and operating-expenses.

MAIN HIGHWAYS

There has been a slight increase in the number of miles sealed and in the number of lineal feet of bridges erected compared with the corresponding figures for the previous year.

In regard to the main highways maintenance it is felt that the most difficult period has now passed, and although the existing standard, generally, falls a good deal short of the standard to which highway maintenance was carried out in the years preceding the war, the easing of the position in respect to man-power and materials should allow a gradual improvement to be made. The reinstatement of the highways surfaces will naturally take time and can only be achieved provided sufficient finance and additional man-power can be made available to the Board and local authorities, together with an increased use of power-plant.

The Main Highways Board has made preliminary arrangements for a large programme of bridge renewals, and these will be undertaken in the Dominion order of urgency.

As staff becomes available surveys are being put in hand for the improvement of dangerous sections of highway.

HYDRO-ELECTRIC DEVELOPMENT

Notwithstanding the conditions created by the war, the usual high standard of efficiency in supply and of service was maintained during the year. All generating-stations, however, were taxed to their limits in meeting demands, and had it not been for the first unit at Waikaremoana Lower Development being brought into operation the position would have been very serious. The demand was increased by over 5 per cent. in each Island. To meet this extra load with a minimum of inconvenience to consumers generally, various restrictions were continued.

The second machine at Waikaremoana Lower Development will be installed and in operation in time for the 1944 winter load, and with further reductions in broadcasting-hours serious restrictions should again be avoided, provided hydraulic conditions remain as they are. As previously stated, however, it is necessary to run all plant on overload to meet the demand, and it is therefore incumbent on all consumers and persons who can to see that all extravagant and wasteful uses of electricity are eliminated.

Alternative means for generating power are being investigated, and inquiries are being pursued abroad as to the possibility of obtaining second-hand generating plant to help out meantime. So far, however, no feasible proposition has been received.

In my report last year I mentioned that consideration was being given to plans for post-war development. I am pleased to be able to report this year that Cabinet duly approved a comprehensive scheme of development, and priority has been given to hydro-electric construction works accordingly. An immediate commencement will be made on a further station—Maraetai (80,000 kW.), on the Waikato River—and a definite scheme of expansion at the rate of 40,000 kW. annually will be pursued.

Development in the South Island was also reviewed, and the work at Lake Tekapo will be recommenced just as soon as man-power is available.

Owing to departmental circumstances arising from the war, it has not been found possible to include an audited statement of the Electric Supply Account with this report, but the matter is now in hand, and the statement, duly audited, will be included in paper B.—I [Pt. IV] in terms of section 57 of the Finance Act, 1932.

RAILWAY-CONSTRUCTION

The limitations imposed by the scarcity of man-power and materials, together with the volume of urgent works of higher priority required for defence purposes, have again had the effect of greatly curtailing construction activity on railway works. Nevertheless, some progress has been made.

During the year the Westport—Inangahua line was completed, and was formally handed over to the Railways Department on 5th December, 1943.

Construction activity was accelerated on the South Island Main Trunk so as to reduce the length of essential road transport and thereby save rubber. On 17th May, 1943, the southern railhead was advanced 10 miles from Hundalee to Oaro, and on 11th March, 1944, the northern railhead was moved $22\frac{1}{4}$ miles from Clarence to Kaikoura. I intend to close the remaining gap in the rails with all the speed of the man-power and materials at my command.

It was possible to organize sufficient man-power for the resumption in September, 1943, of the construction of the Turakina—Okioia railway deviation.

Work was commenced on the construction of the Turakina and Wangaehu railway-bridges, and extensive test borings of the tunnel linings were commenced.

As part of a comprehensive plan for housing construction in the Hutt Valley, surveys were undertaken for the extension of the double-track suburban line beyond Waterloo.

ROAD-CONSTRUCTION

As was the case last year, works under this head were confined to the completion of existing works. Opportunity was taken, where staff was available, to carry out surveys and investigations for works which will be undertaken when circumstances permit.

IRRIGATION AND WATER-SUPPLY

Throughout the irrigation districts of Central Otago and Canterbury the season was again abnormal. The severe winter and phenomenally wet spring delayed the beginning of the irrigation season until early December, an unbroken dry spell until the middle of January caused a short but heavy water demand, but abnormal rains in February reduced this to a minor figure long before the season usually ends.

On the schemes in Central Otago where agreements are in force the position was much the same as last year, the area watered being 43,711 acres. On the Omakau Scheme, where water is supplied on the demand system, 7,400 acre-feet of water was sold. The total area irrigated was 52,711, and the revenue amounted to £26,650.

In Canterbury there was a sharp decline in consumption due to the wet season, but other factors such as man-power and materials scarcity continued to retard development.

The total area irrigated was 2,400 acres, and the revenue amounted to £467.

No new construction has been undertaken during the year except that required to complete the Rangitata Diversion Race, which will supply water for power generation at Highbank as well as for irrigation.

No further construction progress has been possible on the Downs Water-supply Scheme because of the lack of suitable pipes, but the completed portion of the scheme (93 per cent. of its total) has continued to give excellent service.

Maintenance of this and all other works either in operation or unfinished has been continued on a reduced scale.

EDUCATION BUILDINGS

The gross expenditure for the year on school buildings, additions, teachers' residences, and the purchase of sites totalled £249,247, this sum including £13,110 provided by the Consolidated Fund to meet the cost of minor works. Practically the whole of this expenditure was incurred in respect of primary, secondary, and Native schools, and Child Welfare institutions.

LANDS-IMPROVEMENT

Most of the works formerly coming under this vote are now referred to under Soil Conservation and River Control. The work during the year was confined to certain drainage works having important bearing on essential production, such as flax cultivation at Moutoa, and to the completion of other drainage and flood protection works already in hand at Ruawai, Naumai, and elsewhere.

Sand-dune Reclamation.—No new work was undertaken, but maintenance and certain essential planting have been done at Helensville and Waikato Heads.

Land-clearing by Machinery.—This important work has been continued on a minor scale at Taumarunui, Ohakune, and near Tuatapere with very satisfactory results. Until more plant and skilled operators are available, the work cannot be greatly extended.

LIGHTHOUSES

The completion of radio-beacon stations, the electrification of lights, the provision of additional navigational aids, and general maintenance of existing plant have been carried out during the year. Owing to the diversion of the lighthouse steamer to other duties, it became necessary to effect improvements in the road access to several outlying stations to ensure accessibility to those stations at all times both for servicing the lights and for the transport of lightkeepers' stores. At some stations the existing amenities have been improved by the provision of hot-water services, septic tanks, drainage, &c.

PUBLIC BUILDINGS

Agriculture.—The extensive work involved in bringing up to date the layout at the Te Kauwhata Horticultural Station was completed during the year by the installation of the new distillation unit and more modern equipment for the processing of grapes. Improvements have been effected also in the facilities for the staff at the Station.

Justice.—It has not been possible during the past year to undertake any new construction work on courthouses. An endeavour has been made to keep existing buildings maintained in good order.

An area of 417 acres required for farming operations at the Invercargill Borstal Institution has been purchased during this year.

For security reasons it was deemed necessary to vacate the present girls' Borstal site at Mount Crawford. Land was acquired in Takapu Road, Johnsonville, and a new Borstal Institute building is now in course of erection there. The new building has been designed to allow of the proper classification of inmates, and provision has been made for their useful occupation.

Postal and Telegraph.—During the year the following departmental buildings were completed: post-office buildings at Eronadun, Linton Military Camp, Lower Hutt, and Motueka; residences at Hokitika, Plimmerton, Tauranga, Te Kuiti, Waipawa, and Westport; a store building and a garage building at Whangarei; and a radio-telephone building at Seddon.

Additions were made to the post-office buildings at Ohura and Petone and the store-garage building at Kaitaia; and alterations were made to the chief post-office building at Napier, the post-office building at Foxton, and the staff quarters at Awarua Radio and Musick Point Radio.

One building and four sites which were no longer required were disposed of during the year.

Nineteen sites and additional areas of land for departmental purposes were acquired, as also were six residences for departmental officers.

At the end of the year the following buildings were in course of erection: post-offices at Kaitaia, Te Kuiti, and Wanaka; residences at Featherston, Fitzroy, Foxton, Howick, Kaponga, Murchison, and Te Kuiti; a store garage at Balclutha; a radio receiving building, staff hostel, and seven residences at Makara.

Police-stations.—In addition to four new police-stations erected at Oxford, Port Ahuriri, Cambridge, and Te Aroha, two residences were purchased, one at Greymouth as a residence for the Senior Sergeant, and one at Wellington for the Inspector of Police; a residence for the Sergeant at Feilding was completed. Additional land has been acquired at Petone and Hunterville, and also a site for a police-station at Omakau.

Further information relating to public works carried out during the past years is included in the attached reports by the Engineer-in-Chief, the Government Architect, the Chief Electrical Engineer, and the Director of Housing Construction.

In accordance with section 24 of the Main Highways Act, 1922, the annual report of the Main Highways Board for the year ended 31st March, 1944, is also submitted herewith, *vide* Appendix E.

As required by subsection (2) of section 33 of the Soil Conservation and Rivers Control Act, 1941, I also submit with this statement the annual report of the Soil Conservation and Rivers Control Council, covering the operations of the Council up to 31st March, 1944.

APPENDICES

TO THE

PUBLIC WORKS STATEMENT, 1944

APPENDIX A

AUDITED STATEMENT OF EXPENDITURE ON PUBLIC WORKS
OUT OF THE PUBLIC WORKS ACCOUNT AND ELECTRIC
SUPPLY ACCOUNT FOR THE YEAR 1943-44*Prepared in compliance with Section 8 of the Public Works Act, 1928*

Public Works Department, Wellington, 13th June, 1944.

SIR,—

In compliance with the 8th section of the Public Works Act, 1928, I enclose a statement of the expenditure during the preceding financial year on all works and services chargeable to the Public Works Account and the Electric Supply Account.

I have, &c.,

R. SEMPLE,
Minister of Works.

The Controller and Auditor-General, Wellington.

STATEMENT OF NET EXPENDITURE ON ALL WORKS AND SERVICES CHARGEABLE TO THE PUBLIC
WORKS ACCOUNT AND ELECTRIC SUPPLY ACCOUNT FOR THE YEAR 1943-44

Summary.	Appropriation.	Gross Expenditure.	Credits in Aid.	Net Expenditure.
	£	£ s. d.	£ s. d.	£ s. d.
PUBLIC WORKS ACCOUNT				
Public Works, Departmental	150,000	695,961 19 9	690,524 8 7	5,437 11 2
Railway Construction	275,000	444,331 17 1	77,559 8 5	366,772 8 8
Housing Construction	3,064,000	1,630,847 17 10	198,711 18 11	1,432,135 18 11
Public Buildings	500,000	636,608 5 5	14,163 7 10	622,444 17 7
Education Buildings	305,000	236,136 16 3	1,046 1 3	235,090 15 0
Lighthouses and Harbour-works	27,650	14,966 18 3	190 3 5	14,776 14 10
Roads, &c.	200,000	128,790 14 7	52,544 9 1	76,246 5 6
Soil Conservation and Rivers Control	40,000	59,455 1 3	47,640 17 4	11,814 3 11
Lands, Miscellaneous	40,000	38,635 15 9	1,357 15 11	37,277 19 10
Irrigation, Water-supply, and Drainage	235,000	464,781 18 8	123,377 6 3	341,404 12 5
Linen-flax Development	400,000	754,440 10 6	636,105 5 5	118,335 5 1
	5,236,650	5,104,957 15 4	1,843,221 2 5	3,261,736 12 11
Unauthorized expenditure— Services not provided for .. .. .	..	672 16 9	..	672 16 9
Totals, Public Works Account	5,236,650	5,105,630 12 1	1,843,221 2 5	3,262,409 9 8
ELECTRIC SUPPLY ACCOUNT				
Development of Water-power	3,200,000	2,531,988 18 9	140,035 11 4	2,391,953 7 5
Totals	8,436,650	7,637,619 10 10	1,983,256 13 9	5,654,362 17 1

NOTE.—This statement includes only the expenditure on works, and does not include expenditure such as interest, sinking funds, and charges and expenses of loans.

J. W. SCOTT, A.R.A.N.Z.,
Chief Accountant.

W. L. NEWNHAM, M.Inst.C.E.,
Permanent Head.

The expenditure charged to the Public Works Account and the Electric Supply Account has been examined and found correct.—CYRIL G. COLLINS, Controller and Auditor-General.

APPENDIX B

ANNUAL REPORT ON PUBLIC WORKS BY THE ENGINEER-IN-CHIEF

The ENGINEER-IN-CHIEF to the Hon. the MINISTER OF WORKS

SIR,—

I have the honour to submit the following report on the various public works completed and in progress throughout the Dominion during the year ended 31st March, 1944 :—

RAILWAYS

Westport-Inangahua.—The construction of this line was virtually completed by the end of November, 1943, and was formally handed over to the Railways Department on 5th December last.

Turakina-Okoia Railway Deviation.—Construction was recommenced on 1st September, 1943. Accommodation was restored at Turakina and Fordell, and a quantity of plant, consisting of locomotives, air-compressors, water-pumps, &c., was brought into operation.

Test boring of the linings of the Turakina and Fordell tunnels was commenced towards the close of the year.

The girders of the Turakina River railway-bridge were placed in position and a temporary track laid, and preparations were made to erect the girders of the Wangaeu River Bridge.

Work on other bridges is proceeding.

South Island Main Trunk.—Considerable progress has been made during the year and two sections have been opened to passenger traffic. The section from Hundalee to Oaro, 10 miles, was opened on 17th May, 1943, and although some slips and sea erosion have occurred, a fairly regular train service has been maintained. The section from Clarence to Kaikoura, 22 miles 20 chains, was opened on 11th March, 1944, and a regular service has since been maintained.

Work is nearing completion on the Kaikoura and Hundalee-Puketa sections. The former, 28 miles 41 chains in length, was practically completed during the previous year. On the latter section certain tunnel extensions and the construction of culverts are the principal items remaining to be done, apart from the laying of the permanent-way, which is proceeding as fast as materials and man-power will permit.

Hutt Valley Railway Extension.—Extensive surveys have been carried out in connection with the permanent location of the extension of this line beyond the present terminus at Waterloo.

IRRIGATION

Central Otago.—The season was marked by extreme variations in the weather conditions. A severe winter was followed by a wet spring, with consequent delay in the commencement of the irrigation season. From the end of November till the middle of January the weather was exceptionally dry, and in some places a water shortage appeared likely, but February was the wettest month for twenty-five years and all sources were replenished.

No new construction was carried out, but maintenance work has been heavier than usual on account of the high demand during the dry weather.

Irrigation water was supplied to 510 irrigators in all.

In schemes where irrigation agreements are in force, the total area subject to agreements was 45,185 acres, and the area actually irrigated was 43,711 acres. The total area irrigated, including schemes where agreements are not required, was 52,711 out of a total area commanded of approximately 60,000 acres.

The financial results of the year's workings are : revenue, £26,650 ; expenditure, £23,000 ; profit on working, £3,650.

On the Omakau Scheme the water sold to date was 7,400 acre-feet.

Canterbury.—Redcliff Scheme : Owing to an extremely wet spring and summer, irrigation was practically confined to the months of December and January. The area under irrigation showed a further decline over last year. The revenue was £98, the working-expenses amounted to £870, the area irrigated was 300 acres, and the number of irrigators was 7.

Levels Scheme : For the same reason as on the Redcliff Scheme, there was a marked decline in the use of irrigation water on this scheme during the season. The relevant statistics are as follows : revenue, £369 ; working-expenses, £1,846 ; area irrigated, 2,100 acres ; number of irrigators, 51.

As stated last year, the Canterbury and Omakau Schemes, which are new and operating on the demand system without agreements, are showing in a marked degree the effects of labour and material shortages. However, there is evidence of a general movement among farmers in these areas to prepare for better times.

Downs Water-supply Scheme : No further construction work has been done during the year. An area of 10,543 acres in Waimate County awaits completion and is held in abeyance until the necessary galvanized pipes and fittings are received. Normal maintenance was continued during the year and satisfactory service was given to an area of over 140,000 acres.

SCHEMES UNDER CONSTRUCTION

Ashburton-Lyndhurst Scheme.—This scheme, commanding 68,000 acres, is almost ready for use, certain extensions to the waste race system only remaining to be done. It is expected that water will be available to farmers during the coming season.

Mayfield-Hinds Scheme.—Except for some maintenance, work on this scheme has been held in abeyance on account of prior calls on man-power and materials. As it stands, the work is 32 per cent. completed, and when finished will provide water for 78,000 acres.

Rangitata Diversion Race.—After a period of eighteen months, during which work was practically stopped on account of the transfer of men and materials to defence works, the construction of this 42-mile canal has during the last nine months been pushed on vigorously. Approximately 550 men were employed towards the latter end of the year.

Practically all the earthwork is completed, the few remaining structures being well in hand, and the only major work remaining at the end of the year was that of seasoning and testing.

It is anticipated that water will be available for power generation at Highbank in August and for irrigation of the Ashburton-Lyndhurst Scheme next summer.

Canterbury Irrigation Investigations.—The regular observation of rainfall, runoff, and meteorological phenomena has been continued on a minimum basis, but increased activity has been possible in the study of ground-water levels and flow in the mid-Canterbury district. Extension of this important work will be effected as soon as circumstances permit.

CONSTRUCTION AND IMPROVEMENTS OF ROADS

The conditions limiting the construction and improvement of roads have not materially altered since last year. Activity has therefore been greatly restricted, and confined mainly to the completion of existing works. The opportunity has been taken to make surveys and investigations where staff has been available, with a view to implementing a systematic plan of work when the supply of man-power and materials permits.

The work done during the year is summarized as follows : formation, 40 miles ; metalling, 105 miles ; bridging, 650 lineal feet ; culverting, 2,000 lineal feet.

HYDRO-ELECTRIC DEVELOPMENT : CONSTRUCTION WORKS

Karapiro Development.—General : In view of the serious shortage of electrical energy, everything possible has been done to speed the completion of this scheme. During the year the number of men employed has increased from 200 to 700, and the speed of the work is now controlled by the limited number of artisans available.

Diversion Tunnel : The diversion tunnel was completed, the coffer dams removed, and the river successfully diverted on 12th September. Shortly afterwards a 20,000-cusec flood was safely taken by the tunnel.

Excavation for the arch dam and gravity abutments is proceeding. The river-bed portion and left abutment requires 90,000 cubic yards to complete, but the right abutment excavation is completed and concreting is in hand. Total excavation to date 420,000 cubic yards.

Power-house : Excavation is well in hand. Fabrication of the steel penstocks has been commenced, and it is expected that the concreting of the power-house foundations will commence shortly.

Concreting has been commenced on several small sections of the dam, and some 5,000 cubic yards have been placed to date. Concreting supplies and equipment are ready for expansion to full placing rate in the near future.

Developments on Waikato River.—Investigations are proceeding as conditions permit of other possible developments on the Waikato River following the completion of Karapiro.

Waikaremoana Lower Development.—This work is now substantially complete. The second generating set is now in operation. The remaining man-power engaged on construction has been transferred to the Upper Development works.

Waikaremoana Upper Development.—It has been possible greatly to accelerate activity on this work during the year. Some 2½ miles of access roads have been formed and metalled. Extensive site preparation was carried out in the intake area to enable grouting to be carried out above the lines of the intake tunnels.

The most important feature of the construction at this stage is the boring and grouting of the subterranean rocks to reduce the movement of the underground water. This is being done on a large scale in the area along the site of the curtain wall and in the vicinity of the headgate shafts. During the year a total of 45,000 ft. of boring has been done and some 2,500 cubic yards of grout pumped. This work is now approximately 50 per cent. completed.

A start was made on the construction of the twin tunnels in December, and a length of about 200 ft. has been driven. Very difficult tunnelling conditions have been encountered, but the ingenuity of the Engineers and tunnellers has brought them under control, and it is expected that progress will shortly improve.

Good progress has also been made in the excavation for the penstock and for the power-house foundations.

Cobb River.—The initial phase of this work was practically completed during the year and is now in operation. Investigations in connection with the second phase of the work—namely, the dam—were continued, and accelerated towards the end of the year.

Highbank.—The steel portion of the penstock has been completed and tested, and the forebay and concrete sections were 50 per cent. complete by the end of the year. The erection of plant has kept pace with overseas deliveries.

Tekapo.—This work was at a standstill again during the year, but preliminary steps towards the recommencement of construction were taken during February and March.

Hororata Substation.—A contract for the construction of outdoor transformer foundations was completed.

HOUSING SERVICES CONSTRUCTION

Towards the end of the year work was commenced on a considerable scale on the preparation of house-sites and on the construction of streets and footpaths, kerbing and channelling, sewerage and stormwater drainage services, and electricity reticulation. As was the case with other works, progress was limited by the supply of man-power and materials. Nevertheless, fair results were achieved, as is indicated by the following table of progress : area cleared, 800 acres ; street-formation, 14 miles ; kerbing and channelling, 16½ miles ; stormwater drains, 8 miles ; sewer drains, 7½ miles ; water mains and services, 6 miles.

LANDS-IMPROVEMENTS

This vote is now a very small one, as the items covering river control and flood damage, which originally were provided thereunder, have been transferred to the vote, "Soil Conservation and Rivers Control." The programme during the year has been mainly confined to continuation of the development of the flax industry on the Moutoa Estate and the completion of reclamation and water-supply projects which were in hand the previous year.

Whangarei District.—Kumengamatea Floodgate, Ruawai: This work, which was in hand the previous year, has now been completed and is operating satisfactorily.

Ruawai and Naumai Stopbank: The amount of work done has been small, as the dragline excavator was employed on other works. The contract for the excavation of a new outlet from the floodgate is in hand and 15 chains have been completed.

Dargaville Borough Water-supply: Work has been confined to stream gaugings, rainfall records, and surveys of the area in the vicinity of the reservoir.

Auckland District.—Kaipara Harbour, Mangrove Reclamation at Glorit: Only general maintenance has been carried out.

Kaipara Harbour, Reclamation of Tidal Flats, Kukutango: Only general maintenance has been carried out.

Wellington District.—Moutoa Estate Development: This work has been continued during the year, details being as follows: weeding, 614 acres; cultivation with rotary hoes, 1,071 acres; planting flax, 67 acres; thickening flax areas, 218 acres; excavating new drains, 555 chains; widening existing drains, 430 chains; erecting stopbanks, 95 chains.

Sand-dune Reclamation.—Maintenance and tree-planting on a limited scale have been carried out on the sand-reclamation areas at Helensville and North Waikato Heads to preserve valuable reafforestation areas established before the war.

Land-clearing by Heavy Machinery.—This work was carried on in Southland, Ohakune district, and Taumarunui district as plant was available, thus making a substantial contribution towards primary production.

PLANT AND EQUIPMENT

Owing to war conditions and the inability of the Department to secure replacement plant from overseas, a new system of plant pooling was inaugurated and is operating very satisfactorily under the present restricted conditions, and has overcome, to a large degree, the difficulty of providing equipment to undertake the volume of work that this Department has successfully maintained. Plant-maintenance, complicated by lack of parts from overseas, has been kept at a relatively high stage, although the plant, in most cases, has far exceeded its normal life.

The plant was used extensively on defence works and works of national importance. Plant service to other Departments for primary production and opencast coal-mining has continued to represent a large volume of work.

The design and manufacture of equipment for the Armed Forces has reached a high level, and, amongst other items, barges and launches to a value of £300,000 and equipment for mechanical aids to navigation have been designed during the year.

Provisional arrangements have been made for post-war purchase of replacement equipment from overseas, together with greater facilities for extensive mechanical maintenance-work.

LIGHTHOUSES AND HARBOUR WORKS

LIGHTHOUSES

The buildings at the various lighthouses have been maintained in good order, and routine overhaul of equipment has been carried out.

Cape Maria Van Dieman.—A new battery-operated electric automatic light has been installed.

Cape Wanbrow, Oamaru.—The South Head light has been shifted and an acetylene-gas automatic light has been provided.

An extensive programme of modernization of existing buildings and provision of new dwellings has been undertaken, including the provision of bulk-storage water-tanks and drainage. Fair-weather road access has been provided for the stations at Cape Campbell, Moeraki, and Waipapapa.

DEFENCE WORKS

At the beginning of the year the entire resources of the Department were fully engaged upon the programme of defence works then in hand. As the year advanced, owing both to curtailment of projected work and completion of works in hand, activity in this field gradually diminished, and at the end of the year the amount of defence work in hand was of moderate dimensions. Indications are that the reduction in works of this nature will continue, and next year should see a very much reduced programme compared with that of the year under review and others since the outbreak of war.

STAFF

I have once more to thank the staff for the very loyal and efficient service which they have given during the past year. The urgent rush of defence work has passed, but other problems and difficulties keep arising, and the work of the staff has not been eased very much.

I am pleased to welcome back to the Department a number of the staff who have returned to duty after several years of strenuous and valuable service in the Armed Forces abroad.

I have, &c.,

W. L. NEWNHAM, M.Inst.C.E.,

Engineer-in-Chief.

APPENDIX C

ANNUAL REPORT ON BUILDINGS BY THE GOVERNMENT ARCHITECT

The GOVERNMENT ARCHITECT to the Hon. the MINISTER OF WORKS

SIR,—

I have the honour to submit the following report on the activities of the Architectural Branch for the year ended 31st March, 1944.

During this period defence works started to fall off and the carrying-out of certain civil works of an essential character was possible, as the following figures show :—

Capital cost of defence buildings	.. .. .	£4,953,000
Number of men employed (average)	.. .. .	3,727
Capital cost of civil works	.. .. .	£744,500
Number of men employed (average)	.. .. .	535

I have been privileged to take part in the work of the Standards Institute in promulgating new standards, which will make a valuable contribution to the building trade generally. I have also been privileged to be of some assistance in formulating rehabilitation schemes in respect of building projects as well as giving assistance to individuals. The review of buildings schemes proposed by local bodies has been carried out on behalf of the Local Government Loans Board, and structural designs for earthquake resistance as protection to life were fully investigated and brought up to the necessary standards.

In addition to the defence building programme, the following works were carried out :—

Department of Agriculture.—At Lincoln College, Christchurch, buildings were erected in connection with the installation of a poultry unit, and in other localities numerous buildings were erected in connection with Services vegetable production.

Education Department.—Additions to the New Plymouth Girls' High School are in course of erection, and a hospital annexe is being constructed at the Richmond Special School, Nelson.

Health Department.—At Kawakawa a twenty-bed ward and laundry block were erected and a nurses' home is being built. A thirty-bed hospital was built at Kaikohe. A nurses' home was built at Kaitaia, and a clinic and nurses' home are in course of erection at Kohukohu. The Remedial Training Camp at Rotorua was completed, and a cottage is being built at Te Kaha for the District Nurse. At the Palmerston North Hospital a ward block, nurses' home extensions, kitchen block, and ancillary buildings were erected, and the erection of the out-patients' block is nearing completion. At the Wairau Hospital a new wing to the nurses' home, a kitchen, and change room were erected, and a ward and an administration block are approaching completion. A new ward block is being built at Nelson Public Hospital. At the Queen Mary Hospital, Hatter, a new laundry block was built and fitted up, a new massage block is in course of erection, and other buildings have been extended.

Industries and Commerce Department.—Accommodation and quarters were erected at the linen-flax factories at Oxford, Blenheim, and Tapanui, and a marine glue factory was built at Penrose. Extensions were made to the tanneries at Onehunga and Green Island, and a camp is being erected for freezing-workers at Avondale.

Internal Marketing Division.—Dehydration factories are in course of erection at Pukekohe, Motueka, and Riccarton.

Justice and Prisons Department.—The Arohata Borstal Institution, near Wellington, was practically completed.

Mental Hospitals Department.—Three new villas and a residence for the Assistant Medical Superintendent were built at Porirua.

Ministry of Supply.—A steel-supply store was built at Thorndon, and another is being built at Aotea Quay, Wellington.

Native Department.—Some Native-housing work was carried out, and more is in hand in the Whangarei and Auckland districts.

Police Department.—New police-stations were built at Cambridge, Taihape, Feilding, and Port Ahuriri, and are in course of erection at Kerepehi, Ashhurst, Oxford, and Riversdale. A constable's house is being built at Te Aroha, and a garage erected at Kanieri.

Post and Telegraph Department.—New post-offices were built at Lower Hutt, Motueka, Cronadun, Wanaka, and Owaka, and the erection of a new post-office at Kaitaia and a line store at Balclutha are in hand. A garage and store depot were built at Whangarei.

Public Works Department.—An office block for the Hydro-electric Division was built in Museum Street, Wellington. A plant depot was built at Lower Hutt, and camps were erected at Waiheke, Haitaitai, and Nae Nae.

Railways Department.—A station store was built at Kaipara Flats, a maintenance depot at Kaiwarra, new office and extension to goods-shed at Blenheim, station and other buildings at Kaikoura, and four staff cottages at Inangahua Junction.

Scientific and Industrial Research Department.—The Physical Testing Laboratory at Lower Hutt was completed.

Miscellaneous.—A building is being erected for the Rehabilitation Board Training Centre in Dunedin.

Maintenance, repairs, alterations, and other works were attended to. A start was made removing air-raid protections, and earthquake damage was made good.

In conclusion, I wish to express my sincere appreciation of the continued loyalty and efficient service of my staff; the willing co-operation of the master builders and their men and of all associated with the implementation of this large building programme.

I have, &c.,

R. A. PATTERSON, A.N.Z.I.A.,

Government Architect,

APPENDIX D

ANNUAL REPORT OF THE CHIEF ELECTRICAL ENGINEER

The CHIEF ELECTRICAL ENGINEER to the Hon. the MINISTER OF WORKS

SIR,—

In conformity with the provisions of section 15 of the State Supply of Electrical Energy Act, 1917, I have to report on the development of electric power in the Dominion for the year ended 31st March, 1944, as follows:—

At the close of the year the total capital outlay was £23,610,351, being expended on the Schemes as under—

	In Operation.	Not in Operation.	Total.
North Island System	13,259,553	1,591,151	14,850,704
South Island System	7,423,574	505,587	7,929,161
Cobb River Scheme .. ..	..	830,486	830,486
Totals	20,683,127	2,927,224	23,610,351

In the North Island the difficulties and delays in procuring more generating-plant are continuing to cause grave concern. Standby plants must be run at capacity for long periods to relieve the main plants, and in consequence there is no plant margin from undue overload against breakdown.

The problem which has arisen out of the shortage is twofold: the maximum demand at the peak hours of use must not be allowed to exceed the overload capacity of the generating-units, and at all times throughout the year power-consumption generally must be restricted in order to conserve coal, oil, and water supplies at the respective generating-stations. For some time, therefore, the use of electric radiators in business premises has been prohibited between the hours of 4 p.m. and 6 p.m. from April to September inclusive, and no electric radiator may be bought or sold without a permit. Various classes of lighting inside and outside premises are restricted or wholly prohibited. With new installations no permit will be granted unless it is shown that electric power is necessary for the prosecution of the war or to increase primary production. Permits, however, are granted for all new housing. As a prolific cause of waste is the electric hot-water service supplied at a fixed charge for power, the metering of the supply to these services is being vigorously undertaken.

NORTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Some progress was made with Karapiro Station and extensions to the system generally, but, as in previous recent years, the supply of man-power being restricted progress was not as rapid as desired.

2. *Financial Results.*—From the preliminary figures to hand it is apparent that the various restrictions introduced are affecting the natural growth of load and retarding the normal revenue increase. As in last financial year, after the payment of income-tax, &c., there will be insufficient to meet the statutory appropriation for sinking fund.

3. *System Operation.*—The maximum half-hourly load was 272,200 kW., and occurred at 18.00 hours on 26th May, 1943, an increase of 5.6 per cent. on that of last year. The units sold were 1,321,333,376, as compared with 1,259,905,541 for the previous year, an increase of 4.8 per cent.

Approximately 48,200 tons of coal were burnt at King's Wharf. At Evans Bay approximately 19,400 tons of coal and 13,550 tons of oil were burnt. The reserve stocks on hand at both stations on 31st March were approximately 2,500 tons, as compared with 16,000 on the same date last year.

4. *Construction.*—Arapuni: Nos. 5 and 6 draught tubes were welded, and the erection of the draught tube and scroll casing for No. 6 turbine is in progress.

Karapiro: The diversion-tunnel gate was completed and the Waikato River was diverted through the tunnel in September. Some equipment for permanent installation has arrived.

Mangahao: Two cottages were erected at the headworks.

Tuai: Outdoor station was extended to accommodate the second line from Piripaua.

Piripaua: The installation of the second machine was completed and placed on commercial load during the year.

Taupo Control: This work was continued during the year.

Substations: A new substation was completed at Belmont (5,000 kVA, 50/11 kV.). Temporary substations at Te Puke and Ohura were put into service. The latter substation will supply power to a new Government coal-mine. The transformer capacity at several substations was increased to keep pace with the growing demand and new switchgear installed. Cottages were erected at Edgecumbe, Ngongotaha, Waihou, and Stratford. The new substation at Central Park (Wellington) is nearing completion.

Transmission-lines: The erection of the second 110 kV. line between Arapuni and Ongarue is nearing completion. A 50 kV. line from Takapuna to Belmont and an 11 kV. line from Ohura to the Tatu Mine were completed and put into service. The 50 kV. line from Edgecumbe to Te Puke is under construction. A survey for a 110 kV. line from Hamilton to Waihou was completed. Aerial surveys were made of parts of the proposed Auckland-Bunnythorpe 220 kV. line. The survey work in connection with the Tuai-Bunnythorpe 110 kV. line is about half completed. The Khandallah - Central Park 110 kV. line was completed and is being used for temporary construction supply at Central Park.

5. *Operation and Maintenance.*—In spite of the many difficulties through shortage of staff, war, and other restrictions, the usual high standard of reliability of supply was maintained.

SOUTH ISLAND ELECTRIC-POWER SYSTEM

1. *Capital Outlay.*—Except for Highbank Station, comparatively little work of a capital nature was undertaken during the year owing to difficulties in obtaining labour and materials. Details will appear in paper B.-1 [Pt. IV] when audited.

2. *Financial Results.*—Progress figures to hand reveal the usual steady increase in revenue. If it were not for the fact of the Depreciation Reserve reaching its statutory limit, there would again be nothing available for sinking fund after paying income-tax, &c. The Depreciation Reserve having reached its statutory limit, a considerable contribution towards reducing the sinking-fund arrears can be made.

3. *System Operation.*—The system maximum half-hourly load was 103,070 kW., as compared with 97,680 kW. last year, an increase of 5.5 per cent. This occurred at 17.30 hours on 29th June, 1943. The units sold were 454,207,472, as compared with 410,062,927 for the previous year, an increase of 10.7 per cent.

4. *Construction.*—Highbank: Good progress was made with the installation of plant at this station, and if the balance of the equipment arrives from overseas this plant should be in operation in the latter half of the year 1944-45.

Coleridge: Steelwork for the mounting of outgoing lines as rearranged and O.C.B.s are in course of erection.

Substations: At Hororata a new bank of 30,000 kVA. auto transformers was installed and a new bank of 20,000 kVA. transformers was put into service at Addington, bringing the total capacity at the latter substation to 60,000 kVA.

A new 5,000 kVA. 33/11 substation was completed at Belfast and put into service.

Transmission-lines: The 66 kV. line between Hororata and Highbank was put into service to give supply for construction purposes. The 66 kV. line from Timaru to Tekapo also has been operated at 11 kV. for construction purposes and, in addition, now supplies a few local residents.

5. *Operation and Maintenance.*—A severe snowstorm in Mid-Canterbury on 29th June, 1943, seriously dislocated supply, and rationing of supply was necessary for two days. It was three weeks, however, before all damage was repaired. With this exception the usual high standard of service was maintained. Considerable protective work and pile-driving was done on the line to the West Coast to counter flood damage and slips.

6. *Retail Supply.*—Southland: Electricity sold to consumers in Southland, including bulk supplies, totalled 34,974,315 units. This is 2,377,315 in excess of the previous highest number of units sold in a year. Twenty-six (26) per cent. of this increase was accounted for by the greater use of electricity by domestic consumers in their homes. The high rate of consumption recorded last year in respect of energy used for industries and milking-plants was maintained. When on 1st April, 1939, the Government reduced the retail prices of electricity in Southland the annual unit sales (at that date) were 23,694,000. They have since increased by 11,280,315, bringing the total to 34,974,315 as stated above.

The many elements which go to make up the service to the consumers received a good standard of attention. The connection of new consumers during the year was restricted to those adjacent to existing distribution lines and to those whose applications fell within the urgent and essential category under the Emergency Regulations. No major extensions were undertaken. The concrete-pole factory at Winton has been in regular production. Testing and workshop activities were on a larger scale than in the previous year. General engineering problems to ensure reliability of supply, &c., were studied and dealt with.

REGISTRATION OF ELECTRICAL WIREMEN

Examinations were held for electrical wiremen, electrical servicemen, radio servicemen, radio transmitters, cinematograph operators, and luminous-discharge-tube servicemen.

Special examinations were held in the Pacific Areas for members of the Armed Forces, and examination-papers were despatched to a candidate in a prisoner-of-war camp in Germany.

Arrangements were finalized with representatives of the United States Forces for the registration of United States electrical personnel whilst in New Zealand.

Representations were made through the Industrial Emergency Council's Apprenticeship Committee to bring into operation a Dominion Apprenticeship Order affecting electrical apprentices.

The record for the highest marks obtainable (100) was equalled during the year by a woman candidate in the electrical servicemen's written examination.

The question of granting credit for electrical experience gained whilst serving in the Armed Forces was fully reviewed at a conference between the Registration Board, the Rehabilitation Board, and representatives of the Armed Forces, and the Registration Board's decisions on this important matter will be available for circulation in the near future.

Consideration was given to those persons at present registered, for work on the secondary side only of radio sets, to qualify by examination for registration as radio servicemen.

DESIGN OFFICE

Power-stations.—The design of power-station buildings for Waikaremoana Upper (Kaitawa) and Karapiro Power-stations was for the most part completed. Water-supply, drainage, and electric-light and power services for these buildings and surroundings were designed.

Other design work for these stations included layout and foundation drawings for machinery and equipment, a permanent workshop building and oil-filter house for Karapiro, and reinforced-concrete switchgear structures and foundations for 110,000-volt outdoor switchgear for Karapiro.

Preliminary drawings were prepared for Maraetai Power-station, and 220,000 volt substations in connection with the calling of tenders for machinery and equipment for these stations.

Details were prepared for modifications to cooling-water flumes to King's Wharf Station to provide for reclamation work now in progress.

Substations.—Substation buildings were designed for Blenheim, Te Puke, and Aongatete Sub-stations and a new reinforced-concrete workshop and switchroom building for Mangamaire.

Layout and foundation drawings were prepared for indoor and outdoor switchgear and transformer banks at new and various existing substations.

Other design work included 25-ton and 45-ton traverser trucks for handling transformers, lifting gantry, water rheostats for testing main units at Karapiro and Kaitawa Power-stations.

Hydraulic.—Work has proceeded on the Whakamaru and Maraetai sites on the Waikato River to the extent that definite proposals have been prepared for each.

In the South Island a comprehensive study of the Upper Clarence is in progress.

General features of the Karapiro Scheme have been completed, and detail designs and drawings are well advanced. A start has also been made on details for Waikaremoana Upper Development.

In the South Island designs for Highbank and the Cobb River were completed and the works at Cobb River tested.

Comprehensive tests of the Waikaremoana Lower Development works and turbines were also made.

I have, &c.,

F. T. M. KISSEL, B.Sc., M.I.E.E., A.M.I.C.E.,
Chief Electrical Engineer.

APPENDIX E

TWENTIETH ANNUAL REPORT OF THE MAIN HIGHWAYS BOARD

The Hon. the Minister of Works, Wellington.

SIR,—

In accordance with the requirements of section 24 of the Main Highways Act, 1922, the Main Highways Board has the honour to submit its twentieth annual report for presentation to Parliament.

The report covers the period 1st April, 1943, to 31st March, 1944.

General.—Consequent on a slight improvement in the supply of man-power and materials it has been possible to carry out a more satisfactory programme of works than was the case in the previous year, though the position is still, of course, far from normal. In particular, the supply of chips for sealing has presented great difficulties in some districts.

The length of dustless surfacing has been increased by nearly 40 miles, maintenance sealing was carried out over 119 miles, and 1,562 ft. of bridges were erected. The corresponding figures for the year 1942-43 were 24 miles, 83 miles, and 972 ft. respectively.

It was pointed out in last year's report that 400 miles of maintenance sealing should be carried out annually to maintain effectively the dustless highways, and as an illustration it may be mentioned that on four State highways in the Auckland district a total of 136 miles is recommended for treatment, of which 49 miles could be postponed for one season.

It is evident, therefore, that considerable lag exists in respect of this class of work; the reduction in the volume of military traffic is, at present, a mitigatory factor to some extent, but the shorter life of the tar now extensively used instead of bitumen has also to be taken into consideration. It should be mentioned that for the purposes of this report the term "sealing" covers all classes of dustless surfacing, other than the light tar-primer coat.

As staff becomes available the Board is arranging surveys of projected improvement works in order that it may be in a position to accept its share in the rehabilitation of our men returning from overseas. The present restricted revenue and the uncertainty regarding funds that may be made available to the Board in the future, however, makes it most difficult to arrange an orderly programme of improvement works.

Personnel.—The first appointments to the Main Highways Board were made on the 12th June, 1923, and the Board had thus completed twenty-one years of service. Of the original appointees, Mr. M. H. Wynyard, representing the owners of motor-vehicles, is the only one to have seen continuous service.

Legislation.—New legislation passed since last report and directly affecting the Board's administration was section 5 of the Finance Act (No. 2), 1943. This section provides that the sum of £1,226,000, being the total amount appropriated out of the Public Works Fund and paid into the Main Highways Construction Fund, shall, until it is repaid, constitute a capital liability of the Main Highways Account to the Consolidated Fund.

Works.—The principal works carried out in the various districts during the year are briefly as follows:—

In the Whangarei district three bridges totalling 253 ft. were completed on the Pakaraka-Awanui Highway, and two others in the same locality are in progress.

The 630 ft. Titoki Bridge, in the Whangarei County, is now making good progress, the whole of the piers being nearly completed and three spans of the superstructure have been concreted.

One mile of new sealing was carried out north of Hikurangi, and $\frac{3}{4}$ mile of old sealing was resurfaced.

Maintenance expenditure in this district was 66 per cent. in advance of that of the previous year a special effort being made to restore damaged highways to something approaching normal standards.

In the Auckland district 20 miles of maintenance sealing was applied and a small amount of bridging carried out, the 200 ft. Waiwawa Bridge on the Waihi-Coroglen Highway being the most important.

Several bridges were strengthened to provide for military traffic, in particular the Whatiwhatiho Bridge over the Waipa River, the timber trusses of which were replaced by steel joists and the piers strengthened.

The Kauri Gully deviations on the Northcote Highway and a further 2 miles of reconstruction on the Beach Highway, Waitemata County, are in progress, the first 2 miles of the latter highway having been completed and sealed during the year.

The approaches to the Otorohanga Overbridge have recently been completed, except for the surface course, and the bridge is in use by traffic.

The Tauranga and Gisborne districts suffered fairly heavy flood-damage during the year and considerable repair work was necessary.

In the former district, 3 miles at the summit of the Kaimai Hill was sealed in two coats, completing a length of 10 miles from this point to the Wairoa Bridge.

The Gisborne district carried out $4\frac{1}{2}$ miles of maintenance sealing, together with a large amount of bridge-repair work and the installation of culverts.

The principal works in the Napier district were the completion of the 272 ft. Waikoau and 172 ft. Matahaura Bridges on the Gisborne-Napier Highway and the raising by 5 ft. of a 20-chain length of the State highway near Awatoto to avoid flooding.

The approaches to the Waikoau Bridge, 42 chains in length, have been completed, and those to the Matahaura Bridge are nearing completion.

Five miles of maintenance sealing were carried out and very extensive flood-damage on the highway north of Napier was attended to, restoration work being still in progress.

In the Taumarunui district work has been largely confined to maintenance operations.

Two $2\frac{1}{4}$ -mile lengths on the State highway north and south of Te Kuiti are being prepared for sealing.

A 104 ft. bridge was erected at Mangamaire, and a 120 ft. water-drive put in at Te Maire bluff, on the Stratford-Taumarunui Highway.

A $\frac{1}{2}$ -mile length of the highway between Tokaanu and Waihi Village was raised and protected to avoid flooding.

In the Taranaki district 10 miles of maintenance sealing, half of which was on State highways, was carried out, and the second 85 ft. Mangaotuku Bridge on the Stratford-Taumarunui Highway was completed.

Considerable bridge-repair work was effected, and test borings made on new sites for two major bridges on the State highway south of Mokau. The Wanganui district extended dustless surfacing by $6\frac{3}{4}$ miles and resealed $15\frac{1}{4}$ miles of highway. The greater part of this work was on the State highway between Waiouru and Taihape.

A new bridge is being erected on the Torupapa Stream between Pipiriki and Raetihi.

The Wellington district has been largely engaged in the restoration of sealed highways affected by military traffic, and a total of 39 miles has been resurfaced. A contract has been let for a new 590 ft. bridge over the Manawatu River at Whirokino, and the work is well advanced. This replaces an old timber-truss bridge damaged by an accident and is in line with and only a few chains distant from the 4,000 ft. concrete trestle erected over the river flood-channel a few years ago.

In the Upper Hutt Borough the pavement has been widened over $3\frac{3}{4}$ miles by sealing the shoulders for a width of 10 ft. on each side, with considerable improvement to the safety of traffic in the borough.

The 95 ft. Wangaehu Bridge, in the Masterton County, was completed, and several other bridges and large box culverts are in progress in the district.

The principal new work in the Nelson-Marlborough district was the sealing of the highways adjoining the Delta military camps, a total length of 6 miles 25 chains being involved. In addition, $2\frac{1}{2}$ miles of resurfacing and widening was undertaken.

Some heavy bridge repairs and other flood-damage works have been carried out.

Footways were installed on two bridges, and 8 chains of footpath constructed adjacent to Nelson City. A contract for the 80 ft. Clark River Bridge on the Nelson-Westport Highway is in progress.

The West Coast district experienced an unusually dry year, but in February continuous heavy rain caused considerable damage, particularly on the Christchurch-Kumara State Highway.

Six and a half miles of maintenance sealing was carried out. The 64-chain Orwell Creek deviation, which eliminates a dangerous length of road near Ahaura, has been completed, and 10 chains of formation was raised above flood-level at Kotokohu.

The 160 ft. Duffers Creek Bridge south of Greymouth and the 78 ft. Sandel Creek Bridge on the Karamea Highway were erected. Traffic planking was installed on two combined road-rail bridges between Inangahua and Greymouth.

In North Canterbury the chief works were the construction of a new approach to the Waiau River Bridge on the Picton-Christchurch Highway, the second-coat sealing of $3\frac{3}{4}$ miles on the inland highway to Kaikoura, and the installation of a twin 4 ft. culvert between Hawarden and Waitohi Gorge.

In the Christchurch area 2 miles of plant-mix paving was laid near Halswell, and $3\frac{1}{2}$ miles resealed in the Waimairi County.

The approaches to the Kowai River Bridge were rebuilt owing to flood-damage, and an old bridge at the Kaikanui Stream replaced by twin 5 ft. pipes.

The Tinwald-Westerfield Highway in South Canterbury was reconstructed and sealed over a length of $8\frac{1}{2}$ miles, principally for military-camp traffic.

A contract was let for the new bridge over the Rakaia Gorge flood-channel, and the work commenced.

The Hooker Bridge near the Hermitage, which was partly washed away by flood two years ago, has been reinstated.

In both the Otago Central and Otago South districts the thin metalled surfaces of many highways were detrimentally affected by winter conditions, including a long succession of heavy frosts, and a great deal of remetalling is necessary.

In the northern area the reconstruction and sealing of $5\frac{1}{4}$ miles below Kurow has been completed.

On the Glenorchy-Paradise Highway a 34 ft. bridge over the Oxburn has been erected, and two others are overdue for renewal, one, over the Rees River, being 860 ft. long.

Three and a quarter miles was resealed south of Green Island, and a 16-chain length is being reconstructed and sealed in the borough itself. One mile was resealed between Milton and Clarksville. A concrete footpath is being constructed for $\frac{3}{4}$ mile north of Roxburgh.

In the Southland district $2\frac{1}{2}$ miles of new sealing was carried out between Buxton's Corner and Branzholm. Four short lengths were sealed adjoining dairy factories in Wallace County.

On the Queenstown Highway four short bridges are being renewed between Fairlight and Garston, one being completed.

Extensive repairs to the Mataura River Bridge at Gore have been carried out.

Magnetic Truck.—During the year this machine has been in operation clearing aerodromes and military camps in both the North and South Islands. Appreciation of the result, being a reduction in the number of punctures to military vehicles, has been expressed by the commanding officers of the various Air and military areas concerned. The machine picked up on aerodrome and military camps, 9,294 lb. (previous year, 12,184 lb.) of puncture-producing articles, and when travelling between aerodromes, &c., the quantity picked up on main highways over a distance of 3,618 miles was 5,182 lb., or 1.43 lb. to the mile (previous year, 2.1 lb.).

The seventeenth examination for foremen and overseers of road-construction was held on the 8th of December, 1943, when 15 candidates presented themselves for paper No. 1 and 14 for paper No. 2. Four candidates passed in paper No. 1, while 6 passed in paper No. 2. To date, 153 certificates have been issued.

The Board appreciates the co-operation it has received from local authorities and automobile associations during the year, and looks forward to the future with confidence.

The Board acknowledges with thanks the valuable services given at all times by the Public Works Department and its officers.

Signed on behalf of the Main Highways Board :

W. L. NEWNHAM, M.Inst.C.E., Chairman.

MAIN HIGHWAYS ACCOUNT

STATEMENT SHOWING PARTICULARS OF NET EXPENDITURE ON CONSTRUCTION, RENEWALS, MAINTENANCE, ETC., FOR THE YEAR ENDED 31ST MARCH, 1944, AND TOTAL TO DATE

	Construction and Improvement of Main Highways.		Renewals of Main Highways.		Maintenance, Repairs, &c., of Main Highways.		Totals.	
	Total for Year 1943-44.	Total since Inception of Main Highways Act, 1922, to 31/3/44.	Total for Year 1943-44.	Total since 1/4/36 to 31/3/44.	Total for Year 1943-44.	Total since Inception of Main Highways Act, 1922, to 31/3/44.	Total for Year 1943-44.	Total since Inception of Main Highways Act, 1922, to 31/3/44.
	£	£	£	£	£	£	£	£
Highway District—								
No. 1 ..	9,435	1,411,502	29,156	176,534	81,548	1,154,811	120,139	2,742,847
No. 2 ..	28,528	2,790,995	7,689	172,279	102,641	2,127,110	138,858	5,090,384
No. 3 ..	8,974	926,302	..	67,084	108,481	1,269,212	117,455	2,262,598
No. 4 ..	54	637,759	480	81,233	60,985	905,535	61,519	1,624,527
No. 5 ..	2,952	821,298	38	66,650	86,321	1,329,407	89,311	2,217,355
No. 6 ..	2,670	801,501	2,414	24,720	53,313	900,305	56,397	1,726,526
No. 7 ..	2,156	915,587	3,185	37,250	44,849	837,521	50,190	1,790,358
No. 8 ..	3,342	972,386	2,215	36,354	83,175	930,974	88,732	1,939,714
No. 9 ..	5,768	1,465,613	26,864	66,101	110,100	1,030,883	142,732	2,562,597
No. 10 ..	Cr. 490	424,567	5,149	70,961	46,342	767,930	51,001	1,263,458
Totals for North Island	61,389	11,167,510	77,190	799,166	777,755	11,253,688	916,334	23,220,364
No. 11 ..	Cr. 1,720	1,009,123	746	18,315	72,815	942,610	71,841	1,970,048
No. 12 ..	13,729	1,054,942	9,800	104,463	109,090	1,493,691	132,619	2,653,096
No. 13 ..	8,108	341,574	..	4,946	32,761	422,614	40,869	769,134
No. 14 ..	526	851,833	183	6,535	37,526	623,203	38,235	1,481,571
No. 15 ..	10,408	552,007	2,748	12,097	32,164	690,129	45,320	1,254,233
No. 16 ..	5,954	878,490	901	13,263	36,331	571,416	43,186	1,463,169
No. 17 ..	256	834,695	90	14,332	29,590	508,387	29,936	1,357,414
No. 18 ..	3,736	1,016,457	1,187	38,672	50,154	681,963	55,077	1,737,092
Totals for South Island ..	40,997	6,539,121	15,655	212,623	400,431	5,934,013	457,083	12,685,757
Totals for Dominion ..	102,386	17,706,631	92,845	1,011,789	1,178,186	17,187,701	1,373,417	35,906,121

MAIN HIGHWAYS ACCOUNT—*continued*
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1944, AND TOTAL TO DATE

EXPENDITURE.	Total for Year 1943-44.	Total since Inception of Main Highways Act, 1922, to 31/3/44.	INCOME.	Total for Year 1943-44.	Total since Inception of Main Highways Act, 1922, to 31/3/44.
	£	£		£	£
Net expenditure on construction, renewals, maintenance, &c. (see separate statement)			Loans raised under Main Highways Act, 1922, and National Development Loans Act, 1941	200,000	11,681,918
Administration—			Securities redeemed, Loans Redemption Account	..	1,313,613
office rents, printing, stationery, postages, and miscellaneous expenses)		54,688	Consolidated Fund—Public Debt Repayment Account	..	55,720
Fees and travelling-expenses of members of the Main Highways Board other than Government members	687				
Miscellaneous expenses—			Receipts under section 15, Finance Act, 1923, from Public Works Fund,	200,000	13,051,251
Advertising, maps, rent of halls, traffic tallies, transport of samples, depreciation of furniture, &c.	36		General Purposes Account	..	1,226,000
Compassionate grants to widows and relatives of deceased employers	..	5,691	Revenue transferred from the Consolidated Fund	1,571,137	31,626,356
Compensation under section 3, Public Works Amendment Act, 1925	..	4,000	Interest from investments	..	218,444
Exchange on remittances	..	1,015	Interest from local authorities on plant purchased on their behalf	..	38,841
Grant to Transport Department towards Traffic inspection	..	9,887	Interest on advances to local authorities	1,263	46,622
Petrological laboratory and other experimental work, expenses of	671	42,906	Miscellaneous receipts	2,989	25,692
		16,389	Transfer from Consolidated Fund (section 14, Main Highways Act, 1922)	..	210,000
			Rent of and tolls from ferries	..	2,082
			Balance, being excess of expenditure over income, carried to general balance-sheet	395,740	164,955
Total administration	56,082	1,511,487			
Loan charges—					
Charges and expenses of raising loans, management charges of Consolidated Stock on account of Construction Fund, &c.	..	88,080			
Interest on amount appropriated out of Public Works Fund and paid into Main Highways Account Construction Fund	49,040	833,680			
Interest on loans, recoupment to Consolidated Fund (section 4, Finance Act, 1919)	459,301	3,147,633			
Transfer to reserve for redemption of main highway securities	..	1,252,130*			
Payment to local authorities in commutation of toll-gate charges (Finance Act, 1923, section 20)	1,530	36,280			
Payment to Wellington City Council in commutation of fees chargeable in respect of motor-vehicles using Hutt Road (Hutt Road Act, 1939, section 6)	19,025	384,920			
Total loan charges	528,896	5,742,773			
Subsidies, &c., in respect of other than main highways—					
Municipal Corporations (Municipal Corporations Act, 1933, section 71)	32,395	407,068			
County Councils and other local authorities (Finance Act, 1930, section 37)	180,912	2,378,096			
Subsidies to County Councils for rebate to ratepayers (Finance Act (No. 4), 1931, section 45)	..	253,893			
Subsidy on rates levied on farming land (Finance Act (No. 3), 1934, section 28)	Cr. 75	363,887			
Maintenance and construction of roads giving access to outlying areas (Finance Act (No. 3), 1931)	..	45,918			
Total subsidies	213,232	3,448,862			
	£2,171,627	£46,609,243		£2,171,627	£46,609,243

* Excludes £61,482 9s. 11d. interest credited.

MAIN HIGHWAYS ACCOUNT—continued
GENERAL BALANCE-SHEET AS AT 31ST MARCH, 1944

LIABILITIES.		—	Total.	ASSETS.		—	Total.
Sundry creditors	..	£	159,395	Cash in Public Account—	£	£	£
	..	..	..	At call	..	..	14,136
Consolidated Fund—Interest due	..	..	381,262	Sundry debtors	..	..	31,435
	..	..	..	Advances to local authorities (Main Highways Amendment Act, 1926, section 2)	..	..	28,993
				Motor-registration fees in hands of Postal Department	..	..	9,876
				Interest due and accrued	..	..	821
				Buildings and land	..	..	86,302
				Stocks of materials, tools, &c.	..	..	123,519
				Furniture, fittings, &c.—	..	938	..
				Expenditure to 31/3/44	..	738	..
				Less depreciation to 31/3/44	..	..	200
				Plant and equipment—			
				For Main Highways Board—		656,019	
				Expenditure to 31/3/44	..	581,766	
				Less depreciation charged to works	..	..	74,253
				Purchased for local authorities—		355,266	
				Expenditure to 31/3/44	..	349,119	
				Less repayments of principal	..	..	6,147
				Amount transferred to Loans Redemption Account	..	2,851,973	
				Less amount utilized for redemption of securities	..	2,851,973	
				Excess of expenditure over income for 1943-44	..	395,740	
				Less balance at 31/3/44	..	230,785	
						164,955	
						£540,657	

NOTES.—(a) No liability is included for interest on loans redeemed out of Public Debt Repayment Account. (b) The two funds, previously known as "Construction" and "Revenue," were amalgamated as from 1st April, 1936, and are now termed the "Main Highways Account," in accordance with section 3, Finance Act (No. 2), 1935

J. W. SCOTT, A.R.A.N.Z., Chief Accountant, Public Works Department.

W. L. NEWMAN, Chairman, Main Highways Board.

I hereby certify that the Income and Expenditure Account and Balance-sheet have been duly examined and compared with the relative books and documents submitted for audit and correctly state the position as disclosed thereby, subject to the departmental notes enclosed thereon.—CYRIL G. COLLINS, Controller and Auditor-General.

APPENDIX F

SECOND ANNUAL REPORT OF THE SOIL CONSERVATION AND RIVERS CONTROL COUNCIL

The Hon. Minister of Works,

SIR,—

In accordance with the requirements of section 33 of the Soil Conservation and Rivers Control Act, 1941, the Soil Conservation and Rivers Control Council has the honour to submit its second annual report for presentation to Parliament.

The report covers the period 1st April, 1943, to 31st March, 1944.

GENERAL

The Council met on six occasions during the year, but, by reason of the limitation of war conditions on finance, staff, and man-power, has not been able to pursue a very active policy. Considerable attention has been given to general administrative detail, and in so far as construction work is concerned this has in the main been restricted to the authorization of urgent river protection and maintenance works of a local nature.

CATCHMENT DISTRICTS

The following catchment districts have been constituted in terms of section 34 of the Soil Conservation and Rivers Control Act :—

Manawatu, embracing the whole of the catchment of the Manawatu River, and including the catchments of all streams to the south, notably Otaki River and Ohau River, down to and including the Waikanae River.

Hawke's Bay, comprising the catchment of all rivers from the Waikoau River in the north to the Porangahau River in the south, inclusive, the main catchments included being the Tutaekuri, Ngaruroro, and Tukituki Rivers.

Nelson, the inclusive catchments of the Waimea, Takaka, and Aorere Rivers, being the whole of the counties of Collingwood, Takaka, and Waimea, with the exception of that portion of the latter county which drains into the Buller River.

North Canterbury, the inclusive catchments from the Kowhai River in the north to the Rakaia River in the south, but excluding part of Banks Peninsula, the main additional catchments being of the Ashley, Waimakariri, and Selwyn Rivers.

South Canterbury, extending from the southern boundary of the North Canterbury catchment district and including the catchments of all rivers to the south, notably the Ashburton, Hinds, Rangitata, Orari, Opihi, and Pareora Rivers, down to and including the Waihao River.

Wairarapa, comprising generally all the country draining into the Ruamahunga River, together with the coastal strip between that catchment and the East Coast.

The Council has adopted the policy of submitting its proposals for the formation of Catchment Boards to the local authorities concerned and subsequently meeting their representatives in combined meeting to discuss the matter fully. In each case a unanimous decision to proceed has been given.

SOIL CONSERVATION DISTRICTS

Action in connection with the constitution of soil conservation districts has been held over pending the drafting of regulations for the administration of such areas. These regulations are of necessity of a far-reaching nature and have been the subject of much careful thought and consultation, and it is expected to have them completed shortly.

CENTRAL AND DISTRICT COMMITTEES

Meetings of the central and district committees have been held from time to time, and the Council wishes to acknowledge the keen interest shown by committee members and the many helpful suggestions submitted. Approval was given during the year to the co-option of up to three local farmers for service on each district committee, and the practical experience brought to the committees by these appointments is proving of considerable value.

TECHNICAL INFORMATION

Much work has been done in connection with the planning of an adequate system of taking observations and the recording of statistical information. Further work has been done on the collation of technical data. Much useful information is available, but it is evident that there are still very wide gaps, particularly in respect of hydrological records.

RESEARCH AND EXPERIMENTAL WORK

It is proposed to establish a network of areas throughout New Zealand for the purpose of demonstration, experimental, and research works, to be carried out in association with other interested Departments. Some areas have already been set aside in connection with the study of the "high country" problem of the South Island, and the acquisition of reserves in the Blenheim, Esk Valley, East Coast, and Whangamomona districts, is in hand.

INSPECTIONS

Field inspections have been continued, and during the year Council members have had the opportunity of visiting the Canterbury, Hauraki, Bay of Plenty, Gisborne, and Taranaki districts, and gaining at first hand an appreciation of local conditions and problems.

EDUCATIONAL AND PUBLICITY

An active educational and publicity programme is proposed, and an officer recently appointed for this work is now engaged on the compilation of the necessary data and the preparation of a scheme of campaign.

RIVER WORKS

The following is a brief résumé of the principal activities in the various districts:—

Whangarei District.—There are no major river problems in this district, but numerous small improvements and maintenance works are necessary, mainly stream clearing and straightening, and drainage. Little work has been done during the year.

Auckland District.—No new river problems have emerged during the year. Investigations have continued in the Lower Waikato, and normal maintenance was carried out on the Waihou and Ohinemuri Rivers Improvement Scheme. The work of stop-banking the tidal area in the Matatoki district (Ryans) was completed. The Taupiri River and Drainage Board has continued its drain-improvement work in the peat area.

Taumarunui District.—The work of raising the stop-banking on the Wanganui River in Taumarunui Borough is well advanced. Concrete protection work along 9 chains of the river-bank through the borough has been authorized but is yet to be commenced.

Tauranga District.—Little work other than several aerial surveys has been carried out. A very heavy inundation occurred in the areas adjoining the lower reaches of the Whakatane and Rangitaiki Rivers following heavy rains which occurred at the end of February. The construction requirements following this flood are mostly protection works to check river-bank erosion, notably in the Whakatane River.

Gisborne District.—No work has been undertaken during the year. A particularly heavy flood was experienced in the Waipaoa River early in March, and heavy inundation occurred over a wide area of the Poverty Bay flats. Flood conditions were accentuated by the fact that the mouth of the Waipaoa River had travelled several miles along the sea-coast. Consideration is now being given to improvement works both by the construction of a cut near the mouth to give the river a quicker outfall to the sea, and by further cut-offs in the vicinity of Ormond.

Wanganui District.—The Lower Rangitikei River is giving concern and is now a severe threat to the north bank. A comprehensive survey has been carried out of the lower reaches with a view to initiating improvement works early in the coming year.

Napier District.—The only new work of importance initiated was the survey on a very complete scale of the Waipawa and Tukituki Rivers system. The survey is practically complete, and it is hoped that a scheme of improvement work will be in readiness for the newly-elected Catchment Board.

Wellington District.—There has been considerable activity on the Manawatu River. The Whirokino Cut, which will shorten the course by approximately $5\frac{1}{2}$ miles in the vicinity of Foxton, is practically completed, and it is hoped this work will have a profound influence on flood and drainage conditions in the lower river. A contract has also been let by the Manawatu-Oroua River Board for the construction of the lower Taupunga Cut above Shannon. Fairly heavy flood damage to the stop-banking system from the previous year has been repaired.

In the Otaki River heavy earthworks were carried out by opening up new channels in the river-bed and building earthen embankments across old courses to prevent the river taking charge and causing damage to borough property.

Work was carried out in the Ohau River below the State highway, comprising the clearing of the river-bed and building a low stop-bank on the right bank to protect farm property.

Repair work was carried out in the lower Ruamahunga River to stop-banks damaged in the 1942 earthquake, and further repair and erosion protective work in the vicinity of Masterton.

Nelson District.—Heavy protection was carried out on the right bank of the Takaka River to protect a danger point near Takaka. A survey was carried out with a view to designing a scheme to eliminate flooding.

Greymouth District.—In the Hokitika River a piled retard has been built across the south branch above the railway bridge to check a tendency of the branch to develop and take the whole river. Up-stream (Miss Moyrihan's) an embankment has been built across an old course to confine the flow to the main channel. A scheme at the Camelback for the protection of Koiterangi has been initiated.

Work was commenced in the Grey River on the placing of additional stone protection on right bank near Coal Creek.

Damage to protection works at Raupo Returned Soldiers' Settlement was repaired.

On the Poerua River, right bank below State highway, a stop-bank was cut and heavy flooding occurred in the vicinity of Hari Hari. Protective work carried out included the closing of stop-bank and the building of a groyne in the river.

Numerous other repair works were carried out on South Westland rivers.

At Karamea a considerable amount of work was carried out on the Karamea and Little Wanganui Rivers following the exceptional flood of a year ago. A bulldozer was employed in cleaning main channels of debris and shingle deposits. At three places on the right bank a layer of heavy stone was placed to arrest severe threat of bank erosion.

Christchurch District.—In the Ashley River fairly heavy repairs to groynes have been necessary in addition to normal maintenance-works. A commencement was made by the Waimakariri River Trust with heavy clearing and light stop-banking of 11 miles of the Eyre and Cust Rivers. In the Ashburton River heavy clearing of willows in the main channels has continued during the year, and has already had a beneficial effect on both flood-flow and in deepening the river-bed. Heavy maintenance was undertaken preparatory to the handing-over of the work to the local authority.

Dunedin District.—On the Clutha River heavy stone work for bank-protection was continued on the lines of previous year's work, and has proved very satisfactory.

Improvements to Lee Creek in the Taieri River Trusts area were continued.

Signed on behalf of the Soil Conservation and Rivers Control Council.

W. L. NEWNHAM, M.Inst.C.E.,
Chairman.

APPENDIX G

ANNUAL REPORT OF THE DIRECTOR OF HOUSING CONSTRUCTION

The DIRECTOR OF HOUSING CONSTRUCTION to the Hon. the MINISTER OF WORKS

SIR,—

I have the honour to submit the following report on the Department's activities for the year ended 31st March, 1944 :—

(1) *Building Construction.*—Owing to the restrictions necessarily imposed upon the Department's activities as a consequence of war conditions, it was necessary to make available for defence works practically all of the man-power of the Housing Construction Department and to control drastically all private and unessential building work not directly connected with the war effort.

With the tapering-off in the defence programme towards the end of last year, new and suspended housing contracts have been commenced by the various contractors and the housing programme has been greatly accelerated, although the transition stage has been greatly hampered due to the shortage of material and man-power.

As a means of finding ways of increasing house-production, reducing cost, and relieving the demand on timber-supplies, the Department has erected or is erecting a number of experimental houses. Generally the experiments fall under three headings :—

- (1) Prefabricated wood units :
- (2) Prefabricated concrete units :
- (3) Concrete *in situ* and block units.

In regard to prefabrication generally, care has been taken to avoid the lowering of standards of construction or effecting a mass-production appearance to the finished houses.

From earlier experiments carried out on the use of prefabricated wood units the Department is now constructing the bulk of the wood houses in Wellington and Auckland on a modified prefabrication system. This system is in conformity with the New Zealand Standards Institute Model Building Code requirements.

However, in view of the many suggestions and ideas that this Department has received on prefabrication, further experimental buildings are to be erected.

From the first experimental building erected in prefabricated concrete much experience and knowledge was gained. The result warranted the construction of further buildings to try out various systems of prefabricated-concrete methods of construction.

In view of the general shortage of materials, the Department has investigated and developed new types of finish and construction in an endeavour to relieve this position. To-day it is the material and man-power supply that are the deciding factors as to the number of houses that can be erected. The Department is letting contracts to the extent dictated by this question of available materials and man-power.

Whilst the defence-works programme tapered off to a certain degree, during the period under review a large programme was implemented for the prefabrication in parts of hutments and warehouses of all types for the Armed Forces and also of aircraft pens for shipment overseas. This necessitated the establishment of marshalling-yards at the four main centres to cope with the rush period. Although this work has now been practically completed, there is still a considerable number of parts in stock and some months will elapse before the programme is finally closed.

(2) *Purchase of Land*.—To enable housing construction to be vigorously accelerated at any time in the immediate and post-war future, an active policy of purchasing suitable land has been followed, a reserve of sections for future use has been built up, and a steady volume of work has been maintained in planning the development of these sections.

During the year the number of building-sites purchased totalled 4,332, the actual purchase to date being approximately 40,116.

The number of serviced sections available for purchase has been strictly limited, and as a general policy the Department has not unduly encroached on such sections, in order that they may remain available for private enterprise.

(3) *Land-development*.—Although shortage of man-power has restricted the programme, during the year many major development works were put in hand, either by contract, by direct labour, by municipal authorities, or by the Public Works Department. The man-power position improved during the course of the year and roadmaking plant also became available, and thus many unfinished works were able to be brought to completion.

In order to effectively deal with a greatly expanded housing-construction programme in the immediate post-war period it is necessary to build up a substantial reserve of building land served by roads, drainage, and other necessary domestic services. The development of land has therefore been prosecuted during the past year to the limit of available man-power and materials; operations in this direction will be continued and expanded as the man-power position improves.

(4) *Standards*.—At the inception of the Department certain standards of accommodation and construction were adopted, and with minor variations these have been adhered to throughout. The standards of accommodation were not minimum standards, and were dictated by the desire to maintain and improve the high standard of living enjoyed in this country, not by the desire to build the cheapest houses. Similarly, the standard of construction was such that an enduring asset to the country would result.

(5) *Housing Improvement*.—During the past year considerable attention has been given to this problem, which is causing much concern to municipal and health authorities. Further progress has been made to a stage where a revised and more comprehensive Bill is now in the hands of the Law Draughtsman. When this draft Bill has been prepared it is proposed that a conference of representatives of all interested and local authorities be arranged to consider the same.

(6) *Rural Housing*.—The scheme is being promoted by the Government as a means of increasing primary production. It is financed by the State Advances Corporation through the Rural Housing Act, 1919, will be administered by the Ministry of Works, and the actual provision of housing accommodation will be provided by the Housing Department. Plans for the adoption of surplus Army buildings are in course of preparation in which temporary and permanent accommodation can be provided from certain prefabricated materials originally intended for military use. Until the needs of the farmers have been ascertained, the amount and scope of the rural house-building programme is one of conjecture, but it is anticipated that the scheme will develop in considerable proportions, involving the Department and the building industry in widespread building activity.

(7) *Man-power*.—With the tapering-off of the defence-building programme, the man-power in the building industry has, with few exceptions, returned to normal activity, and in the case of State housing contracts throughout the Dominion there was as at 31st March a total labour force involved of 3,170. This number will be augmented by the rehabilitation of ex-servicemen for engagement in the building industry upon vital works such as rural housing. Due to the draw-off of man-power to the Armed Forces, the man-power in the allied building trades has been unbalanced, resulting in certain difficulties arising in the efficient prosecution of constructional works. While the man-power position in general in the industry is in a more satisfactory position to-day than at any other time during the war period, maximum production is frustrated to some extent due to the difficult material-supply position pertaining to certain critical building commodities.

(8) *Expenditure*.—As at 31st March, 1944, the total net payments in respect of the purchase of land, provision of services, erection of joinery-factories, erection of houses, and all administrative charges amounted to £23,945,100. Liabilities and commitments as at that date amounted to £3,045,800. The net expenditure for the year under review was £2,091,800. The total cost of administration of the Department (exclusive of interest charges) from its inauguration to date is £659,100. It will be seen that the administrative costs are still remarkably low, being 2·84 per cent. of the net expenditure (excluding administration costs) since the commencement of operations and 2·2 per cent. for the financial year under review.

(9) *Statistics*.—The cumulative progress of the Department over the successive years since its inception as at 31st March is as follows :—

—	1937-38.	1938-39.	1939-40.	1940-41.*	1941-42.*	1942-43.*	1943-44.*
	Units.	Units.	Units.	Units.	Units.	Units.	Units.
(a) Houses advertised	3,172	6,698	11,071	14,084	17,029	17,443	20,910
(b) Contracts let	2,507	6,188	10,353	13,647	16,522	16,799	19,487
(c) Houses under construction ..	1,560	2,326	2,847	2,444	2,033	1,209	2,078
(d) Houses completed and handed over for occupation	399	3,064	6,459	10,425	13,633	14,892	15,772
	Towns.	Towns.	Towns.	Towns.	Towns.	Towns.	Towns.
(e) Towns and localities work conducted in	70	106	121	137	141	146	153
(f) The work of the Department is spread amongst a large number of contractors, the number of different principal contractors to the 31st March each year being : 1937-38, 145 ; 1938-39, 240 ; 1939-40, 291 ; 1940-41, 326 ; 1941-42, 345 ; 1942-43, 346 ; 1943-44, 406.							
(g) Payments—	£	£	£	£*	£*	£*	£*
Land and services	298,500	890,600	1,638,900	2,549,100	3,086,400	3,665,500	4,212,300
Dwellings-construction	1,053,600	4,311,400	8,593,900	13,203,700	16,567,900	17,316,200	18,849,900
Joinery-factories, including machinery	48,900	50,500	52,600	49,400	45,900	46,700	46,700
Vehicles, plant, and equipment	2,600	6,200	12,900	17,200	19,100	21,600	23,100
Interest during construction ..	6,600	21,000	31,000	52,200	93,500	117,600	154,000
Administration	66,200	166,400	281,300	406,400	539,800	685,700	659,100
	1,476,400	5,446,100	10,610,600	16,278,000	20,352,600	21,853,300	23,945,100

* Work retarded due to the temporary diversion of contractors and the Department's organization to defence works.

(10) *Administration*.—Until the tapering-off of the defence programme, housing activities had been more or less at a standstill, consequently a large number of the Department's staff had been released to other duties. Of recent months, however, the staffing position has been improved by the return of a number of officers and by new appointments of female assistants, but the Department is still inadequately staffed both quantitatively and qualitatively.

Our work has also been somewhat retarded by the lack of adequate transport conveyances, but the position is being relieved by the transfer of a number of motor-vehicles from the Army.

The past year has again been a particularly difficult one for all branches of the Department, owing to the large number of trained personnel that have been released for military service. Altogether 106 officers of a total of 440 were absent with the Forces as at 31st March, 1944.

In conclusion, I desire to place on record my appreciation of the efficient and loyal service rendered the Department by all members of the staff.

(11) *Proposals for Ensuing Year*.—Subject to the necessary material and labour being available, the Housing Construction Department will continue to operate to the fullest possible extent in an effort to provide additional houses, which are so urgently required, particularly in the larger centres. Provision for a total expenditure of £5,848,497 has accordingly been made in the current year's estimates, of which £5,523,497 will be financed from loans and the balance from rent receipts.

Those desiring to erect houses for themselves have been offered building loans by the State Advances Corporation on liberal terms, and there have been granted during the past financial year 359 building loans for a total value of £404,507, exclusive of loans granted to local authorities under Part III of the Housing Act, 1919, amounting to £100,000.

I have, &c.,

G. W. ALBERTSON,

Director of Housing Construction.

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