

RAILWAY LOAN APPLICATION BILL 1966.

EXPLANATORY MEMORANDUM.

Generally, the Bill seeks Parliamentary sanction for expenditure of the Loan funds allotted to the Railway Department for the 1966-67 financial year.

The Loan funds allotted to the Department for the year amount to \$16,860,000, including amounts specifically allotted for completion of the purchase of 100 bogie hopper wheat wagons and for acquisition of the Portland North Exchange Sidings from the Portland Harbor Trust. As this Act must continue to operate until a new Act is passed and has received the Royal Assent—possibly late in 1967—provision is made in the Bill for sufficient authority (\$24,000,000) to cover the Department's estimated expenditure up till 31st December, 1967.

The 1967 Act, when it comes into operation, will automatically cancel the unexhausted provision in the 1966 Act.

Sub-items 101 to 113 of Item 1, 201 to 206 of Item 2, and 302 and 303 of Item 3 refer to annual provisions, i.e., continuing works and purposes on which expenditure is incurred year by year. Under these items no figure can be supplied under the heading "estimated total cost", the only estimate available being that of proposed expenditure during the currency of the Act.

Sub-items 114 to 129 of Item 1 refer to specific works, each of which is estimated to cost \$50,000 or more.

The following information is supplied for the assistance of Honorable Members in considering the various items and sub-items in the Bill :—

ITEM 1—WAY AND WORKS.

Sub-Item.(101) *Stations, yards, &c.*

This sub-item provides for the large number of minor additions, improvements and reconstructions that must be carried out at stations and yards throughout the System each year in order to meet varying traffic requirements or replace obsolete facilities.

Included under this sub-item is the expenditure involved in extending platforms to enable a limited number of eight-car trains to be operated to improve peak period services on the Belgrave, Lilydale and Glen Waverley lines.

(102) *Accommodation for locomotives, carriages, &c.*

This sub-item provides for additions, improvements and reconstructions, mainly of a minor nature, in and about rolling stock workshops, depots and stabling areas.

(103) *Signalling, interlocking and traffic control systems.*

As well as covering a number of minor works in connexion with signalling and safeworking throughout the System, this sub-item provides for the progressive extension of automatic power signalling, which has two important advantages over manual signalling :—

- (a) It enables long block sections to be subdivided into short sub-sections, thus greatly increasing the capacity of lines ;

ITEM 1—WAY AND WORKS—*continued*.*Sub-Item.*(103)—*continued*.

- (b) It results in important savings by enabling crossing loops to be remotely controlled ; by reducing the number of signal-boxes required ; and by eliminating the necessity to keep staff on duty at safeworking stations at times when the stations do not need to remain open for the transaction of public business.

During the currency of the Act funds are required to enable the installation of automatic signalling to be completed between Altona Junction-Altona and to be commenced between Macaulay-Coburg, and towards a number of minor works.

(104) *Lines, &c.*

The principal expenditure under this sub-item is represented by the annual programme of relaying of tracks and renewal of points and crossings. Provision is also made for minor improvements to banks, cuttings, curves, gradients, &c., which can often be carried out economically in conjunction with track relaying, and which can yield operating economies by way of higher sustained speeds or increased loads.

(105) *Level crossings, &c.*

This sub-item covers improvements to existing level crossings, including the provision of automatic boom barriers or flashing light signals, and various measures to improve the view of approaching trains or otherwise increase safety.

A continuous programme of improving level crossings by these means is being carried out as rapidly as the available funds and technical resources will permit.

(106) *Grade separation at level crossings, &c.*

Under the Country Roads and Level Crossings Funds Act passed in 1954 (now Section 115 of the *Country Roads Act* 1958), grade separation is being undertaken at various locations, and it has been agreed that the Commissioners will contribute 25 per cent. of the cost of these works.

The amount provided is the estimated expenditure by the Railway Department during the currency of the Act on the following projects which are in hand or are to be commenced :—

Western Highway, Kaniva	}	(completion).
Glenelg Highway, Hamilton		
Midland Highway, Gheringhap		
Princes Highway East, Kilmany		
Canterbury-road, Canterbury	}	(progress).
Fish Creek Road, Foster		
South Gippsland Highway, Loch		
Tuaggra-street, Maryborough		
Warrigal-road, Oakleigh		

In addition, funds are required for land acquisition in preparation for grade separation work to be carried out in later years at Princes Highway West, Garvoc ; Millers-road, Paisley ; High-street, Shepparton ; Princes Highway West, Winchelsea ; and Somerville-road, Yarraville.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(107) *Dwelling accommodation for employés, &c.*

This sub-item is to provide for expenditure during the currency of the Act on additional or improved dwelling accommodation which it may be necessary to provide to meet staffing requirements, mainly in country locations.

(108) *Staff amenities in depots, workshops, stations, offices and yards.*

This sub-item is to authorize expenditure on a progressive programme of improvements to staff amenities, including meal and locker rooms, showers, sanitary facilities, &c., that is being carried out as rapidly as the available funds will permit.

In addition to the works provided for under this sub-item, modern staff amenities have been incorporated in the re-arrangement of Spencer-street station (sub-item 121), and are being incorporated in the rearrangement of the Melbourne goods sheds and marshalling yards (sub-item 119) as the work proceeds.

(109) *Communication lines, &c.*

This sub-item provides for additions to and modernization of the Department's communications network. The planned programme provides for the progressive displacement of morse telegraph circuits by a system of teleprinter centres located at key points throughout the State, local communications with these centres to be by telephone.

In order to implement this programme it will be necessary to upgrade a number of the principal pole lines. During the currency of the Act it is proposed to carry out this work on the Ballan-Ballararat and Ballarat-Ararat sections of the Serviceton line.

(110) *Electricity supply, &c.*

This sub-item provides for additions and improvements to electricity supply, both for normal lighting, heating and industrial purposes and for the operation of electrified lines. Under the latter heading the principal item of expenditure is in connexion with a long-range programme to convert the high tension supply for the Melbourne electrified lines from 25 to 50 cycles, in anticipation of the eventual discontinuance of 25 cycle supply from the Newport Power Station.

Provision is also made for additional substations to meet traffic demands, the replacement of oil circuit breakers, modifications to protective equipment designed to minimize interruptions to the services through faults on high-tension feeders, and extensions to the supervisory control system to control the additional substations.

(111) *Bridges, &c.*

This sub-item provides for expenditure during the currency of the Act on the reconstruction of bridges, with particular emphasis on the programme of replacing timber or part timber bridges, as they reach the end of their economic life, with permanent structures of steel and concrete, and for other improvements or modifications to bridges to meet altered rail traffic conditions or drainage requirements.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(112) *Plant and equipment, &c.*

This sub-item provides for the purchase of all plant and equipment other than road motor vehicles and rolling stock plant and machinery.

Included under this sub-item are all track maintenance motors and machines ; goods handling equipment for traffic purposes such as cranes and fork-lift trucks ; printing machinery ; platform trolleys ; and accounting machines.

(113) *Private sidings constructed on railway land.*

As part of their concentrated drive to obtain new business in the face of intense competition, the Commissioners have adopted the policy of contributing towards the cost of private sidings constructed on railway land in suitable cases where a guarantee of substantial rail traffic is forthcoming.

Previously, the siding owner was required to meet the whole of such costs.

The amount provided is the estimated expenditure on this work during the currency of the Act.

(114) *Brooklyn : Provision of wash docks for live stock vans, including acquisition of land.*

This work was authorized under the previous Loan Act and funds are required to enable it to be completed.

Total expenditure to 27th August, 1966, \$56,003.

With the rearrangement of Melbourne Yard now in progress (sub-item 119) it is necessary to relocate the existing wash docks from that area to obtain additional working space.

New washing facilities are being provided in the Brooklyn area, where there is a heavy concentration of live stock traffic.

(115) *Brooklyn-Newport : Duplication of line, including acquisition of land.*

This work was authorized under previous Loan Acts and funds are required to enable it to be completed.

Total expenditure to 27th August, 1966, \$519,450.

To obtain the full benefit from the new loop line recently constructed between Tottenham and Brooklyn, and to satisfactorily handle the growing traffic to and from the many private sidings on the Sunshine-Newport line, duplication of the Brooklyn-Newport section became necessary. For maximum flexibility of operation, two-way signalling is being provided on each track.

Completion of these works will allow a considerable number of goods train movements to be diverted from the passenger lines between South Kensington and Newport, with consequential beneficial effects on the timekeeping of passenger trains.

(116) *Dynon : Provision of additional terminal facilities, including acquisition of land.*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$5,911,091.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(116)—*continued.*

To afford relief from congestion on the approach roads and to facilitate the handling of traffic at the Melbourne Goods Sheds, a new goods terminal was provided at Dynon to cater for the North-Eastern and Interstate traffic.

Two large sheds were constructed, one north and the other south of Dynon-road. Following the advent of the standard gauge scheme, plans for Dynon had to be greatly expanded to meet expected increases in traffic, and a large new forwarding agents' area was constructed for commencement of standard gauge services in January, 1962. However, traffic growth exceeded expectations and further terminal facilities at Dynon became necessary. During the currency of the Act funds are required for completion of roadways for the operation of heavy fork lift trucks.

(117) *East Camberwell-Mont Albert : Provision of additional track, including acquisition of land.*

Following completion of the second of the two additional tracks being provided between Richmond and Burnley (sub-item 120), it is proposed, as the next stage of the programme designed to improve peak period services on the Box Hill group of lines, to extend the Hawthorn-East Camberwell third track to the "down" end of Mont Albert.

This will enable additional trains to be scheduled to and from Box Hill, with consequential increased scope for the express running of long distance trains.

Funds are required during the currency of the Act to enable the preliminary stages of the work to be carried out in conjunction with the Canterbury grade separation project (sub-item 106).

(118) *Kaniva : Provision of improved train crossing facilities, including acquisition of land.*

This work was authorized under previous Loan Acts and funds are required to enable it to be completed.

Total expenditure to 27th August, 1966, \$60,846.

Construction of the standard gauge line between Albury and Melbourne, combined with the introduction of overnight express goods trains between Melbourne and Adelaide, has resulted in a substantial increase in rail goods traffic on the Adelaide route.

The services are so arranged that most of the crossings of important goods and passenger trains take place between Dimboola and Serviceton, and it is essential that all crossing stations in this area have loops capable of holding the longest goods trains.

The existing loop at Kaniva does not meet this requirement, and provision is made for construction of a new 3,100-ft. loop at this location.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*

- (119) *Melbourne goods sheds and marshalling yards—Rearrangement and provision of additional facilities, including acquisition of land.*

This work was authorized under the previous Loan Act.

Total expenditure to 27th August, 1966, \$2,368,331.

The existing Melbourne marshalling yards, whilst ideally located having regard to the task they have to perform, have grown up piecemeal over the years without any opportunity for unified planning, and as a result are not only costly to operate but result in delays to wagons which appreciably reduce the Department's standards of service in the handling of goods, particularly in regard to speed of delivery.

A detailed investigation into the shortcomings of the yards has disclosed that provision of a modern automatic hump shunting yard (which is practicable within the space available) will revolutionize existing standards of service and at the same time yield very considerable economies—both direct savings in the cost of operating the yard itself and indirect savings from quicker turnround, and thus increased earning capacity, of locomotives and rolling stock.

To enable the new yard and the various inward and outward goods sheds to operate as a fully integrated and efficient whole, the functions of the existing sheds will be revised as the work proceeds, and additional shed space will be provided in order to eliminate the carrying out of loading and unloading work at uncovered platforms.

Both for financial reasons and because of the intricate nature of the staging work required to rearrange the yard without interrupting the flow of traffic, the project will take some four to five years to complete. A considerable amount of preliminary work, mainly in the peripheral area of the yard, has now been carried out, and during the currency of the Act funds are required for several stages of the project closely associated with the design of the hump and leading up to commencement of construction of the hump itself. The work involved includes earthworks, rearrangement of tracks, and bridge works at Dudley-street. Further progress will also be made with the extension of No. 4 Goods Shed.

- (120) *Melbourne (Flinders-street)—East Camberwell: Duplication of line, including provision of a flyover between Melbourne and Richmond and acquisition of land.*

This work was authorized under previous Loan Acts and the amount provided is the estimated expenditure during the currency of the Act.

Total expenditure to 27th August, 1966, \$4,247,693.

In order to enable the peak period needs of both short and long distance passengers to be adequately met on the busy Box Hill group of lines, and at the same time provide for the extra traffic that will be generated by the city underground railway, additional tracks are necessary.

Approved works include provision of two extra tracks between Jolimont Junction—Burnley, together with a third track, signalled for two-way operation, between Burnley—East Camberwell.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(120)—*continued.*

In order to get the extra pair of tracks, together with an extra pair to South Yarra, through Richmond, it has been necessary to completely rebuild that station and the adjacent bridges over Punt-road and Swan-street. This aspect of the work has now been completed.

In conjunction with the extra tracks to Burnley a flyover is at a later date to be constructed between the M.C.G. footbridge and Richmond. This aspect of the planning will enable the tracks to be rearranged from the normal "staggered" to "parallel" running and has greatly simplified the reconstruction of East Richmond station and the junction work at Burnley.

The Hawthorn-East Camberwell section of the proposed Burnley-East Camberwell third track and one of the proposed two additional tracks between Richmond and Burnley have now been completed, and during the currency of the Act it is proposed to complete the second of these two additional tracks.

(121) *Melbourne (Spencer-street) : Rearrangement of station buildings and facilities, including acquisition of land.*

This work was authorized under previous Loan Acts and the amount provided is required to complete the first stage, which comprises all work north of the South Concourse.

Total expenditure to 27th August, 1966, \$4,484,796.

In order to provide a passenger terminal for the new Albury-Melbourne standard gauge line, alterations were necessary to certain portions of Spencer-street station, and the opportunity was taken to provide new station buildings with modern facilities in lieu of the "temporary" structures that had served the purpose for many years.

The design of the new station provides for a new main terminal building on the site of the old car park, with modern passenger and staff amenities; a new Inward Parcels Office near Lonsdale-street; a new enlarged car park between the terminal building and the Inward Parcels Office; and separate passenger and parcels subway systems in order to eliminate interference to passengers by parcels and luggage trolleys.

Ready access by taxis and private cars is available to the two main platforms (Nos. 1 and 2) for Interstate and country trains; access to other country and suburban platforms (as well as to Nos. 1 and 2) is from the main subway, thus facilitating interchange between country and suburban trains. Shops, fruit and drink stalls and bookstalls, and the suburban booking office are also located in the subway which has thus replaced the previous South Concourse.

All the new facilities are in use, and funds are required during the currency of the Act mainly for "tidying up" works including tiling, ceiling and signs in the subway; provision of a separate parcels dock adjacent to No. 8 platform; and completion of platform verandahs.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(122) *Newport-Geelong : Duplication of line, including acquisition of land.*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$1,196,436.

The capacity of the existing single line is inadequate for the efficient handling of the traffic offering, and it is proposed to duplicate it section by section as circumstances permit.

The Corio-North Geelong and Rock Loop-Laverton sections have been completed, and during the currency of the Act it is proposed to complete the section between Newport South-Rock Loop and to proceed with earthworks, bridges and tracklaying between Laverton-Werribee.

For maximum flexibility of operation, two-way automatic signalling is being installed on each track.

As it is considered most unlikely that sufficient funds will be available to enable duplication to be extended beyond Werribee by 1970, concurrently with duplication between Laverton-Werribee it is proposed to provide long crossing loops, with automatic signalling, at Manor, Little River, and Lara, and also to install a centralized traffic control system at Spencer-street to directly control all trains movements between Newport South and North Geelong.

The relative urgency of further duplication work beyond Werribee will then be determined by the extent to which these facilities are found to overcome the operating limitations of the existing single line and signalling arrangements.

(123) *North Melbourne-Richmond and Jolimont-Princes Bridge (between) : Provision of connexions, and all work appurtenant thereto, between the Melbourne Underground Railway and existing lines (preliminary planning and investigation).*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$9,619.

The Melbourne underground railway will be built by the Railway Construction Board (*vide* Item 3, sub-item 301), but a further major task will be involved in the flyovers, rearranged tracks, signalling, &c., which will be necessary to connect the underground with the existing lines.

Funds are required to meet the cost of the preliminary planning, test bores, &c., required for these works.

(124) *North Shore—Provision of additional sidings, including acquisition of land.*

In order to facilitate the despatch of full trainloads of superphosphate from Cresco Fertilizers Ltd's. works at North Shore, thus obviating delays and additional marshalling costs in North Geelong Yard, additional sidings are being provided at North Shore.

At the same time it is proposed to provide a direct lead from the Cresco sidings to the main line in the "up" direction, thus enabling Melbourne-bound trains to run direct without having to reverse at North Geelong.

Funds are required to enable the work to be carried out during the currency of the Act.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*

- (125) *Portland North : Rearrangement of yard and acquisition of land, including acquisition of that portion of the port access railway between and including the Exchange Sidings and the connexion with the main railway system at 249m. 64c. 54l. from Melbourne.*

This sub-item provides for the expenditure entailed in putting into effect the purchase by the Department, from the Portland Harbor Trust Commissioners, of the Exchange Sidings, on the port access railway, together with that portion of the access railway connecting these sidings with the main railway system at Portland North.

As part of the take-over agreement, it has been further agreed that the Harbor Trust Commissioners will utilize \$60,000 of the amount received for transfer of these facilities to purchase, in turn, the Portland North-Portland section of line from the Railway Department. This amount will be utilized to rearrange Portland North as the terminal station of the line.

The net effect of the agreement is therefore that \$410,000 will be paid to the Portland Harbor Trust Commissioners and \$60,000 will be spent on rearranging railway facilities at Portland North.

Legislation to ratify the agreement and authorize the land transfers involved will be introduced as soon as the necessary surveys have been completed.

- (126) *Ringwood : Provision of an additional platform and train stabling sidings, including acquisition of land.*

This work was authorized under the previous Loan Act.

Total expenditure to 27th August, 1966, Nil.

The present arrangement of trackwork at Ringwood, where the stabling sidings are directly connected to only one of the two existing platforms, results in delays at peak periods, when local trains are being originated and terminated and only one platform is available for through working.

Investigation has shown that provision of a third platform at Ringwood, by converting the existing "up" (south) platform into an island type, will not only eliminate the present congestion there but will have beneficial effects on train running throughout the East Camberwell-Ringwood section.

The provision of additional train stabling sidings at Ringwood, connected to all platforms, will result in the saving of considerable empty train mileage between Ringwood and Box Hill, where it is at present necessary to stable trains for which there is no room at Ringwood.

During the currency of the Act funds are required to enable construction of the third platform to be put in hand.

- (127) *Spotswood : Provision of automatic telephone exchange, including acquisition of land.*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$62,983.

The departmental telephone system in the Newport-Spotswood area, consisting of a total of 220 extensions, is served by four old manual switchboards.

ITEM 1—WAY AND WORKS—*continued.**Sub-Item.*(127)—*continued.*

This results in slow and inefficient communication both locally and with Head Office, and to rectify the situation a modern automatic exchange is being provided to meet the whole of the requirements of the area.

The exchange building has been completed and a contract has been placed for the necessary equipment, and funds are required to meet the purchase price and cost of installing the equipment.

(128) *Stray Current Electrolysis Mitigation : Provision of metallic return circuits for stray currents from electrified lines.*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$260,283.

Electrolysis—the corrosion of underground cables, water pipes, and other metal objects, by stray return currents—is a problem encountered to some degree in all cities having electrified transport systems which use the rails to return traction current to the substations. In Melbourne the problem is particularly acute.

Various devices have been employed to combat this problem since Melbourne's tramways and railways were electrified, but with the growing number of underground facilities provided by various authorities the present measures are proving increasingly ineffective.

A technical committee, comprising representatives of the State Electricity Commission, the Melbourne and Metropolitan Board of Works, the Gas and Fuel Corporation, the Postmaster-General's Department, the Melbourne and Metropolitan Tramways Board, and this Department, investigated the matter and recommended the provision of metallic return circuits to "trap" the stray currents that cause the trouble. The work has been commenced and the cost is being shared by the various authorities concerned.

The amount provided is the estimated expenditure by the Department during the currency of the Act.

(129) *Westall : Provision of public goods siding, including acquisition of land.*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$70,842.

The previously existing public goods sidings at Clayton and Springvale were inadequate for the traffic offering and had no room for expansion ; moreover, neither could be serviced without interfering with road traffic at busy level crossings.

It was accordingly decided to abolish both yards and replace them at Westall by a new facility which does not involve shunting over a level crossing and which has been established on an area allowing room for future expansion.

The necessary land has been acquired and a sufficient length of the new siding has been built to enable Clayton and Spring Vale goods yards to be closed. During the currency of the Act funds are required to enable construction of the siding to be completed.

ITEM 2—ROLLING STOCK, EQUIPMENT, MACHINERY AND OTHER WORKS.

Sub-Item.(201) *Locomotives.*

This sub-item provides for expenditure during the currency of the Act on the Department's diesel locomotive programme, which is aimed at eliminating steam traction from the System by 1972.

The amount provided is to meet final payments on 25 "Y" class locomotives of 650 h.p., all of which are in service ; and to meet instalments towards the cost of 6 "X" class locomotives of 1,800 h.p. and 10 "T" class units of 900 h.p., all of which are expected to be received during the currency of the Act. Provision is also made for the purchase of a number of rail tractors for shunting work.

(202) *Suburban electric trains.*

A continuous programme of construction of suburban electric trains is necessary, both to provide for growing outer suburban traffic and to replace outworn rolling stock. First to be replaced will be the outmoded swing-door cars ; after all these have been scrapped, the oldest of the "Tait" type sliding-door cars will progressively become due for replacement.

The funds available permit new trains of the "Harris" type to be placed in service at a rate of 5 per annum. Since the introduction of the first train of this type in 1956, 57 seven-car trains have been placed in service, and funds are required to enable a further 3 trains to be completed during the currency of the Act.

In addition, 10 "Harris" type motor carriages are being built to enable 10 trains to be increased in length from 7 to 8 carriages to improve peak period services on the Belgrave, Lilydale and Glen Waverley lines.

(203) *Country carriages, brake vans and sundry stock.*

The amount provided under this sub-item is required to meet Victoria's share of the cost of constructing two additional joint stock second-class saloon-type sitting carriages (which are in service) and two additional twinette sleeping carriages for the Melbourne-Adelaide "Overland" express ; and towards the provision of 40 additional bogie brake vans for fast goods trains.

(204) *Self-propelled rail cars and trailers.*

The amount provided under this sub-item is required to complete the programme of installing more effective heating equipment in the Department's rail-car fleet and to meet the cost of a replacement rail-car engine.

(205) *Wagons.*

The amount provided is to complete the purchase of 100 bogie aluminium hopper wheat wagons (all of which are expected to be in service for the coming harvest) and to meet the estimated expenditure during the currency of the Act on the construction of new wagons and vans in Departmental workshops.

ITEM 2—ROLLING STOCK, EQUIPMENT, MACHINERY AND OTHER WORKS—*continued*.*Sub-Item.*(205)—*continued*.

In order to provide for modern competitive conditions, new construction is being concentrated mainly on high-speed bogie vehicles for general goods and specific traffics, including containers, steel, cement, flour, motor cars, and flexivans.

All new vehicles are fitted with roller bearings, which practically eliminate the possibility of hot boxes.

(206) *Rolling stock equipment, machinery and other works, including road motor vehicles.*

This sub-item provides for the replacement of wagon tarpaulins and lashings; the purchase of plant and machinery for rolling stock workshops; and the purchase of road motor vehicles including departmental cars, buses, goods vehicles and vehicles for servicing, inspection and breakdown purposes.

ITEM 3—CONSTRUCTION OF NEW LINES OF RAILWAY, ETC.

Sub-Item.(301) *City of Melbourne underground railway (preliminary planning and investigation).*

This work was authorized under previous Loan Acts.

Total expenditure to 27th August, 1966, \$300,105.

Following passing of the *City of Melbourne Underground Railway Construction Act* 1960 (now amended by subsequent legislation) detailed planning and survey work was commenced, and continued progress is being made.

Analysis of the information obtained from the initial test drilling programme comprising some 200 bores totalling approximately 11,000 feet indicates the need for additional data in specific locations where drilling has shown abrupt changes in sub-surface conditions.

The detailed survey of all known existing underground services along the route has been completed including locations where further test drilling is desirable.

With respect to test drilling so far carried out, detailed reports, including record of results and conclusions reached from laboratory testing of field core samples and in situ field tests, have been completed.

Detailed design of track alignment and grading has been completed but is subject to confirmation of the route in the vicinity of the Commonwealth Centre, Spring-street.

In conjunction with the New South Wales Railways Department, vibration and noise studies were made last year at various points throughout Sydney's underground railway, the object of which was to determine the relevant effects of different types of track construction.

During the currency of the Act, it is proposed to carry out approximately 2,000 feet of further test drilling to supplement the information already obtained. Examination of the drill cores will provide additional information where the geology is in some doubt and will permit of the

ITEM 3—CONSTRUCTION OF NEW LINES OF RAILWAY, ETC.—*continued.**Sub-Item.*(301)—*continued.*

completion of the geological cross sections and block diagrams of the underlying rock structure. This additional detail information is necessary for determining the method of tunnelling to be used, tunnel and station design, and for the use of tenderers. Also, studies will be continued on the jointing system, again for the purposes of design and method of construction of the tunnel.

It is proposed to embark on intensified water studies both in connexion with construction and the types of materials to be used in tunnel linings. The water is known to have a high saline content and its corrosive action on construction materials must be minimised.

Plans for station layouts, points of entrance, &c., will be re-examined in the light of proposed developments along the route, especially along La Trobe-street. One such example is the re-building programme of the Royal Melbourne Institute of Technology.

Work will be continued on the preparation of contract documents and associated descriptive material for tendering.

(302) *Surveys, Plans and Estimates.*

This amount covers the estimated expenditure for reports, inspections and surveys, and the preparation of any necessary plans and estimates during the currency of the Act.

(303) *Expenditure on other lines which have been or may be authorized by Parliament for construction.*

The amount sought is to cover expenditure, if required, on any new line that has been authorized, or on any new line that may be authorized during the currency of the Act.