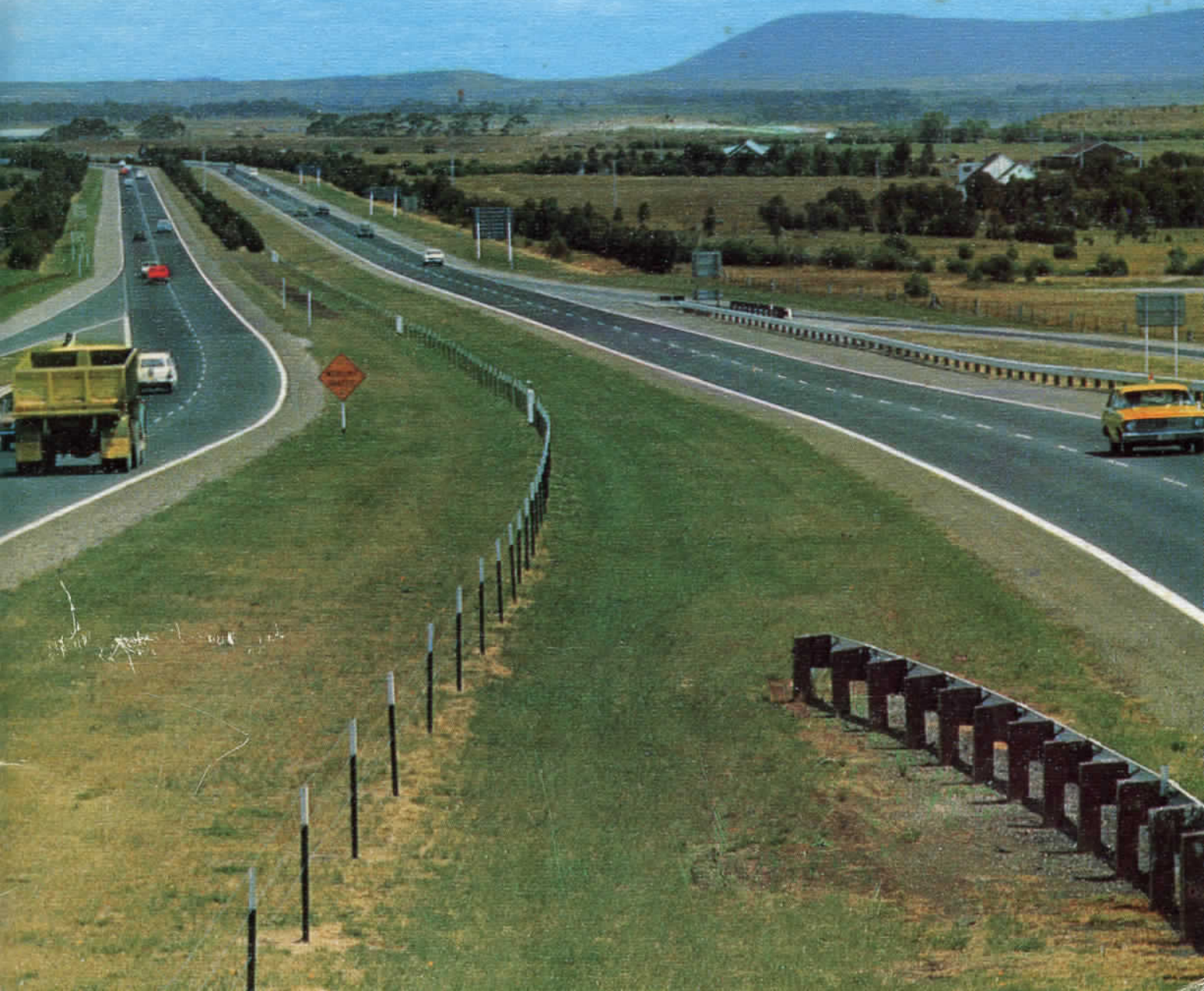


The Country Roads Board Victoria





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Cover :

The Tullamarine Freeway
south of Melbourne Airport



Mr. R.E.V. Donaldson,
Chairman



Mr. J.D. Thorpe,
Deputy Chairman



Mr. T.H. Russell,
Member



The Inverloch - Wonthaggi Road in 1913



Toll gate on the Great Ocean Road, 1921



Plant working on the Maroondah Highway at Coldstream in 1928



Bullock team grading the Grampians Road, 1939

History of Victorian Roads to 1913

While road administration in Victoria, prior to the constitution of the Country Roads Board in 1913, was pervaded by the view that the provision of roads was primarily the concern of local enterprise, early legislation did assume distinction between roads of national and of purely local importance, and provided for the apportioning of costs accordingly. However, the brunt of the burden fell upon Local Government bodies, which in rural areas at least were brought into existence for the primary purpose of providing the administrative machinery necessary for the construction and maintenance of roads.

1836-1851 Before Separation from New South Wales

From the time of first settlement in 1836 until 1851, the authority responsible for the construction and management of roads was the Government of the Colony of New South Wales. During this period, road administration was marked by an almost complete lack of planning and Government finance. The Public Roads Act of 1833, which provided for the making of roads in the Colony, empowered the Governor to declare what roads were to be made and whether they were to be maintained at the public expense or the expense of the parishes through which they passed, but this power was not applied to the newly-settled Port Phillip District, as Victoria was then known. Many sections of land were surveyed and sold without provision for roads, and the trail made by the original settler was, in most cases, adopted and proclaimed the public highway. The sums allocated for the construction of roads and bridges were niggardly in the extreme, and the responsibility for the provision of roads was, in the main, relegated by the Central Government to local enterprise.

Road Trusts and District Councils

In 1840 the Parish Roads Act provided for the establishment of Trusts to make and maintain roads. The owners of land within three miles of a road could elect trustees for a period of three years, the trustees being empowered to levy a rate not exceeding 6d per acre per annum on land owners in their area, and collect tolls from those using the road. A Trust could also borrow money by mortgaging the rates and tolls.

In 1842 another Act provided for the establishment of District Councils with powers similar to those of the Trusts. Roads continuing to be a problem beyond the resources of local enterprise, the Government appointed a Commission in 1847 "to consider the question of the construction and maintenance of the roads and bridges of the Colony". The Commission recommended a reversion to the system of local Trusts for the construction and maintenance of "district" roads and bridges, with the Central Government undertaking the responsibility for arterial routes. The recommendation of the Commission did not find expression in the Port Phillip District since the move for Separation from New South Wales was well advanced.

Although little was accomplished in the way of actual road construction during the period of government by New South Wales during the years of 1836-1851, a number of important principles of road administration were established, and some valuable lessons learned.

The principle of the road user and the land owner who benefited from the road, each contributing to its construction and upkeep by the payment of tolls and rates on properties respectively, was established by the Acts of 1840 and 1842, and the need for a division of responsibility as between local and arterial routes, by the Commission of 1847.

After Separation from New South Wales

In November, 1851, within six months of taking office, the Government of the newly-created Colony of Victoria appointed a Select Committee of the Legislative Council on Roads and Bridges "to enquire and report on their present state, and how the funds placed at the disposal of Government may be expended to the best advantage throughout the Colony". The Committee heard evidence from a number of individuals, including Robert Hoddle, the Surveyor-General; David Lennox, the Superintendent of Bridges; D. C. McArthur, a bank manager, who had been responsible for the first Road Trust at Heidelberg, established under the Act of 1840; and a Major Campbell, who had been connected with the Central Road Board in Adelaide.

The Report of the Committee, published in 1852, provides a graphic description of the roads as they existed in 1851 — "the succession of quagmires impassable by wheel carriages and traversed by pack horses, conveying goods and merchandise at enormous cost of transit", and roads were often so badly surveyed that it would be "found a work of difficulty and great expense to construct them on many of the reserved lines". The Committee considered that "some system should be adopted by which lines of internal communication may be aligned according to a general plan, commencing the formation of macadamised roads at towns, and extending them into the interior; these roads to be constructed as the resources of the Government will admit, so as, by degrees, to open up the country and develop a perfect network of roads throughout the Colony". The Committee recommended the establishment of a Central Road Board with exclusive powers over main roads and the establishment of District Road Boards to undertake works on local roads. A further

recommendation was to the effect that main roads should be financed by the Government, which should also subsidize local roads on a pound for pound basis with the local settlers. In both cases, roads once constructed should be maintained by the collection of tolls. The Committee also recommended that His Excellency the Lieutenant Governor should appoint an Inspector-General of Roads and a sufficient staff of engineers, clerks and other officers to act under the director of the Central Road Board.

The Period of Centralized Administration 1853-1863

As a result of the report of the Select Committee, an Act for making and providing roads in the Colony of Victoria was passed by the Legislative Council and received assent on the 8th February, 1853. A Central Road Board consisting of three members was appointed and held its first meeting on the 15th March, 1853, 60 years to the month before the first meeting of the Country Roads Board. This Act also provided for the establishment of District Road Boards as recommended by the Committee.

While the constitution of a central authority responsible for roads throughout the Colony working in close co-operation with local administration marked a major development in road administration, circumstances in other directions were not altogether propitious. The Central Road Board lacked the freedom that it needed to carry out its task. It was responsible to the Colonial Secretary for policy, the Treasurer for financial administration and to the Surveyor-General for co-ordination of its works programme with other public works. In spite of this division of control it established excellent relations with the District Roads

Board which came into existence during its period of office and achieved some worthwhile road and bridge construction, particularly on the arterial roads which were its prime responsibility. In 1857 the Central Road Board was abolished by the Act of Parliament which established the Board of Land and Works. This Act transferred the responsibility for road administration to the Department of Roads and Bridges of that Board, but did not otherwise alter the system established by the Act of 1853, which remained in operation until the management of roads passed to the local government bodies established under the Municipal and Local Corporations Act of 1863. The Act of 1863 authorized the constitution of Shires, making them, together with the Road Districts which remained, bodies corporate. All roads within a Shire or Road District were placed under the control of the Council of the Shire or the Board of the Road District. All other roads outside a Road District or a Shire remained the responsibility of the Central Government, the responsibility being discharged until 1877 by the Commissioner of Railways and Roads, and thence forward by the Public Works Department. Railways construction by this time had gained momentum and the care of roads was to the Central Government a matter of secondary importance. The vast influx of population caused by the finding of gold in 1851, and the opening of the goldfields around Bendigo and Ballarat, had necessitated improved communication and railways were the answer in view of the slowness of horse and bullock-drawn vehicles.

By 1860, large-scale alluvial gold-mining had practically ceased and, although quartz mining continued to occupy a considerable proportion of the population, the number of

miners looking for a more settled occupation rapidly increased. Considerable settlement took place from 1862 onwards, and the cares and responsibilities of local government increased.

The toll system intended to place the burden of road maintenance equitably on the road user, had in practice proved unsatisfactory. The costs of collection were high and the revenue uncertain. Never popular with road users, the system came to be regarded as "barbarous, vexatious and costly". The Shires and Boroughs Statutes of 1869 provided that tolls could be abolished if the councils so desired but since these Acts did not offer an alternative means of providing revenue for roads, the toll system remained until 1877, when it was finally abolished by Act of Parliament.

The Local Government Act of 1874 provided for municipalities a total endowment of £310,000 per annum for five years, but the means of distribution set out in the Act was inequitable and well-established Districts received much more favourable treatment than did the new and more isolated Districts. In 1879 the financial provisions of the Act ceased, but the endowment was continued as a subsidy which reached the sum of £450,000 in 1890 and 1891. The Local Government Act of 1891 continued the provision at the rate of £450,000 and placed the distribution on a much more equitable basis but, by 1894, the amount had been reduced to £100,000, at which figure it remained until 1914.

The Land Act of 1862 permitted selection before survey, and, as in the early days of settlement, badly located roads, and maintenance, were a natural consequence. The area of the State most particularly affected in this regard was Gippsland.

Country Roads Board

Events leading to the Establishment of the Country Roads Board

At a meeting held in Warragul on the 15th August, 1911, representatives of 18 councils met together and passed a resolution to the effect "That the Government be asked to form a Gippsland development trust, subject to the consent of the Councils, the Government to lend £1,000,000 to the trust at 3¼ per cent, with 1½ per cent sinking funds and subsidies, special grants (averaged) and money received from the unused roads and water frontages in Gippsland, the Government to find the balance of interest and sinking fund; this £1,000,000 to be expended by the Shire Councils, under the supervision of the trust, upon the main roads leading to stations, the trust to recommend to the Government, from time to time, proposals for railways and ports required for the development of Gippsland". The following day, a deputation conveyed the resolution to the Acting Premier and the Acting Minister of Public Works and was assured that its representations would be sympathetically considered.

In 1910 the Inspector General of Public Works, Mr. Wm. Davidson, had submitted a report recommending the establishment of a Roads Board to take over the care and management of main roads and subsequently Mr. J. A. Norris, then Sub-accountant of the Treasury, was directed to investigate and report upon the road needs of the State. In his report, published on 21st December, 1911, Mr. Norris also recommended the establishment of a central roads authority stating inter alia, that lack of co-operation between municipalities in the construction and maintenance of arterial routes, the distribution of such State aid as was available without supervision over the expenditure or "thorough investigation into actual needs, and the absence of a central authority to supplement, guide and weld together the efforts of local bodies" were equally to blame.

The development of the motor vehicle accelerated by rapid improvements in construction of the petrol engine and pneumatic tyres was bringing a new class of traffic to roads. Motor vehicles were first used for pleasure and later

for carting small loads. This traffic accentuated the demands for better roads. These demands, and the representations of Mr. Davidson and Mr. Norris, were not to be denied and, in 1912, the Country Roads Bill was before Parliament. Experience in Victoria, and overseas, had indicated that if the problems of road construction and maintenance in a rapidly developing country were to be overcome, it would be necessary to appoint a strong central authority with wide discretionary powers to work in close co-operation with the existing machinery of local government, to provide expert technical knowledge of recently developed techniques and to disseminate information regarding surveys and investigations made. The Act of 1912 was, therefore, framed with these requirements in mind.

On 1st January, 1913, the Country Roads Act was proclaimed creating once more a central road authority after 38 years of disintegrated control.

Constitution of the Country Roads Board

The Country Roads Act, 1912, created the Board as a statutory corporation consisting of three members appointed by the Governor in Council and set out the Board's powers and responsibilities.

Amongst other things the Act provided that the Board should carry out all such surveys and investigations as were necessary or expedient to ascertain —

- (i) what roads should be main roads;
- (ii) the nature and extent of the resources of Victoria in road-making materials and the most effective and economical methods of utilizing them;

- (iii) the most effective methods of road construction and maintenance in the whole or any part of Victoria;
- (iv) what deviations in existing roads, or what new roads should, in its opinion, be made so as to facilitate communication and improve the conditions to traffic;
- (v) record, publish and make available for general information the results of all such surveys and investigations;
- (vi) purchase all land, machinery, tools and materials necessary for the purposes of the Act.

Although these powers and responsibilities have been extended from time to time to meet the demands of changing conditions, the basic provisions of the original Act of 1912 have remained unaltered, enabling the Board to preserve its independence from sectional pressures and to discharge its duties to the greatest benefit of the State as a whole.

The Board's First Two Years

When introducing the Country Roads Bill in the Legislative Assembly in 1912, the Hon. H. McKenzie outlined the Board's duties and stated that its first duty would be:

"to make a thorough investigation into existing highways, so that it may have the materials on which to exercise sound judgment".

Since the Act gave the Board very wide discretionary powers in determining which roads should be main roads, but required that councils were to be consulted before the declaration of any main road, it was also necessary that councillors should have a clear conception of the provisions of the Act, of the manner in which the Act was to be administered, and the benefits expected to ensue from operation of the Act. The Board, therefore, immediately set about the task of visiting every municipal district in the State, to inspect the roads in each and to

explain the provisions of the Act to the respective councillors.

To facilitate the investigation, the Board divided the State into ten districts, taking them in the order considered to be the most necessitous, and formulated certain principles for its own guidance. First, it was decided that the inspection of a district should be completed before determining what roads should be main roads within any one municipality and, second, that in deciding what roads should be main roads the following criteria should apply:

- (i) whether they were main arterial roads carrying extensive traffic, or likely to carry extensive traffic between centres of population, or from one district to another;
- (ii) whether they were subject to considerable traffic from rural districts to the railway systems;
- (iii) whether they were developmental in character, that is, whether their construction would be likely to lead to improved settlement or increased production.

With these considerations in mind the Board commenced its investigation with an inspection of the Gippsland District. This was carried out between May and September, 1913, when conditions were at their worst, and the greater part of the journey had to be made on horseback. Inspections of East Gippsland, the Cape Otway District, the North-Eastern District and the South-Western District followed in 1913, the remaining parts of the State being visited in the following year. In its Second Annual Report the Board was able to state that:

"In the course of the investigation, every shire and borough in the State was visited . . . and without exception the Board was most cordially received".

As a result of the investigation of road condi-

tions throughout the State, the Board declared some 5,000 miles of roads to be main roads, and outlined, for the guidance of municipalities, some considerations which were to be followed in the construction of the system.

The investigation had revealed that a wide diversity of constructional methods operated throughout the State and that design standards varied from shire to shire. Frequently, little attention was given to the provision of adequate foundations and drainage. The lack of adequate thickness in the pavement and faults in its construction due to poor materials and improper methods had resulted in many of the failures noted. Many municipalities lacked proper equipment, some having no road-making appliances whatsoever, and few had a proper appreciation of the need for regular and systematic maintenance. In its discussions with the councils, therefore, the Board found it necessary to discuss these matters and, subsequently, to provide the necessary instruction and advice in the adoption of suitable standards, methods and equipment.

Occupied as it was with its investigation, the

Board could devote little attention to road construction, particularly as it was decided that no construction would be approved until surveys and investigations had determined the most suitable location for the road. Faulty alignment had proved most expensive in the past, and old mistakes were not to be repeated. However, in its first year the Board was able to approve contracts for permanent works amounting to a total of £94,876, of which £23,440 represented contracts let directly by the Board and £71,436 by the municipalities. The first contract under the Country Roads Act was let for metalling on the Olinda Road in the Shire of Fern Tree Gully on 23rd December, 1913, while the first to be completed was on the main Gippsland Road in the Shire of Warragul, adjacent to the site where the Calder Memorial now stands on the Princes Highway 2 miles on the Melbourne side of Warragul. In the following year contracts for permanent works amounting to £496,878 were approved, £80,647 of which represented contracts let directly by the Board and £416,191 by the municipal councils. In the first year, 28 municipalities were affected by these works and in the second year 92 municipalities were affected.



The first Board visiting Gippsland in 1913

The Board's present organization

The Board is organized functionally into three Branches, namely the Chief Engineer's Branch, the Secretary's Branch and the Chief Accountant's Branch.

The Chief Engineer's Branch is responsible for the control of the road and bridge works undertaken by the Board and co-ordinates and supervises technical aspects of those works undertaken by municipal councils to which the Board contributes financially. Specialist Sub-branches have been formed under the titles: Planning, Road Design, Works, Bridges, and Mechanical.

To facilitate close contact with municipal councils and to decentralize supervision of works under the direct control of the Board, 10 regional divisions, each headed by a Divisional Engineer, have been established. Divisional offices are located at Bairnsdale, Ballarat, Benalla, Bendigo, Nunawading, (Dandenong Division), Geelong, Horsham, Traralgon and Warrnambool. Metropolitan

Division is based at the Board's Head Office in Kew. Materials testing laboratories and depots are also established at each of the country divisional centres.

The Secretary's Branch consists of a number of specialist sections formed to handle particular activities relating to the allocation of funds, control of heavy traffic, contracts, land acquisition, methods study, Head Office buildings, personnel and training, administrative manuals, correspondence, filing, legal matters, the preparation of information for release to the general public, preparation of the Agenda for Board Meetings, and the promulgation of Board's decisions and directions.

The Chief Accountant's Branch is responsible for recording the Board's receipts and expenditure, and co-ordination of records with the State Treasury and municipalities, the operation of the Board's costing system, and the control of and accounting for stores.



The Board's Head Office building in Denmark Street, Kew

Road Classifications

There are about 101,000 miles of public roads in Victoria of which some 14,700 miles comprise the State's principal system of Country Roads Board declared roads.

Under the provisions of the Country Roads Act the Board may, subject to the confirmation of the Governor in Council, declare any road to be a State highway, a freeway, or a main road. The Board also has power to recommend to the Governor in Council that any road be proclaimed as a tourists' road, or a forest road.

The Board's system of classified or declared roads as at 30th June, 1972 comprised 4,428 miles of State highways, 70 miles of free-ways, 484 miles of tourists' roads, 646 miles of forest roads, and 9,076 miles of main roads.

Main Roads

Main roads are roads linking centres of population with other centres or with areas of settlement.

The original Act of 1912 provided that the

cost of maintenance works on main roads should be shared equally by the Board and the municipalities. Municipalities were also required to repay half the expenditure incurred on permanent works.

In 1924 the Highways and Vehicles Act reduced the statutory contribution from municipalities on maintenance to a maximum of one-third, which could be reduced by the Board in certain circumstances. By the application of this authority, and later by the use of Federal Aid money without charge to the municipalities, the contributions made by the Board to total main road expenditure has increased in recent years to approximately nine-tenths of the expenditure incurred.

The revenue, valuation and rating of the municipality and its financial obligations for loan expenditure on permanent works are taken into account by the Board in deciding the level of contribution by a council.

Generally main roads are constructed and maintained by municipal councils to the satisfaction of the Board. In some cases the Board undertakes this work at the request of the council.



The Heidelberg - Doncaster Road, west of Bulleen Road, City of Doncaster and Templestowe

State Highways

State highways are the principal road arteries forming interstate connections and links between the larger centres of population in the State.

The Government in 1924 passed the Highways and Vehicles Act which provided for the declaration of State highways. This Act recognized the growing importance of the motor vehicle and of the longer lines of communication to the economy, and removed the burden of providing for long-distance "through" traffic from the municipalities through which the routes passed. Since the passage of the Act, the full costs of both construction and maintenance on State highways, for that portion of the carriageway required for through traffic, have been charged to the Board's funds.



The Maroondah Highway, North Croydon



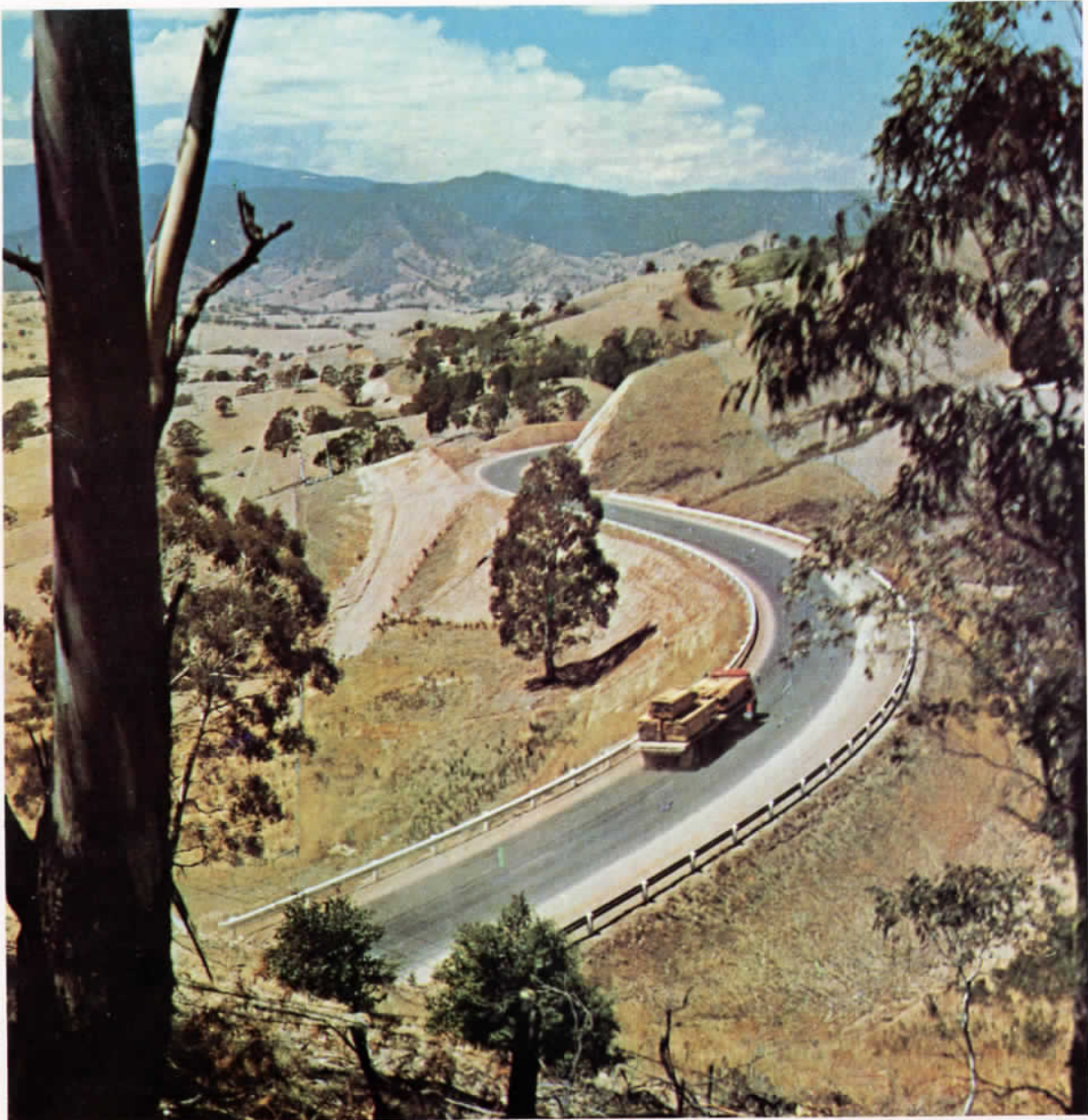
The Princes Highway through Oakleigh



The Omeo Highway at Monkey Creek



The Hume Highway north of Wallan



The Omeo Highway at Tongio Gap

The characteristics and functions of a State highway may vary according to the types and volumes of vehicles using it between the centres which it serves. The Maroondah Highway, for example, provides an illustration of these differences. From Box Hill to Lilydale it is a busy urban traffic artery of dual carriageways used by commuters and commercial

traffic daily. Beyond the Warburton Highway junction north of Lilydale, streams of weekend tourist traffic are carried on a single carriageway through rich undulating farms and river flats. North of the Great Dividing Range, the highway provides road access between towns serving predominantly pastoral districts.



The Great Ocean Road at Grey River



The Grampians Road near Halls Gap

Tourists' Roads

Tourists' roads are roads which are so proclaimed and carry mainly tourist traffic.

The Tourists' Road Act was passed by the Government in 1936, whereby the Governor

in Council on the recommendation of the Board, may proclaim roads of sufficient interest to be tourists' roads. The Board bears the full cost of works required to cater for the needs of through traffic and in general carries out the works concerned.



Timber traffic on the Walhalla Road

Forest Roads

Forest roads are roads so proclaimed and are situated within or adjacent to any State forest or in areas which are considered by the Board to be timbered, mountainous, or undeveloped. The Forest Roads and Stock Routes Act was passed in 1943 to give assistance to municipalities in respect of roads carrying timber traffic from State forests and privately owned timbered land. Under that Act the municipalities were relieved of all costs of construction and maintenance of roads proclaimed to be forest roads.

The Board bears the full cost of works required to cater for the needs of through traffic, with approximately half the work carried out on these roads being undertaken by municipal councils on behalf of the Board.

Freeways

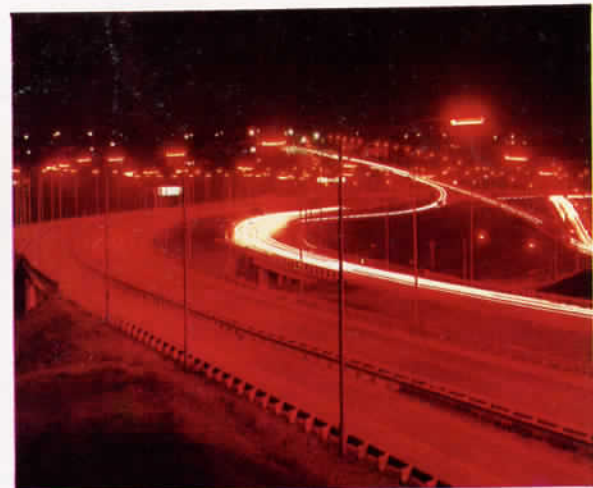
Freeways are roads with dual carriageways having no direct access from adjoining properties or side roads. All crossings of a freeway are by means of overpass or underpass bridges, and traffic enters or leaves the freeway by means of carefully designed ramps.

In 1956 the Board was empowered to construct freeways, described in the Act as by-pass roads. The Country Roads (Amendment) Act of 1969 provided for the title of by-pass road to be changed to freeway. The construction of strategically located freeways in both urban and rural areas is a vital requirement in the achievement of an efficient and safe road system. Freeways allow through traffic to by-pass centres of population and specially designed interchanges provide connections with the street system.

The Board bears the full cost of all works on freeways.



The Princes Freeway (Moe Section)

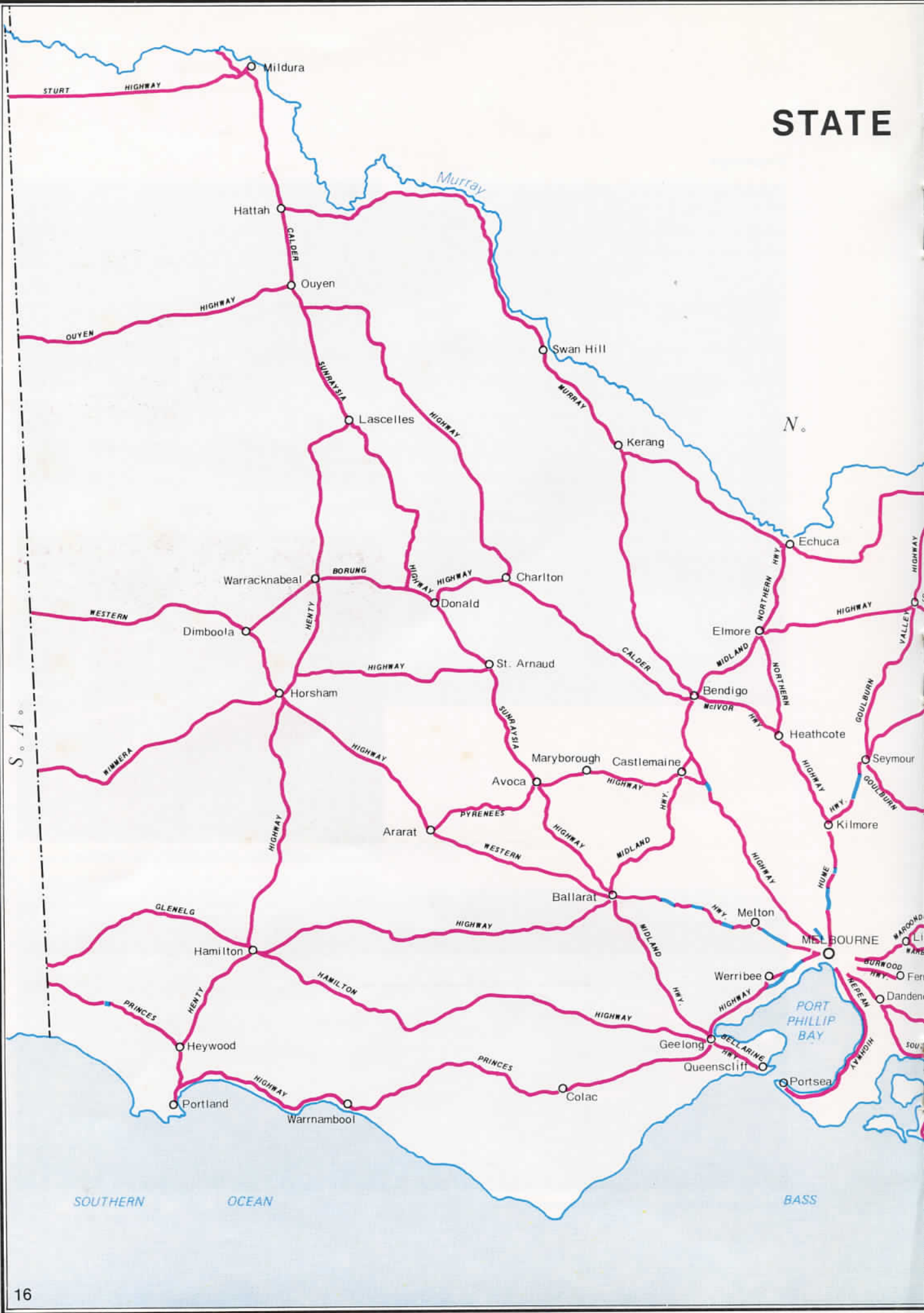


The Strathmore Section of the Tullamarine Freeway



The Western Freeway (Pykes Creek Section)

STATE



HIGHWAYS OF VICTORIA

STATE HIGHWAYS —
 FREEWAYS —



Area of Victoria	87,884 sq. miles
Population of Victoria (1971 Census)	3,496,161
Total road miles	101,000 miles (approx.)
Mileages of roads declared or proclaimed under the Country Roads Act (as at 30th June, 1972)	
• State highways	4,428 miles
• Freeways	70 "
• Tourists' roads	484 "
• Forest roads	646 "
• Main roads	9,076 "
Total declared or proclaimed roads	14,704 miles



Unclassified Roads

Roads which are not included in the Board's declared system are referred to as unclassified roads. These roads are the responsibility of local councils but each year the Board provides financial assistance towards the cost of construction and maintenance works on unclassified roads, generally in accordance with priorities allotted by municipal councils. Municipal contributions are determined at the time the allocation is made and are based on many factors including the nature, extent and location of the particular work and the financial position of the municipality concerned.

The total amount of municipal contributions average approximately one-fifth of the total expenditure incurred from the allocations made by the Board for construction work on unclassified roads.



A typical rural unclassified road

Developing The Road System

The magnitude of the Board's work has increased greatly over the years, both in the numbers of projects carried out simultaneously throughout the State and in the size of individual projects undertaken. This has involved the use of advanced road and bridge design practices, modern construction techniques, scientifically tested materials, and sound management concepts.

The type of road development required to meet the needs of today's traffic includes provision of dual carriageways, wider pavements on undivided roads, wider and stronger bridges, and the elimination of railway level crossings. Where high traffic volumes are generated it may be necessary to develop completely new freeway type roads to provide direct, safe travel.

Planning

Planning for the improvement and maintenance of Victoria's road system requires the development of short and long term plans and works programmes.

Road planning must take into account the total resources, both physical and financial, which are available to meet the existing and future demand for road facilities.

Within the Planning Sub-branch the Advance Planning Division is responsible for inventories of road conditions, road needs surveys, the development of long-range plans for road systems, the analysis of revenue resources to finance roadworks, and the development of objectives and reliable criteria for establishing priorities.

The Freeway Planning Division of the Planning Sub-branch undertakes transportation studies, the investigation of detailed location and functional designs for freeways, and the preparation of long-term planning programmes within the limits of available funds.

Road Design

Road design follows the programmes of action formulated by planning. It includes the choosing of route locations, the fixing of road design standards and the preparation of detailed engineering plans and specifications for construction.

These activities are carried out within the Road Design Sub-branch as are the associated activities which include the investigation of traffic operations, traffic control devices and accident studies, land subdivision proposals abutting the Board's declared roads, the examination of Planning Schemes, and the survey of land to be acquired for road purposes. Road Design is assisted by modern scientific techniques such as photogrammetry, electronic measuring, and the use of computers.



The Eumemmerring Freeway under construction



Right of Way

The construction of new roads and the widening of existing road reserves cannot be accomplished without the purchase of land.

The Board realizes that land which is used for housing, agriculture, industry, or commerce can rarely be made available for road purposes without affecting the personal and pecuniary interests of the owner. The Country Roads Act provides that the Board shall make full compensation for the value of the lands taken or used, and for all damages sustained.

The main principle adopted by the Board in the assessment of compensation is to ensure as far as possible that the owner is placed in the same financial position after the acquisition of land as prior to the acquisition.

During the year ended 30th June, 1972 a total of \$5.5 million was paid by the Board in compensation for land acquired.

When all necessary land has been acquired it may be necessary before roadworks can commence to relocate public services such as electricity, gas, or water reticulation.

Road Construction

The early investigation of the State's roads by the original Board members had revealed that many roads were inadequate, and that the methods of construction, materials, and equipment available were often unsuitable.

The Board has always placed great emphasis on the use of appropriate methods of construction at reasonable cost, and as early as 1930 had adopted a policy of low cost stage construction. This led to many pavements being built with the knowledge that they would have a limited life but that the work carried out would not be wasted when increases in traffic made strengthening necessary. Today the application of stage construction is more limited, with permanent construction being undertaken on more important roads.

Modern machinery makes possible the economical movement of large quantities of

earthwork in order to construct well aligned and smoothly graded roads in all types of topography. Bituminous surface treatment is carried out by reliable plant, some of the more specialized types having been developed by the Board over the years.

Modern scientific methods are employed by the Board in the testing of soils and road-making materials, resulting in their more efficient use at lower costs.

The control of road construction projects carried out directly by the Board is exercised by the Works Sub-branch. The Materials Research Division is part of this Sub-branch.

The direction and supervision of the procurement, maintenance, and effective operation of the Board's mechanical plant is the responsibility of the Mechanical Sub-branch which has its headquarters at the Board's Central Depot, Syndal.



Reconstruction of the Midland Highway near Mt. Franklin



Reconstruction of the Northern Highway north of Rochester

Bridges

Bridges are an integral part of the road route, and require specialized design and construction techniques.

The Bridge Sub-branch is responsible for the design, supervision, and construction of bridges, and frequently assists with the design of bridges in municipalities.

Although many new structures are built each year, a large number of weak, old bridges remain. To accelerate the rate of replacement, economical standard designs of many types have been produced, and these are employed where appropriate to reduce the planning and construction periods.

The phases of activity for bridge construction follow a similar pattern to those described for road construction and include the determin-

ation of the need to construct a new bridge crossing, replace an inadequate structure, or widen an existing sound bridge. Structural design is aided by the use of computer programmes.

One of the important tasks in bridge building is determining the nature of the material on which the bridge foundations will be founded. Extensive drilling and perhaps seismic survey may be necessary. Solid rock provides the best material for foundations, but as rock is often at considerable depth a common and satisfactory foundation may be obtained by driving piles deeply and firmly into the ground. From these foundations the supporting abutments and piers are built, and finally the bridge superstructure is added to carry the road.



(Above left) Bridge over the Calder Freeway at Grange Road, Niddrie. (Above right) Bridge over the Tarwin River on the South Gippsland Highway at Tarwin. (Below) The Phillip Island bridge at San Remo, with old bridge before removal.

Special Projects

Following the enactment of the Roads (Special Projects) Act 1965 a special fund was established into which is paid a specified proportion of each motor registration fee and each trailer registration fee. This fund called the Roads (Special Projects) Fund is administered by the State Treasurer for the purpose of providing finance for special road projects throughout the State. Approximately one-third of the moneys paid into the fund are allotted to the Board for roadworks in rural areas.

The Roads (Special Projects) Fund has enabled the State's road construction programme to be accelerated beyond that which would have been possible from the normal funds available to the Board.

Works to be financed from the Roads (Special Projects) Fund must be approved by the Governor in Council on the recommendation of the Treasurer of Victoria. Each financial year the Board submits recommendations through the Minister for Local Government to the Treasurer for Special Projects to be carried out or commenced during the year. The Board's recommendations have aimed at extending the length of dual carriageways on the heavily trafficked State highways radiating from Melbourne in addition to the Board's own major works programme, and the extension of the mileage of roads of tourist interest throughout the State.

Maintenance

A modern road system represents an enormous investment both in terms of money and as a community amenity. The preservation of this asset requires sound maintenance practices.

Since its earliest days the Board has emphasised the essential need for proper maintenance. Early gravel roads were maintained by patrolmen each responsible for about 5 to 10 miles of road. As more and more miles of

road surfaces were converted to bituminous seal it was found that maintenance work could be carried out more economically by truck patrols responsible for lengths of road up to 70 miles.

The duties of maintenance patrols include attention to such items as the road pavement, drainage, road signs, guide posts and guard railing, and roadside trees, shrubs, and grass. Expenditure by the Board on road and bridge maintenance represents more than 20% of the total expenditure on roads and bridges.

Metropolitan Roads

The Country Roads Board plays a substantial part in the construction and maintenance of the road system within the Melbourne Metropolitan Planning Scheme Area of 1,942 square miles. Within the metropolitan area there are 174 miles of State highways, 604 miles of main roads, 14 miles of tourists' roads and 34 miles of freeways. Country Roads Board expenditure on roads and bridges in this area was \$29,353,000 in 1971/72.



Dual carriageways in Hyde Street, Footscray



Placing the main span of the pedestrian overpass of the Calder Freeway at Niddrie

Pedestrian Overpasses

Since financial year 1964/65, the Government has authorized the construction of pedestrian overpasses or subways on busy roads with the primary aim of providing safe crossings for school children.

Under this scheme, applications for subsidies are received by the Board from municipal councils for grade separated crossings on State highways in provincial cities and on all important arterial roads in the Melbourne Metropolitan Planning Area. Priorities for the provision of grade separated crossings are determined by the Road Safety and Traffic Authority, in conjunction with the Board. They are assessed on a formula which takes into account traffic volume, average speed of traffic, the number and age range of children crossing the road, and the type of road to be crossed. Costs of these crossings are shared



Pedestrian overpass of the Maroondah Highway at Mitcham

equally by the Government, the Board, and the municipal council concerned.

Other pedestrian overpasses have been built by the Board where new road construction has altered the original relationships between vehicles and pedestrians, including school children. The need for such a provision may arise from the construction of an entirely new road or the reconstruction of an existing road in such a manner as to make crossing by pedestrians more difficult. In these circumstances pedestrian overpasses are provided as part of the road project.

Grade separated pedestrian crossings eliminate the risk of conflict between motor vehicles and pedestrians as well as improving the safety of the road facility by allowing a smoother flow of traffic.

Elimination of Railway Level Crossings

When railways were being constructed during the latter part of the last century it was a period of diminishing road traffic. At times roads were crossed and re-crossed by railways. In some populous areas crossing gates were installed but most crossings were protected only by warning signs.

The huge increase in road traffic over the years has high-lighted the need for the elimination of level crossings both from the point of view of accident prevention and eliminating the substantial costs of traffic delays.

Prior to 1954 some crossings on important routes such as the Hume Highway and Princes Highway were eliminated, but in 1954 the Government introduced special measures to accelerate this process by the establishment of a "Level Crossings Fund" with an initial appropriation of \$500,000. This fund, also receives one-third of the additional registration

fees levied at first registration or on transfer of registration of a motor vehicle.

The present standard proportions of payment for level crossing elimination projects are as follows:

Country Roads Board	50%
Level Crossings Fund	45%
Victorian Railways	5%

Priorities for works undertaken are in accordance with the recommendations of the Abolition of Level Crossings Committee, which consists of a senior engineer of the Country Roads Board, the Victorian Railways and the Public Works Department.

As at 30th June, 1972, overpasses or underpasses have been constructed by the Board or the Victorian Railways to replace 57 railway level crossings throughout Victoria. These works represent a total expenditure of approximately \$29 million.



Railway level crossing eliminated on the Fish Creek - Foster Road at Hoddle

Snow Clearance

Because of the growing popularity of skiing, the clearance of snow from access roads to mountain resorts in the Victorian Alps has become an important part of the Board's activities during the winter months.

The demand for clear roads requires the permanent stationing during winter months of teams of plant operators in properly equipped accommodation, and the use of efficient snow clearing machinery for the particular locality and altitude. Well-designed protective cloth-

ing and heated cabins are provided for the operators, who are often called upon to work from early morning to late at night.

Snow can show great variation in density and condition. Australian snow tends to be wet and, when freshly fallen, is up to three times as heavy as European snow. Light falls may be cleared by graders with suitably designed blades, but heavier falls are most satisfactorily cleared by using machines which throw the snow clear of the road.



Snow clearing on the Alpine Road

Roadside Development

Roadside development has always been an important consideration and has been actively pursued by the Board within the limits of available funds. It has been possible only in recent years to intensify activities towards the development of what might be termed the complete highway providing a balanced combination of safety, utility, economy, and beauty.

Such factors as the preservation of flora, conservation of landscape features, rehabilitation of cleared areas, and erosion control are important aspects of the Board's road design practices. More than 70,000 trees and shrubs are planted on the Board's declared road reserves annually.

The primary road system of Victoria provides a means by which motorists may travel several hundreds of miles in a single day, resulting in a demand for frequent stopping places where travellers can relax, enjoy a meal, or view the surroundings from a safe position clear of the road pavement.

The most highly developed stopping places provided by the Board are designed as Rest Areas. They are completely separated from the road formation and served by adequate advance signs, properly designed points of entry and exit, picnic table-bench units, fireplaces, and litter bins. Water supply and toilet blocks are provided where proper maintenance of these facilities can be assured.



The Nepean Highway at Mt. Eliza



Scenic lookout on the Princes Highway at Lakes Entrance



A typical roadside stopping place



Control of Heavy Traffic

In the interests of safety of road users and the protection of the road itself, it is necessary for the Government to impose statutory limits on the weight, width, height, and length of vehicles and their loads. The Board is responsible for controlling the movement of vehicles and loads which exceed the limits imposed by the Motor Car Act, and for ensuring that as far as possible vehicles in excess of such limits do not travel on roads unless a permit has been issued for a specific route specially selected as suitable for such travel.

Traffic Officers appointed by the Board patrol the State's principal road system and have power to prosecute for offences which occur under the provisions of the Motor Car Act relating to weight, height, length, width, and speed of commercial vehicles.

Research

The Materials Research Division is located in Head Office buildings at Kew.

Routine quality control testing of soils and roadmaking materials, to ensure their compliance with standard specifications, forms the greater part of the work of the Division. Site laboratories with the necessary testing facilities have been established at some of the larger projects undertaken by the Board, resulting in more efficient control of earthworks and pavement construction.

In addition, research investigations have been carried out on structural steels, foundation

problems, the quality of bitumen and road marking paints, and the location of new sources of roadmaking materials. The measurement of roughness of roads, the skid resistance of road surfaces and the strength of road pavements is also organized by this Division.

The location of deposits of roadmaking materials has long been an important function of this Division and since 1961 considerable use has been made of seismic methods. In 1965, electrical resistivity techniques were introduced and both these methods are used in checking the depth and hardness of rock in road cuttings and road formations.



National Association of Australian State Road Authorities

The National Association of Australian State Road Authorities originated from the conference of State Transport Ministers in 1933 when it was considered that road authorities of all States should meet from time to time.

Meetings of the Association are now held twice each year and are attended by the Heads of the following organizations which make up the Association:

Department of Main Roads, New South Wales;
Country Roads Board, Victoria;
Main Roads Department, Queensland;
Highways Department, South Australia;
Main Roads Department, Western Australia;
Department of Public Works, Tasmania;
Commonwealth Department of Works.

The object of the Association is to ensure as far as possible uniformity of policy and practice, and the exchange of information on all aspects of road and bridge construction and usage, planning and administration.

Representatives of the Commonwealth Bureau of Roads and the Commonwealth Department of Shipping and Transport attend sessions of the meetings dealing with Commonwealth Aid

Roads legislation, road needs surveys and studies, and traffic operations.

Australian Road Research Board

The Australian Road Research Board was established by the National Association of Australian State Road Authorities in 1960 to undertake scientific research into problems associated with roads and traffic in Australia, in addition to the research carried out by the road authorities. Heads of the State Road Authorities and the Director-General, Commonwealth Department of Works, constitute the Board.

Research is directed to two broad aims:

- (a) ensuring the most economic overall use of roads, including maximum utilization of existing facilities, as part of the transportation system. Research is carried out into the planning, design, construction, maintenance and operation of roads and road systems; and
- (b) ensuring the proper value of the road to the community. Research is carried out into road safety, the design of vehicles, the behaviour of road users, and the sociological and environmental impact of roads and road transport.



Dual carriageways on the Burwood Highway

FINANCE

To enable the Country Roads Board to carry out its statutory responsibilities, two main sources of funds are available, namely money received from State sources and grants received under the provisions of the Commonwealth Aid Roads Act.

RECEIPTS

During financial year 1971/72 the Board received the following amounts:

State sources	\$ millions
Receipts under the Motor Car Act	34.3
Commercial Goods Vehicles Act	9.1
Municipal Repayments	2.2
Loan Funds	0.4
Special Grant	1.0
General Receipts	0.7
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	47.7
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Commonwealth Aid Roads Act	
Urban Arterial Roads	25.8
Rural Arterial Roads	3.4
Other Rural Roads	15.3
Planning and Research	0.8
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	45.3
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Balance brought forward from 1970/71	0.1
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Total funds available for expenditure	93.1
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EXPENDITURE

During financial year 1971/72 the funds available to the Board were expended as follows:

	\$ millions
State Highways	21.7
Freeways	12.1
Tourists' Roads	2.3
Forest Roads	0.9
Main Roads	20.4
Unclassified Roads	17.0
Plant, workshops, salaries, overheads, etc.	12.6
Planning and Research	1.3
Interest and Sinking Fund	2.6
Miscellaneous	2.1
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TOTAL	93.0
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In addition to the above, the Board expended \$6.7 millions on behalf of the State Government from the Roads (Special Projects) Fund. Further details regarding the financial aspects of the Board's activities are given in a separate brochure entitled "C.R.B. Financial Facts".

