

1978

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VICTORIA

# COUNTRY ROADS BOARD

## **SIXTY-FIFTH ANNUAL REPORT**

FOR YEAR ENDED 30th JUNE, 1978

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PRESENTED TO BOTH HOUSES OF PARLIAMENT  
PURSUANT TO ACT No. 6229

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*By Authority*

F. D. ATKINSON, GOVERNMENT PRINTER, MELBOURNE



60 Denmark Street  
Kew 3101

29th September 1978

The Honorable R R C Maclellan, MP  
Minister of Transport  
570 Bourke Street  
Melbourne 3000

Sir

In accordance with the requirements of Section 128 of the Country Roads Act 1958 No. 6229, the Board submits to you for presentation to Parliament the report of its proceedings for the year ended 30th June, 1978.

The Board wishes to thank the Government for the support and interest in its activities and wishes to place on record its appreciation of the continued co-operation and assistance of State Ministers, Government departments, State instrumentalities and municipal councils.

The Board also pays tribute to the continued loyal co-operation and work done by its staff and employees throughout the year.

Yours faithfully

R E V Donaldson  
AASA (Senior), AIMA, FCIT, JP  
Chairman

T H Russell  
M.Eng.Sc., BCE, Dip.CE, CE, FIE Aust.  
Deputy Chairman

W S Brake  
BCE, CE, MIE Aust.  
Member

N L Allanson  
AASA (Senior), JP  
Secretary



# Country Roads Board

Victoria

**Sixty-fifth Annual Report**  
for year ended 30th June, 1978

Presented to both Houses of Parliament  
pursuant to Act No. 6229

The CRB is the State Road Authority of Victoria. The CRB's aim is to create an efficient road system within the context of the overall transportation needs of the community. There are about 160,000 kilometres of public roads in Victoria, of which 23,697 km comprise the CRB's network of the State's principal roads. The lengths of roads declared or proclaimed under the Country Roads Act are State Highways 7,030 km, freeways 284 km, main roads 14,555 km, tourists' roads 797 km, forest roads 1,031 km.



R E V Donaldson  
Chairman

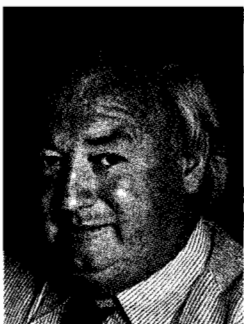


T H Russell  
Deputy Chairman

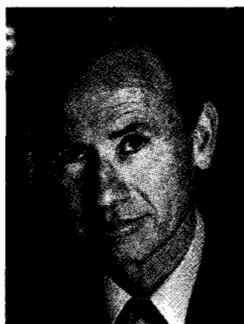


W S Brake  
Member

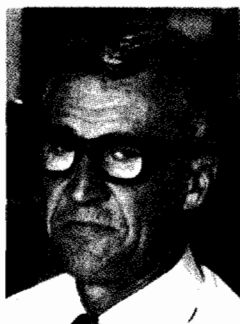
## Principal Officers as at 30th June, 1978



Dr K G Moody  
Engineer in Chief



N L Allanson  
Secretary



R G Cooper  
Chief Accountant

N S Guerin  
Deputy Engineer in Chief

G K Cox  
Deputy Secretary

R J C Bulman  
Deputy Chief Accountant

## Divisional Engineers and Regional Divisional Offices

A N Jephcott  
Bairnsdale

E T Oppy  
Ballarat

R R Patterson  
Benalla

T M Glazebrook  
Bendigo

S H Hodgson  
Dandenong

G W Marshallsea  
Geelong

J W Heid  
Horsham

Vacant  
Metropolitan

Dr D T Currie  
Traralgon

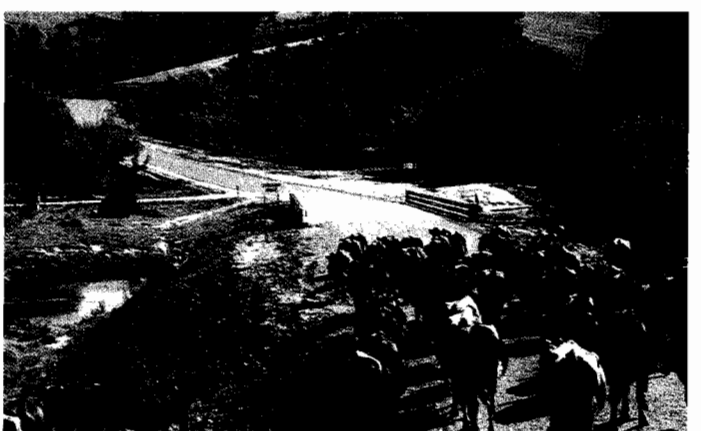
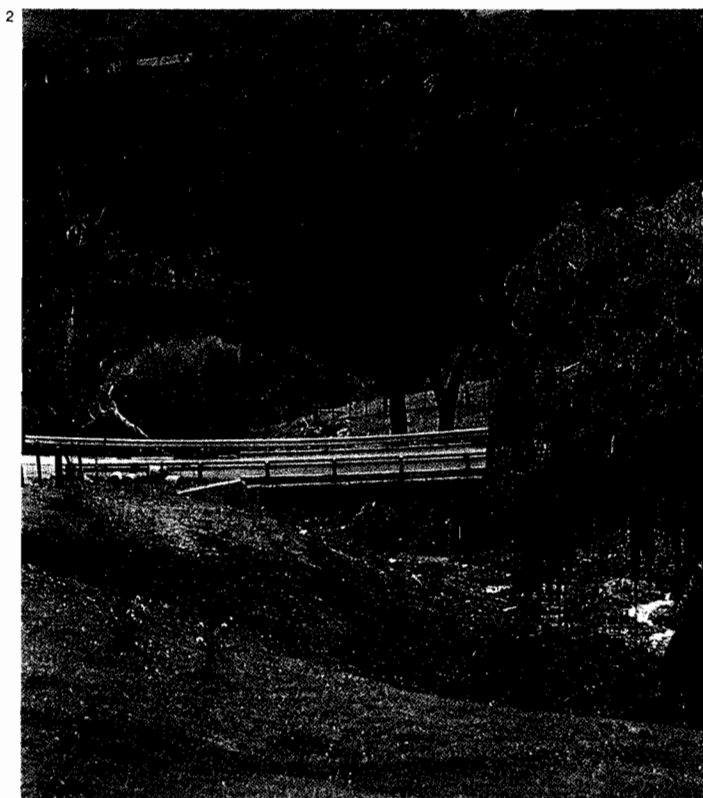
F G Lodge  
Warrnambool

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Rural bridges — some of the new and one of the old.

1. A foggy day at the old bridge over the Buchan River in Buchan on the Bruthen-Buchan Road, Shire of Tambo. One of the more than 2,500 timber bridges in Victoria, many of which, like this one, have load limits to minimise deterioration.
2. Almost complete, a new bridge carrying the Bonang-Gelantipy Road across Stockyard Creek, Shire of Orbost.
3. Dusk at a new bridge carrying the Stawell-Warracknabeal Road over the Wimmera River at Glenorchy, Shire of Stawell.
4. Driving cattle across a new bridge carrying the Wy Yung-Calulu Road across Boggy Creek, Shire of Bairnsdale.



# Review

## Retardation of road programme

The Board has become increasingly concerned that work on many essential projects in urban and rural areas will not be commenced or will be retarded because of lack of sufficient funds. A shortfall in funds of \$48 million is evident in financial year 1978/79.

Table 1 opposite lists the projects under the Board's direct control which will be affected and Table 2 gives an indication of the shortfall on municipal works for which the Board considers funds should be made available.

### The rural state highway system

In rural Victoria there are more than 6,000 km of State highways, most of which have a sprayed bituminous seal surface over a pavement of natural roadmaking materials. In order to construct as much length of roads as possible with the available funds, such pavements were built using the principles of staged construction, with a minimum pavement depth to withstand the traffic loadings expected in the first decade or so of the life of the pavements.

To maintain the system in a satisfactory condition under increasing traffic volumes, it is imperative that each year approximately 3 to 4% of the system be reconstructed and approximately 12% be resealed. In 1977/78 and 1978/79 the Board was able to allocate sufficient funds to enable only approximately 1% to be reconstructed and only 10% to be resealed.

Unless substantially increased funds can be made available to enable a viable programme of reconstruction together with maintaining an adequate resealing programme on the rural State highway system, serious deterioration of long lengths of rural State highways could occur.

### Rural bridge replacement programmes

There are approximately 8,500 bridges and major culverts in the rural road system in Victoria. More than half of these are over 30 years old and were not constructed for heavy, high speed traffic. Between 2,500 and 3,000 of these bridges are of timber construction and subject to deterioration from a number of causes. To replace the timber bridges alone would cost approximately \$180 million and at present rates of expenditure would take more than 50 years. In this period many of the bridges would have collapsed or have had severe load restrictions imposed unless additional maintenance costs to repair these bridges were incurred.

A structure which is deficient whether by physical deterioration or insufficient width is a serious hazard and could well be the cause of an accident costing the community more than the cost of replacing the structure. It is essential that additional funds be made available for expenditure to replace old timber bridges on the rural road system.

### Declared roads system in Melbourne metropolitan area

The Board's expenditure on land acquisition, construction and reconstruction on the declared roads system in the Melbourne Metropolitan Planning Area has declined from \$46.6 million in 1974/75 to \$37.3 million in 1977/78 (in constant money terms at 1974/75 prices). The decline occurred on freeways (down \$9.5 million) whilst State highways, main roads and tourists' roads increased by \$0.2 million. Substantial increases in expenditure on the maintenance of the system will be needed and this will result in a corresponding reduction in the funds available for the development and improvement of the system. This decline in road construction funds is taking place in spite of the following facts:

- (i) the 1976 Australian Bureau of Statistics Motor Vehicle Usage Survey indicates that total travel increased by approximately 5% per annum over the five years from 1971 to 1976;
- (ii) recent travel time surveys by the RACV show that peak period travel times have increased by an average of 25% over a five year period;
- (iii) peak period travel speeds have declined by about 5 km/h in the inner suburbs over the past five years.

Without additional major investment to improve these roads, increases in congestion will continue.

### Requirements for land acquisition

A major problem facing the Board is the need to purchase properties for future road works. The announcement of new projects generates requests by owners for the Board to purchase properties and the inclusion of projects in planning schemes brings obligations on the Board to purchase properties well in advance of road works.

The purchase of these properties places a severe drain on the Board's resources and reduces the funds for expenditure on construction and reconstruction works. The indications are that in 1978/79 the Board will be faced with claims totalling \$33 million for land acquisition compared with expenditure of \$22.53 million in 1977/78.

### Roads under municipal control

Municipal councils are concerned at their inability to maintain roads in a satisfactory condition due to the low level of the Board's allocations.

The following table shows the comparison between applications for funds received from municipal councils and the allocations made by the Board for main roads and unclassified roads.

Year	Municipal applications for funds		Final Alloc.	Allocations to municipalities		% of allocation to application
	Actual	1974/75 constant money value		1974/75 constant money value		
	\$000s	\$000s	\$000s	\$000s		
1974/75	112,571	112,571	54,641	54,641	48.5	
1975/76	146,092	125,293	64,513	55,328	44.2	
1976/77	163,477	123,940	76,093	57,690	46.5	
1977/78	160,781	112,828	77,980	54,722	48.5	
1978/79	174,774	113,859	79,625*	51,873	45.6	

\*Original allocation



**Alternative sources of finance**

The Board recognises that loan funds would be appropriate to finance land acquisition and major construction works but has been denied access to this source of finance for many years. The Board made a submission to the Government on the desirability of this source of finance being made available to the Board.

The only alternative sources of increased funds available to the Board are from traditional Commonwealth or State Government sources.

The Commonwealth Government has shown no indication of raising its contribution to the maintenance and development of the State's roads, and as the table below indicates, Victorian motorists are receiving back less than half their investment in fuel taxes in the form of road grants.

The most readily available additional funds for the Board would be an increase in State motor vehicle and trailer registration fees. In the Board's opinion, an increase in registration fees by at least 40% should be implemented as soon as possible.

**Comparison of fuel taxes and road grants**

The proportion which Commonwealth road grants to Victoria have borne to the amount of customs and excise duty on fuels collected in the Victorian marketing area is as follows:

Year	Customs and excise duty paid in Vic. market area	Commonwealth grants for roads (inc. Planning and Research)	Proportion grant duty
1974/75	\$195.6 m	\$77.09 m	39.4%
1975/76	\$199.0 m	\$89.30 m	44.9%
1976/77	\$206.0 m	\$92.50 m	44.9%
1977/78	\$218.0 m (est)	\$101.04 m	46.3%

**Table 1: projects under CRB direct control**

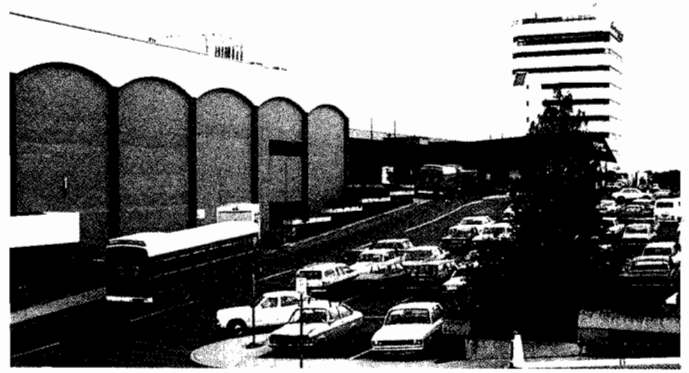
Significant projects which will not be commenced or will be retarded in 1978/79 due to lack of funds.

*Urban projects*

Project	Description of work	Amount of shortfall \$000s
West Gate Freeway	Construction of the eastern section from Graham Street to St Kilda Road	1,800
Route E6	Construction of new route Eastern Freeway to Harp Road	1,400
Eastern Freeway	Extension of freeway from Thompsons Road-Doncaster Road	2,600
Princes Freeway	Berwick Bypass	300
Mornington Peninsula Freeway	Construction of freeway carriageways along Wells Road between Springvale Road and Eel Race Road	1,000
Mornington Peninsula Freeway	Construction freeway from Moorooduc Road to Dromana	1,000
Burwood Highway	Provide additional lanes between Springvale Road and Wantirna-Sassafras Road	800
Mulgrave Freeway	Construction between Warrigal Road and Forster Road	1,500
Princes Highway West	Duplication from Princes Freeway to Werribee including intersection treatment at Hoppers Crossing	400
Princes Highway West	Board's proportion of Latrobe Terrace level crossing abolition project, Geelong	500
Latrobe Terrace	Reconstruction between Hope Street and Fyans Street, Geelong	500
Tullamarine Freeway	Construction between Calder Freeway and Lancefield Road	500
Calder Freeway	Keilor Bypass	2,150
West Gate Freeway	Construction of eastern and western approach roads	2,000
Nepean Highway	Widening of highway between Elsternwick and Moorabbin	6,000
<b>Total Urban Works:</b>		<b>22,450</b>

*Rural projects*

Project	Description of work	Amount of shortfall
		\$000s
Princes Highway East Section 1	Extend duplication east of Pakenham	1,040
Princes Freeway	Construct bypass of Drouin	1,020
Princes Freeway	Construct duplicate carriageway and Watsons Road interchange	650
Princes Highway East Section 6	Reconstruct failed pavement (Rankins to Wingan River)	350
Princes Freeway	Asphalt strengthening (Little River to Hovells Creek)	500
Princes Highway West Section 3	Construct deviation on improved alignment at Cudgee	220
Calder Highway Section 2	Reconstruct at Ravenswood including new bridges at Bullock and Buckeye Creeks	300
Cann Valley Highway	Reconstruct beyond Fiddlers Creek including new bridge	200
Omeo Highway Section 1	Replace road over rail bridge in Bruthen	250
Omeo Highway Section 3	Reconstruct narrow section beyond Omeo	300
Murray Valley Highway Section 2	Reconstruct through Rutherglen	300
Murray Valley Highway Section 2	Complete reconstruction east of Strathmerton	200
Murray Valley Highway Section 4	Reconstruct west of Wood Wood	250
Northern Highway	Reconstruction north of Pyalong	300
Maroondah Highway	Reconstruct Acheron to Breakaway Road including new bridge at Connellys Creek	350
Ovens Highway	Replace bridge over Ovens River at Porepunkah (including approaches)	470
Glenelg Highway	New bridge and approaches at Mt Emu Creek, Skipton	250
Pyrenees Highway	Reconstruct at Shepherds Hill east of Carisbrook	230
Pyrenees Highway	Reconstruct at Mooneys Gap	300
Henty Highway Section 1	Reconstruct south of Branxholme	240
Henty Highway Section 1	Reconstruct (including duplication) in Hamilton	400
Hamilton Highway	Reconstruct (above flood level) west of Inverleigh	400
Ocean Road Section 3	Reconstruct (Otway Lighthouse Road to Calder River)	400
Goulburn Valley Section 2	Reconstruct South of Seymour	110
Midland Highway Section 5	Reconstruction north of Swanpool	210
<b>Total Rural Works</b>		<b>9,240</b>
<b>Total Direct Works</b>		<b>31,690</b>



Under cover bus stop at Doncaster Shopping Town.

**Table 2: municipal works**

Division	Municipalities affected	No. of projects	Total amount of shortfall
			\$100s
Bairnsdale	7	10	0.495
Ballarat	6	6	0.604
Benalla	12	17	0.714
Bendigo	8	11	1.821
Dandenong	16	25	2.799
Geelong	6	10	1.054
Horsham	7	7	0.404
Metropolitan	10	14	4.909
Traralgon	3	12	2.462
Warrnambool	14	29	1.138
<b>Total</b>	<b>92</b>	<b>141</b>	<b>16.400</b>

## Rubber-tyred public transport

There is a growing awareness in the community that various forms of transport are needed to satisfy the travel requirements of those who live in any urban area. Within the Melbourne metropolitan area, the most concentrated movement of passengers is to and from the Central Business District — and this is appropriately handled by the existing fixed rail system. However, this movement to and from the Central Business District is only a small part of the total travel in the metropolitan area.

The majority of travel in the metropolitan area is inter-suburban travel for work, shopping, schooling, recreation and other purposes. This type of travel has widely dispersed origins and destinations, and it cannot be efficiently or economically served by train or tram. Instead, it is very appropriately handled by buses and taxis.

In peak periods, the efficiency of road based public transport is frequently impaired by private cars, but there are several types of traffic engineering measures which can be taken to improve this situation. Traffic lights can be adjusted to give preference to buses or trams, provision can be made for buses to make turns which are banned to other vehicles and provision can be made for exclusive use by buses of particular sections of road.

Although there are currently no roads in Melbourne which have sufficient density of buses (more than 40 per hour) to justify long lengths of exclusive bus lanes, there are instances where short lengths of exclusive bus lane are justified. For example, in Punt Road immediately south of Swan Street and on the Eastern Freeway on the exit lane to Hoddle Street, there are such short lengths to enable buses to pass cars at traffic lights. It can be expected that this measure will be used at other locations in the future.



Eastern Freeway public and private transport flowing freely during evening peak.

Bus services in urban areas can provide a flexible route coverage particularly in serving developing areas where demand is low. The services can be extended later as demand grows. A further advantage is increased accessibility to the buses and reduced walking distances for patrons.

In rural areas, buses can provide a viable, effective service for levels of patronage which would be uneconomic for trains. Country school buses (although not strictly public transport) have enabled country children to enjoy a type of education which would not otherwise have been possible.

The Board makes provision for the operation of public transport on new roads and freeways where this is needed. The design and construction of the Eastern Freeway was heavily influenced by the Government's decision to provide for the proposed East

Doncaster railway line in the median. At present, express buses are using the freeway.

The design and construction of main roads and State highways regularly include the provision of bus bays for the safe transfer of passengers. In this regard, the Government's decision to abandon the earlier proposed Frankston to Dandenong railway line in favour of a bus service along the Dandenong-Frankston Road will have an influence on the Board's construction programme. The conversion of this road to a dual carriageway road will further progress as funds permit and provision will be made for the effective operation of the bus service. In the future, the Board will be placing increased emphasis on the provision for rubber-tyred public transport in the planning, design, construction and management of roads.



Eastern Freeway — exclusive bus lane on exit ramp at Hoddle Street.

## Eastern Freeway

During December 1977, the Eastern Freeway between Collingwood and Bulleen was opened to traffic in three stages, from Hoddle Street, Collingwood to Chandler Highway, Kew; Chandler Highway to Burke Road, Kew; and Burke Road to Bulleen Road, Bulleen.

The construction of the freeway commenced under the control of the Melbourne and Metropolitan Board of Works in 1971. In July 1974 the responsibility for the project was transferred to the CRB when the metropolitan roading responsibilities of the Melbourne and Metropolitan Board of Works were transferred to the CRB.

The project involved four million tonnes of earthworks, the construction of 16 bridges and the asphaltting of 9 km of road pavement. The freeway generally consists of four lanes in each direction (8-lane capacity) with five lanes in each direction (10-lane capacity) between Hoddle Street and the Chandler Highway.

The freeway was designed to provide an aesthetic travelling environment for the motorist. It follows the line of the Yarra River Valley, bordering the Yarra Bend Park and three golf courses. Extensive landscaping was carried out on the freeway reserve.

During the past seven years trees, shrubs and ground cover were planted progressively as earthworks were completed, and much of the vegetation is now well established. Some further landscaping work is still proceeding.

The new freeway provides significant benefits for motorists, and adds vital additional road capacity in the area.

Residential streets, as well as existing arterial roads, in Collingwood, Kew and Balwyn will benefit as much of the through traffic will use the Eastern Freeway. This will result in greater freedom of movement for local traffic, pedestrians and shoppers; reduced hazards and accidents; and improvements to the local residential environment.

In February and March 1978 traffic counts on and adjacent to the Eastern Freeway recorded volumes on the freeway of 51,600 vehicles per 24 hour day; on Eastern Highway (Alexandra Parade) between Wellington Street and Smith Street, 29,100 vpd (10,400 vpd 1977); on Hoddle Street north of Johnston Street 52,600 vpd (40,600 vpd 1977); on Johnston Street at the Yarra River, 25,100 vpd (40,800 vpd 1977); on Heidelberg Road at the Merri Creek, 33,800 vpd (52,400 vpd 1977).

Regretfully, anti freeway groups and representatives of the Collingwood and Fitzroy City Councils actively opposed the opening of the freeway. This opposition unfortunately led to violent confrontations, involving police.

In October 1977, Alexandra Parade between Gold Street and Nicholson Street was declared a State highway (the Eastern Highway) under the provisions of the Country Roads Act. The Board expresses its appreciation for the manner in which its personnel carried out their duties and commends the Victoria Police on their efficient and responsible action in what was a most difficult situation.

## Hume Freeway, Wallan-Broadford Section

The Hume Freeway (Wallan-Broadford Section) project involved the construction of 34.5 km of rural four lane dual carriageway freeway to replace an existing single carriageway highway following a different alignment. Work commenced in 1971 and the project was opened to traffic in May 1976.

Following pavement problems on the freeway the Government decided to retain the services of Dr David Croney, OBE, BSc, PhD, FICE, FInst HE, the recently retired head of the Pavement

Hume Freeway — asphalt paving south of Wandong.



Design Division of the Transport and Road Research Laboratory, Great Britain, to advise generally on the suitability of the pavement to accept the final asphalt overlay provided for in the pavement design. Dr Croney's terms of reference were "to report upon the design and construction of the Hume Freeway, Wallan to Broadford Section and the suitability of all the pavement and substructure (including drainage facilities) for the addition of the final asphalt overlay".

Dr Croney carried out his task during January 1978 and reported his findings to the Honorable the Minister of Transport in a report dated 1st February, 1978.

Dr Croney submitted the following summary of conclusions and recommendations:

- "(1) An investigation of the present condition of the pavement of the Hume Freeway has shown that the thickness of the base and sub-base layers as designed was quite adequate for the soil foundation condition and the traffic being carried.
- (2) The foundation is sound and well drained: no additional subsoil drainage is necessary.
- (3) The standard of construction and supervision as indicated by the uniformity of the layers and their thicknesses is regarded as excellent.
- (4) The primary cause of the failures in the Glenelgin Interchange area, soon after the road was opened to traffic, was the use in that area of a cementitious additive which was intended to improve the grading of the crushed stone base. This rendered the material both brittle and difficult to compact. As a consequence the surface disintegrated under traffic stresses.
- (5) Had a substantial part of the bituminous surfacing, required by the design, been added at the time of construction, the failures of the base might have been avoided or their effects been delayed for a considerable time. (The practice of delaying the placing of bituminous surfacings on pavements with compacted stone bases is economically sound for lightly trafficked roads, but it cannot be recommended for major roads carrying high speed commercial traffic.)
- (6) The rapid deterioration of bituminous patches intended to repair the original failures was primarily due to the use of an unsatisfactory asphalt mixture containing a large proportion of soft degraded aggregate."

Dr Croney made the following recommendations:

- "(1) The defective areas of patching should be removed and replaced with bituminous material made from sound aggregate and to a specification set out in Appendix 4 of the Report.
- (2) The whole pavement should be overlaid by a two-course bituminous surfacing of total thickness 95 mm and to a specification set out in Appendix 5 of the Report.
- (3) Both of these recommendations should be implemented as soon as possible to avoid further damage during next winter."

Dr Croney made the following additional comments:

"The application of valid long-term experience gained on less heavily trafficked roads, to high speed freeways which attract long haul heavy vehicles, has resulted in widespread and expensive pavement failures in every country where industrial freeways have been constructed.

Viewed in this context the problems on the Hume Freeway must be regarded as minor."

The Board regards Dr Croney's recommendations as confirming its view that the pavement was sound and suitable to receive an asphalt overlay.

Contracts were let during the year for the application of the asphalt overlay between Wallan and Big Hill. Work was suspended in early June because of poor weather conditions. The application of the final asphalt overlay over the complete section of freeway between Wallan and Broadford is expected to be completed before Christmas 1978.

## West Gate Freeway, South Melbourne Section

The West Gate Freeway formerly known as the F9 Freeway will provide a continuation from the eastern approaches to the West Gate Bridge at Graham Street, Port Melbourne to Grant Street, South Melbourne. The freeway is needed to cater for West Gate Bridge and Johnson Street Bridge traffic and will provide a southerly bypass of the city centre resulting in a vastly improved road connection between the western and south-eastern suburbs.

Eight traffic lanes at ground level will be provided from Graham Street to Johnson Street. From Johnson Street, the freeway will be elevated to east of Kings Way with a basic six-lane configuration. Beyond Kings Way an arterial road connection will be provided along Grant Street to St Kilda Road.

Interchanges will be provided at Graham Street, Port Melbourne and at Johnson Street and Kings Way in South Melbourne. Connections to Sturt Street and Power Street will provide access to Alexandra Avenue.

During the year the Board's major activity on the project concerned the purchase of property, the demolition of buildings along the freeway route and the necessary design work.

As at 30th June, 1978, 57 properties had been purchased and 40 demolished.

The necessary alterations to the existing freeway between Graham Street and Rogers Street to cater for traffic from the West Gate Bridge, when open for traffic, proceeded satisfactorily during the year.

Work started in March 1978 on the sinking of the first piles for the elevated section of the freeway. Approximately 380 piles varying in width and depth, will be required for the construction of two parallel bridges each 1900 m long, making them the longest bridges in the State after the West Gate Bridge.

An extensive study into the short term and long term measures necessary to cater for traffic in the South Melbourne and Port Melbourne areas was carried out by the Board with the co-operation of the Councils. The following reports were completed as part of the study to assist in the design of the freeway and in developing short term improvements for traffic.

*Volume 1: Land Use and Environment Survey.*

*Volume 2: Traffic Survey.*

*Volume 3: Short Term Traffic Management.*

*Summary of Short Term Improvements.*

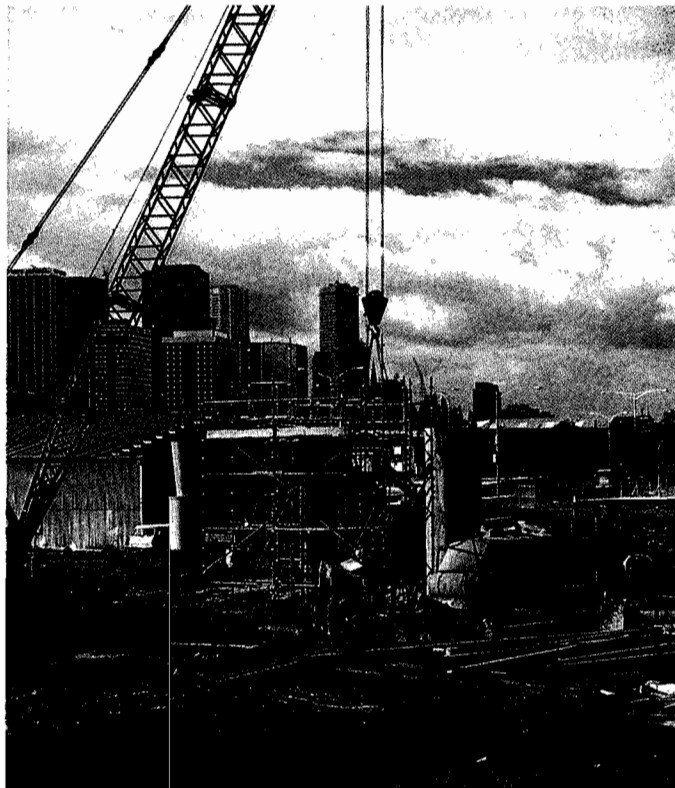
*Volume 4: Long Term Traffic Management.*

*Volume 5: F9 (West Gate Freeway) Corridor Development.*

*Volume 6: F9 (West Gate Freeway) Impacts.*

The West Gate Freeway, South Melbourne Section is estimated to cost \$80 million in 1978 prices and is programmed for completion by late 1983.

The provision of additional funds by the Government of \$19.1 million over the next four years beyond those presently budgeted would enable the whole project to be completed in November 1982 with the at grade section to Johnson Street being ready for traffic in June 1981 and the northern carriageway of the elevated structure being ready for traffic in April 1982.



West Gate Freeway — first piles near Johnson Street bridge for elevated structure.

## Western Freeway, Ballan Section

The Western Freeway, Ballan Section, was opened to traffic late in the financial year and declared complete by the Hon J A Rafferty, Minister of Transport at a ceremony held at Ballan on 15th June, 1978.



Western Freeway, Ballan Section — Completion Ceremony.

The project involved the construction of 8.4 km of divided carriageways providing two lanes for traffic in each direction and the construction of 9 bridge structures. Full diamond interchanges are provided at the eastern end of the project and at Daylesford Road. Overpasses are available at Greendale Road and Racecourse Road and bridges have been constructed over the Werribee River and Eastern Moorabool River. Construction commenced in January 1976 and was completed at a cost of approximately \$9.8 million.

The new freeway bypasses the township of Ballan to the north, and links the already completed Pykes Creek and Gordon Sections of the Western Freeway. Other sections of the Western Freeway completed in previous years are Pykes Creek (7.1 km) 1969, Gordon (9.3 km) 1972, Bacchus Marsh (9 km) 1972, Pentland Hills (5.6 km) 1973, and Myrning (5.9 km) in 1975. Preliminary work began during the year on the Western Freeway bypasses of Wallace and Bungaree. When this 11.2 kilometre section is completed in approximately 1981 motorists will be provided with a continuous four lane road from the outskirts of Melbourne to Ballarat, a distance of 100 kilometres.



Western Freeway, Ballan Section

### Corridor traffic control by traffic signal co-ordination

In recent years the Board has been involved to an increasing extent in planning and implementing traffic management measures in conjunction with road improvements of all kinds on the Board's declared road system.

The involvement has been necessary to achieve the greatest efficiency of traffic movement on the existing road system, to facilitate the maximum relief of "traffic pressures" on residential and other sensitive areas and to provide for the more efficient movement of on-street public transport vehicles.

One of the most significant traffic management measures is the co-ordination of traffic signals. Such co-ordinated systems have already been implemented at St Kilda Junction, in Hoddle Street from the Eastern Freeway to Albert Street, and in Kings Way (in association with Melbourne City Council).

Further systems are being or will be installed on the Johnson Street Bridge project, along the Eastern Highway (Alexandra Parade) and on the Maroondah Highway in Ringwood. Planning and design work is also proceeding on systems for the Burwood Highway (in association with the tramway extension) and on the Nepean Highway between Elsternwick and Moorabbin.

Co-ordinated systems will be developed progressively according to the needs of traffic and the availability of funds, initially on State highways and other declared roads, but the systems will have the potential for extension to include other arterial roads where found to be desirable and where suitable arrangements can be made with relevant municipal councils. The Board considers traffic signal co-ordination to be an important and integral part of its road improvement programme and proposes to allocate funds for such works on a continuing basis as part of its annual works programmes.

In developing these concepts, and the existing operational systems, the Board's engineers have maintained liaison and consultation with engineers of the Road Safety and Traffic Authority.

### Flooding in Eastern Victoria

Extensive flooding in Eastern Victoria during June 1978, caused widespread damage to roads, road closures and hazards to traffic, particularly over the Queen's Birthday holiday weekend. The South Gippsland Highway between Sale and Longford and the Cann Valley Highway in East Gippsland were closed by flood waters for most of June. The major State highway in Eastern Victoria, the Princes Highway East, was closed briefly on two occasions, east of Bairnsdale at Broadlands. Other State highways closed were the Midland Highway, south of Morwell and the Bonang Highway. Many other roads in the Board's Bairnsdale and Traralgon Divisions were also closed and severely damaged during the month. Preliminary estimates indicated that restoration costs would exceed \$2 million. The elevated freeway bypass of Orbost, with major new bridges constructed over the Snowy River and the adjacent flood plains and completed in December 1977, provided access to Orbost, while the old highway route was under water during the peak period of the flood.

Grants for the restoration of roads and bridges damaged by floods are made by the State Government in accordance with the terms of the Commonwealth/State agreement for natural disasters. Under this agreement the State Government meets the first \$3.5 million of restoration costs and the Commonwealth Government meets any additional amounts required. Assistance to individual authorities is available up to 75% of total restoration costs, but where the total cost is more than \$100,000, assistance is available to within \$25,000 of the total. Assistance is not available for any expenditure incurred in restoring assets beyond the standards which existed prior to the disaster.

Applications from councils for funds to restore roads and bridges damaged by floods are referred to the Board for investigation and recommendation to the Treasurer.

Erection of a Bailey bridge across Stringer's Creek, Walhalla, following a washout of the old bridge during the flooding in the south east of the State.





# The road system

## State highways

State highways are the principal arteries forming interstate connections and links between the larger centres of population in the State. Some State highways in Victoria form part of the National Route system of highways with uniform route numbering throughout Australia. The Board bears the full cost of both construction and maintenance works required to meet the needs of through traffic. The total length of State highways was 7,030 km, as at 30th June, 1978.

Significant works completed or substantially completed during the financial year are listed in the Road Construction and Maintenance section of the report.

The Hume Highway/Freeway and the Western Highway/Freeway have been declared by the Commonwealth Minister for Transport as national highways under the provisions of the States Grants (Roads) Act 1977. These declarations permitted funds made available by the Commonwealth to be spent on the Hume Highway/Freeway and the Western Highway/Freeway.

## Freeways

A freeway is a road having dual carriageways with no direct access from adjoining properties and side roads. All crossings of a freeway are by means of overpass or underpass bridges, and traffic enters or leaves the freeway carriageways by means of carefully designed ramps. The Board bears the total cost of all work on freeways.

Significant works completed or substantially completed during the financial year are listed in the Road Construction and Maintenance section of this report.

## Tourists' roads

Tourists' roads proclaimed under the provisions of the Country Roads Act provide access to places of special interest to tourists, both in summer and winter. The Board bears the full cost of works required to cater for the needs of through traffic. In general the works are carried out under the direct supervision of the Board's staff.

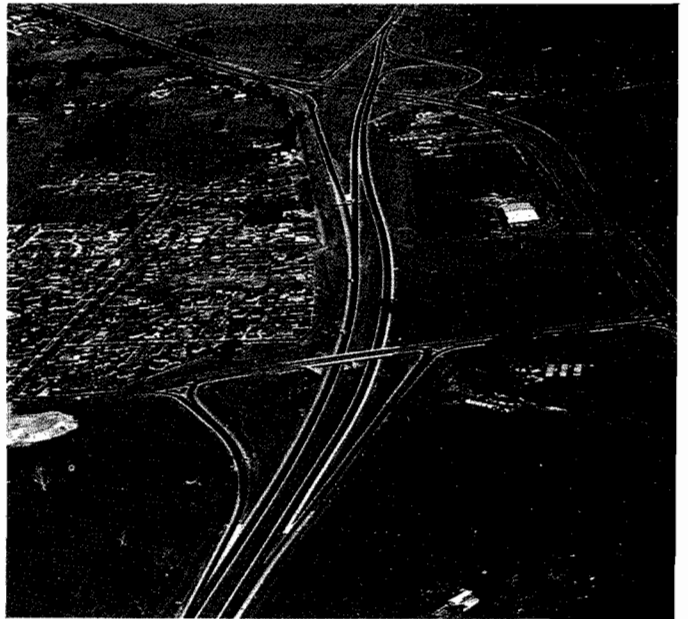
Significant works completed or substantially completed during the financial year are listed in the Road Construction and Maintenance section of this report.

## Forest roads

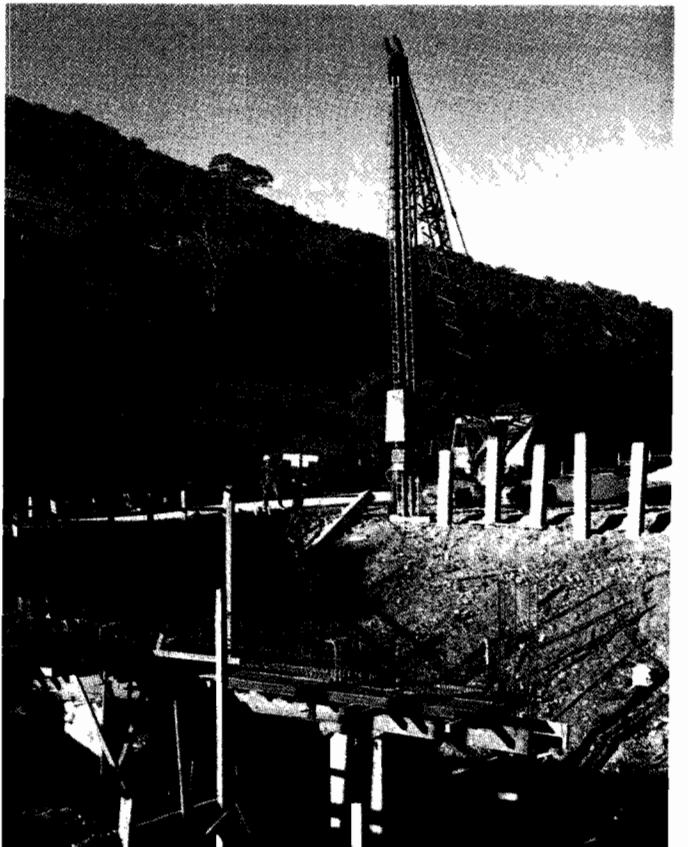
Forest roads proclaimed under the provisions of the Country Roads Act are situated within or adjacent to any State forest or in areas which are considered by the Board to be timbered, mountainous or undeveloped. The Board bears the full cost of works required to cater for the needs of through traffic, with approximately half the work carried out on these roads being undertaken by municipal councils on behalf of the Board. Significant works completed or substantially completed during the financial year are listed in the Road Construction and Maintenance section of this report.



Ovens Highway reconstruction completed between Ovens and Eurobin.



South Gippsland Freeway, Hampton Park.



Dargo Forest Road, Shire of Bright, construction of new bridge across Castleburn Creek.





Work on Tourists' Roads for the benefit of recreational travel.

1. Mallacoota Road — resurfacing.
2. Mallacoota Road — construction of new bridge across Halls Creek.
3. Bogong High Plains Road — reconstruction between Mt Beauty and the Gatehouse.
4. Mt Buller Road — reconstruction at Glenroy Road intersection.



**Freeways — as at 30.6.78**

Name	Section	Length (kilometres)
Calder	Keilor	2.8
	Elphinstone	2.8
Eastern	Hoddle Street	9.0
	to Bulleen Road	
Frankston	Eel Race Drain	7.0
	to Beach Street	
Hume	Craigieburn to Kalkallo	8.3
	Beveridge	3.2
	Wallan-Broadford	34.8
	Broadford to Tallarook	15.6
Lower Yarra	Chiltern	21.3
	Bertie Street to	0.3
	Graham Street	
	Williamstown Road to	5.1
Princes F'way		
Midland	Yinnar	9.6
	Dromana to Rosebud	8.4
Mornington Peninsula	Mulgrave	15.7
	Moe and Haunted Hills	19.7
	Laverton	12.8
	Lara	24.4
	Maltby	10.2
	Dartmoor	3.0
South Eastern	Anderson Street to	6.8
	Toorong Road	
South Gippsland	Whitelaw	3.8
	Princes Freeway	5.6
	to Pound Road	
Tullamarine	Flemington Bridge to	20.9
	Melbourne Airport	
Western	Deer Park to Melton	13.3
	Bacchus Marsh	8.7
	Pentland Hills	9.5
	Pykes Creek	7.3
	Ballan	7.8
	Gordon	9.4

**Forest roads — declared as at 30.6.78**

Name	Municipalities	Length (kilometres)
Bairnsdale-Dargo	Avon and Bairnsdale Shires	20.8
Bealiba-Moliagul	Bet Bet Shire	9.0
Beech Forest-Mt. Sabine	Otway Shire	12.6
Benambra-Corryong	Omeo, Tallangatta and	76.5
	Upper Murray Shires	
Benambra-Limestone	Omeo Shire	14.3
Bendoc-Orbost	Orbost Shire	20.9
Brookville	Omeo Shire	15.9
Bruthen-Buchan	Tambo Shire	36.5
Buchan-Ensay	Tambo Shire	19.8
Bullumwaal-Tabberabbera	Bairnsdale Shire	30.3
Carrajung-Woodside	Alberton Shire	17.7
Dargo	Avon Shire	74.8
Deans Marsh-Lorne	Winchelsea Shire	22.9
Drummond-Vaughan	Daylesford and Glenlyon	20.9
	and Newstead Shires	
Epsom-Fosterville	Huntly Shire	21.2
Forrest-Apollo Bay	Otway Shire	19.7
Greendale-Trentham	Ballan and Kyneton Shires	23.8

**Forest roads — declared as at 30.6.78 (cont)**

Name	Municipalities	Length (kilometres)
Heyfield-Jamieson	Mansfield and Maffra	145.5
	Shires	
Inglewood-Rheola	Korong Shire	17.3
Kimbolton	Strathfieldsaye Shire	13.5
Lavers Hill-Cobden	Heytesbury and Otway	42.7
	Shires	
Meredith-Steiglitz-Maude	Bannockburn Shire	20.7
Murrungower	Orbost Shire	21.3
Portland-Nelson	Portland Shire	38.6
Red Knob	Tambo Shire	7.2
Tatong-Tolmie	Benalla Shire	36.3
Walhalla	Narracan, Mansfield and	110.7
	Upper Yarra Shires	
Warburton-Woods Point	Healesville, Upper Yarra and Mansfield Shires	103.4
Warrowitue	Mclvor Shire	16.5

**Tourists' roads — declared as at 30.6.78**

Name	Municipalities	Length (kilometres)
Acheron Way	Healesville and Upper	35.4
	Yarra Shires	
Alpine	Bright and Omeo Shires	83.0
Arthur's Seat	Flinders Shire	8.1
Bogong High Plains	Bright and Omeo Shires	66.7
Cameron Drive	Gisborne and Newham and	4.3
	Woodend Shires	
Donna Buang	Healesville and Upper	34.0
	Yarra Shires	
Gipsy Point	Orbost Shire	2.4
Grampians	Ararat, Dundas and Stawell	69.5
	Shires and Stawell Town	
Great Ocean Road	Barrabool, Winchelsea,	207.2
	Otway, Heytesbury and	
	Warrnambool Shires	22.5
Mallacoota	Orbost Shire	22.5
Mount Abrupt	Ararat and Mount Rouse	24.8
	Shires	
Mount Buffalo	Bright Shire	39.0
Mount Buller	Mansfield Shire	27.0
Mount Dandenong	Sherbrooke and Lillydale	21.8
	Shires	
Mount Victory	Arapiles, Stawell and	30.7
	Wimmera Shires	
Marysville-Woods Point	Healesville Shire	18.9
Otway Lighthouse	Otway Shire	12.9
Phillip Island	Bass and Phillip Island	23.4
	Shires	
Silverband	Stawell Shire	9.1
Sydenham Inlet	Orbost Shire	21.6
Wartook	Wimmera Shire	3.5
Wilson's Promontory	South Gippsland Shire	31.0

# Road construction and maintenance

## Major projects

During the year the Board continued work on 18 projects, each having an estimated cost of at least \$4 million. Many of the major projects included the construction of divided roads which as a result of work completed during the year have increased the total length of dual carriageways on freeways, State highways and main roads throughout the State to 752 km. The more important major projects in progress during the year included:

## URBAN

### Mulgrave Freeway

Work continued on the construction of the 3.7 km extension of the freeway from Forster Road to Warrigal Road, Oakleigh. Earthworks and the relocation of services progressed satisfactorily and construction began on the Huntingdale Road overpass.

The freeway is expected to be opened to Huntingdale Road late in 1979, and to Warrigal Road in 1981.

The extension is estimated to cost \$12 million at 1978 prices.

### West Gate Freeway

Work began on the 3.6 km West Gate Freeway, between Graham Street, Port Melbourne and Grant Street, South Melbourne. The freeway will be elevated for 2 km between Johnson Street and Kings Way, and eight of the 380 pile foundations required for the elevated structure were constructed as test piles to provide information for the remaining pile foundations.

Alterations to services and demolition of property were also commenced.

The freeway, estimated to cost \$80 million, is programmed for completion by late 1983.

A more detailed description of this project is included on page 9 of this report.

### Eastern Freeway

The 9 km Eastern Freeway, between Hoddle Street, Collingwood and Bulleen Road, Bulleen, was opened to traffic during December, 1977. This section of the freeway is generally of eight lane capacity, with 10 lanes between Merri Creek and the Chandler Highway interchange. The central median is designed to cater for a fixed rail public transport system to serve the East Doncaster area.

The total cost of this section of the Eastern Freeway including associated works in Hoddle Street was approximately \$84.5 million. A more detailed description of the project is included on page 7 of this report.

Planning and design for the easterly extension of the Eastern Freeway from Bulleen Road to Doncaster Road, North Balwyn continued during the year.

### Tullamarine Freeway

Work continued during the year on the upgrading of Lancefield Road, adjacent to the Essendon Airport, to freeway standard. Construction of an interchange at English Street to provide access to the Essendon Airport progressed satisfactorily. The project is expected to be completed in late 1979 at an estimated cost of \$6 million.

### Greensborough Freeway

Lowering and duplication of the Melbourne-Hurstbridge railway line and the construction of road over rail overpasses at Watsonia Road and Grimshaw Street were completed during the year. The work cost approximately \$5.7 million.



Mulgrave Freeway — under construction between Warrigal Road and Forster Road.



Tullamarine Freeway — upgrading Lancefield Road adjacent to the Essendon Airport.



Greensborough Freeway — Watsonia Road overpass.

### **Johnson Street Bridge**

Work on the Johnson Street Bridge over the Yarra River to link the West Gate Freeway with Footscray Road was in its final stages at the end of the financial year. The bridge is scheduled to open early in the second half of 1978. Four lanes will be provided for traffic in each direction and the project is estimated to cost \$30 million.

### **Mornington Peninsula Freeway**

Construction continued on the 6.7 km section of the Mornington Peninsula Freeway between Springvale Road, Keysborough and Eel Race Drain, Seaford. Work included earthworks in the vicinity of Thompson Road and the Patterson River, construction of the Patterson River bridges and the Thompson Road interchange.

The freeway is estimated to cost \$11.7 million and is scheduled for completion in late 1980.

### **Nepean Highway**

Work continued on the widening of 6 km of the Nepean Highway between Cochrane Street, Elsternwick and South Road, Moorabbin. Demolition of properties on the first section between Cochrane Street and Hampton Street, and pre-construction tree planting were well advanced.

The project is estimated to cost \$32 million at 1978 costs and is scheduled for completion in 1983.

### **Calder Freeway**

Work began during the year on the 5 km Calder Freeway, Keilor Section, between Erebus Street and the Keilor-Melton Road, with the diversion of the Maribyrnong River being completed.

The project is estimated to cost \$16.6 million at 1978 prices and is scheduled for completion in 1983.

### **South Gippsland Freeway**

Work was completed on the freeway interchange with the South Gippsland Highway and on the northbound freeway carriageway between the South Gippsland Highway and Pound Road. The approximate cost of the project was \$10 million.

## **RURAL**

### **Hume Highway/Freeway**

#### *Seymour to Avenel*

Work continued over the 20 km section from the Goulburn Valley Highway north of Seymour, to north of Avenel. Bridgeworks proceeded at Hughes Creek, Avenel, and at the freeway crossing of the North Eastern Railway/Hume Highway, south of Mangalore.

The project is estimated to cost \$35 million at 1978 prices and is scheduled for completion in 1983.

#### *Avenel to Tubbs Hill*

Duplication work on the 12 km section of the existing Hume Highway continued during the year.

This section is estimated to cost \$7.5 million at 1978 prices and is scheduled for completion in mid 1979.

#### *Bypass of Violet Town*

Work continued on the construction of a 6.1 km freeway bypass of Violet Town including the construction of twin freeway bridges across Honeysuckle Creek.

The project is estimated to cost \$6.5 million at 1978 prices and is scheduled for completion late in 1979.

### **Western Freeway**

#### *Ballan Section*

The 8.4 km freeway bypass of Ballan was completed in June 1978. The project involved the construction of dual carriageways and nine bridges.

The project cost was approximately \$9.8 million.

A more detailed description is included on page of this report.

#### *Wallace-Bungaree Section*

Preliminary work began on the 11.2 km freeway section bypassing the townships of Wallace and Bungaree. The Ballarat Water Commission started work on the relocation of a water channel and pipe line.

The project is estimated to cost \$11 million at 1978 prices and is scheduled for completion in late 1983.

### **Princes Highway East**

#### *Morwell-Traralgon*

Construction of 12 km of divided highway between Morwell and Traralgon continued during the year. Work on the last 2 km section is scheduled for completion in August, 1978, and the project is estimated to cost \$4 million.

### **Princes Freeway**

#### *Drouin to Warragul*

Earthworks and bridgeworks on the 7 km Drouin Section of the project continued during the year.

The estimated cost of the project is \$31 million at 1978 prices.

The Drouin Section is scheduled for completion in 1982 and the Warragul Section in 1984.

#### *Orbost*

Work was completed on a project to provide an 8.4 km flood free crossing of the Snowy River flood plain and a bypass of Orbost. The project was completed in December, 1977 at an approximate cost of \$9.9 million



Hume Freeway, Seymour to Avenel Section — bridges over Hughes Creek.



Hume Freeway, Violet Town Bypass — bridge over Honeysuckle Creek.

## Contracts

### Contracts under the Board's direct supervision

Details of the types and numbers of contracts entered into showing respective values, together with a comparison with those of financial year 1976/77 are shown in the following table:

Type of contract	1976/77		1977/78	
	No. of contracts	Value \$	No. of contracts	Value \$
Road construction —				
1. Over \$1M	1	3,074,845	3	3,985,130
2. \$100,000 to \$1M	3	884,798	2	422,411
3. Under \$100,000	1	26,884	4	178,540
Supply of roadmaking materials	112	5,173,648	134	7,927,294
Bituminous treatment and supply of materials	54	11,130,377	85	10,944,708
Bridge construction —				
1. Over \$1M	—	—	—	—
2. \$100,000 to \$1M	9	2,640,745	3	595,336
3. Under \$100,000	8	412,790	12	614,816
Components and fabricated steel	19	1,260,821	28	1,742,111
Construction equipment	19	1,389,507	18	678,811
Divisional facilities	1	64,489	3	193,383
Miscellaneous stores	2	520,000	5	2,660,375
Miscellaneous services	53	2,174,613	46	1,398,312
<b>Total</b>	<b>282</b>	<b>28,753,517</b>	<b>343</b>	<b>31,341,227</b>

## Bituminous surfacing

Bituminous surfacing forms an important part of road construction and maintenance work.

A total amount of \$28.7 million was spent in surfacing 5,088 km of road during the financial year. Approximately 96 per cent of the total length of bituminous surfacing done was of the sprayed seal type. The balance was of asphalt surfacing which is plant mixed and spread in a layer with a mechanical paver.

The sprayed seal process involves the spraying of a thin hot bituminous layer on to the road surface, followed by spreading a layer of aggregate which is rolled into the bitumen by pneumatic tyred rollers and controlled traffic. It is an economical surfacing process which provides a safe, skid resistant surface and for these reasons is used widely throughout the world.

For a successful sprayed seal to be obtained it is necessary for some loose aggregate to be left on the road surface on completion. The Board is conscious of the need to prevent windscreen damage caused by loose aggregate and provides appropriate warning signs, requesting motorists to travel slowly during the first few days after sealing. Traffic controlmen are also on duty while the work is in progress.

During the year the Board purchased a special Highway Suction Cleaner at a cost of approximately \$113,000. This item of specialised plant is the first of its kind in Australia and was designed especially for removing loose aggregate from new seals on roads under traffic. It has been used mainly on the highly trafficked roads in the Melbourne Metropolitan area.

The Board's 17 mobile bituminous surfacing units, together with plant owned by municipal councils and contractors, completed 4,562 km of sprayed work at a cost of approximately \$18,980,000.

Contractors operating from fixed asphalt plants completed 194 km of plant mix work on densely trafficked roads at a cost of approximately \$9.7 million using 400,230 tonnes of asphalt. The lengths of the various types of work completed during the year were:

202 km of sealing widened pavements,  
39 km of initial sealing on dual carriageways,  
653 km of restoration of sealed coats on reconstructed sections,  
520 km of final sealing on initial treatments,  
2761 km of maintenance retreatments,  
332 km sealed on behalf of other State and municipal authorities, and  
581 km of extensions to the bituminous sealed road system of the State including 65 km of roads declared or proclaimed under the Country Roads Act.

The following quantities of materials were used by the Board or by contractors during the year on bituminous surfacing works:

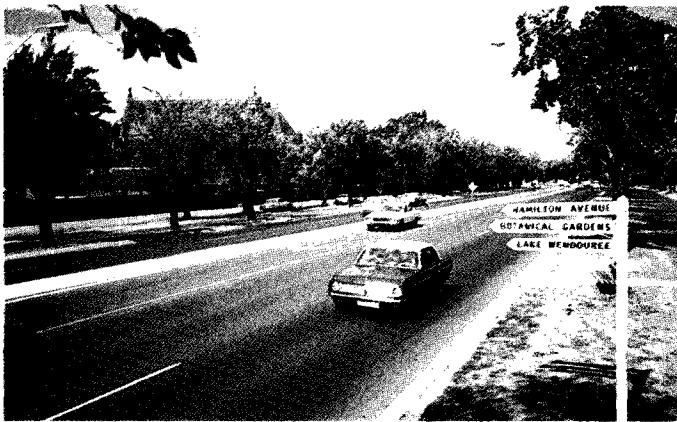
Material	Quantity
Bitumen for sprayed work	33,891 tonnes
Bitumen for asphalt	20,800 tonnes
Aggregate for sprayed work	302,000 cubic metres
Aggregate for asphalt	275,000 cubic metres
Other bituminous materials for sprayed work and maintenance	9,000 tonnes



Calder Highway — reconstruction north of Harcourt.



Princes Highway, Geelong.



Western Highway (Sturt Street) — duplication between Russell and Pleasant Streets, Ballarat.



Gleneilg Highway, Hamilton.

## State highways and Freeways

Significant works completed or substantially completed during financial year 1977-78.

### **Bellarine Highway**

*Bellarine Shire*

Construction of twin cell culvert at Fenwick's Gully, and duplication of 2.5 km between Bawtree and Swan Roads.

*Geelong City*

Reconstruction of 2 sections between Moorabool Street and Yarra Street, and Swanston Street and Fitzroy Street.

### **Calder Highway**

*Keilor City*

Widening to provide short-term improvements through Keilor township.

*Metcalfe Shire*

Reconstruction of 1.9 km north of Harcourt.

*Walpeup Shire*

Reconstruction of the intersection of the Calder Highway and Sunraysia Highway.

*Walpeup Shire*

Reconstruction of 2.1 km north of Kiamil.

### **Gleneilg Highway**

*Gleneilg Shire*

Reconstruction and widening of 8.3 km east of Strathdownie.

*Hamilton City*

Stabilisation of pavement and realignment of kerbs between Grange Burn bridge and Cox Street.

### **Hamilton Highway**

*Leigh Shire*

Reconstruction of 2 km west of Inverleigh.

### **Henty Highway**

*Portland Shire*

Reconstruction of 2.1 km at Myamyn.

### **Hume Freeway**

*Violet Town Shire*

Construction of 10 km of duplicate carriageway between Violet Town and Baddaginnie.

### **Midland Highway**

*Benalla Shire*

Reconstruction of 2.6 km south of Swanpool, including the widening of a bridge at Swanpool.

*Buninyong Shire*

Reconstruction and realignment, including new climbing lanes, of 2.5 km at Buninyong Hill.

### **Murray Valley Highway**

*Cobram Shire*

Reconstruction of 4.8 km west of Cobram.

*Rochester Shire*

Reconstruction of 2.6 km east of Gunbower.

*Swan Hill City*

Reconstruction with special parking, landscaping and pedestrian treatment, in Swan Hill township.

### **Ovens Highway**

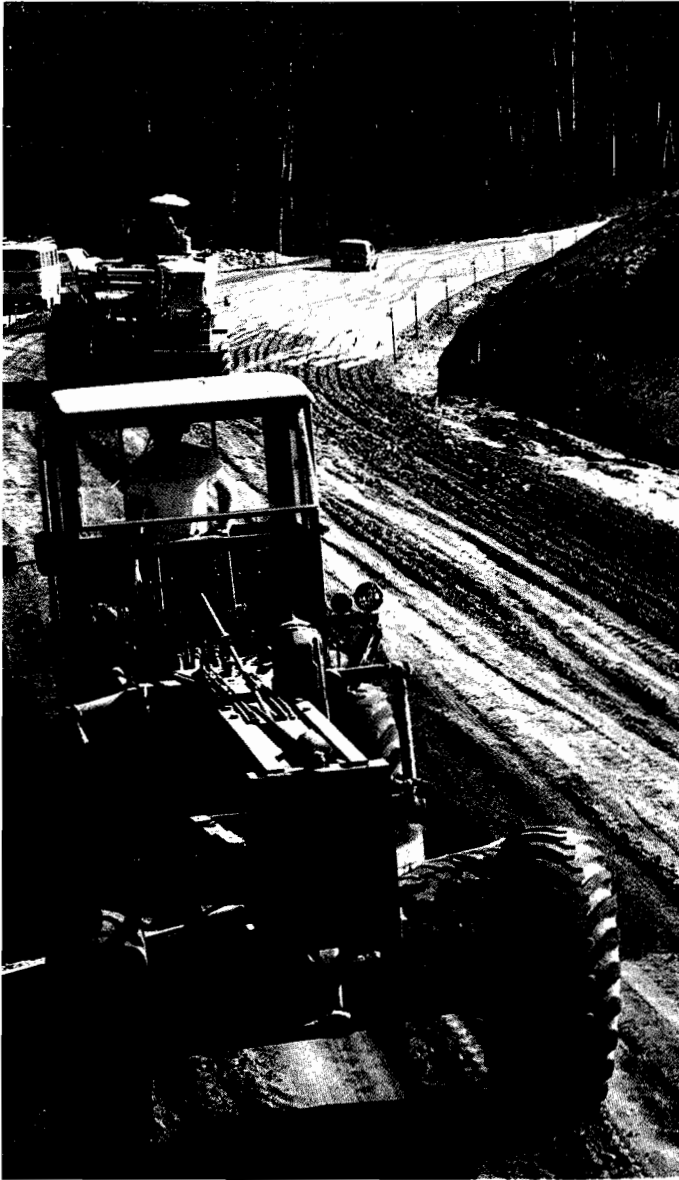
*Bright Shire*

Reconstruction of 0.4 km (Gavan Street) between Morses Creek and west of Anderson Street.



Improving the Princes Highway east of Melbourne.

1. Reconstruction east of Wingan River.
2. Bypass of Drouin and Warragul — earthworks on Drouin Section.
3. Duplication between Morwell and Traralgon.
4. Duplication at Pakenham.



**Ovens Highway***Myrtleford Shire*

Reconstruction and widening of 1.4 km between Ovens and Eurobin.

**Princes Highway East***Buln Buln Shire*

Construction of passing lanes at intersection with Longwarry-Labertouche Road.

*Morwell Shire*

Reconstruction of Jane Street intersection.

*Orbost Shire*

Widening and reconstruction of 3.3 km east of Reed Bed Creek.

*Orbost Shire*

Reconstruction of 1.5 km east of Wingan River.

*Pakenham Shire*

Duplication of 5.5 km between Officer and Pakenham.

*Pakenham Shire*

Construction of climbing lanes west of Bunyip River.

*Warragul Shire*

Duplication of 0.7 km west of Warragul.

**Princes Highway West***Corio Shire*

Widening of 2.9 km from 4 to 6 lanes.

*Hampden Shire*

Reconstruction of 2.9 km west of Camperdown.

*Hampden Shire*

Reconstruction of 2 km east of Garvoc.

*Werribee Shire*

Duplication of 0.8 km between Princes Freeway and Hoppers Crossing.

**South Gippsland Highway***Cranbourne Shire*

Reconstruction of intersection with Baxter-Tooradin Road.

**Warburton Highway***Lillydale Shire*

Construction of climbing lanes for westbound traffic at Wandin.

**Western Highway***Ballaarat City*

Reconstruction and duplication of 1.2 km (Sturt Street) between Pleasant Street and Russell Street.

*Dimboola Shire*

Construction of roundabout at intersection of the Western Highway and Borung Highway.

*Horsham City*

Construction of roundabout at the northern end of the duplicated carriageway on the southern approach to Horsham.

**Wimmera Highway***Dunmunkle Shire*

Reconstruction and widening of 10 km at Lallat Plains.

**Tourists' roads**

Significant works completed or substantially completed during financial year 1977/78.

**Bogong High Plains Road***Bright Shire*

Reconstruction and widening of 1 km between Mt. Beauty and the Gate House.

**Forest roads**

Significant works completed or substantially completed during financial year 1977/78.

**Bealiba-Moliagul Road***Bet Bet Shire*

Construction of 4 span bridge across Whitehead's Creek.

**Walhalla Road***Narracan Shire*

Reconstruction of 1 km south of Erica.



## Land purchase

During the year the Board paid compensation and associated costs totalling \$22.53 million for land required for the construction of new roads, the widening of existing roads or deviations from existing roads.

The expenditure incurred included \$6,440,000 for the widening of the Nepean Highway from Elsternwick to Moorabbin and \$3,949,000 for properties affected by the West Gate Freeway project.

The table below shows the road classification on which expenditure occurred.

CRB road classification	Commonwealth road category						Total
	National highways	Urban arterial roads	Urban local roads	Rural arterial roads	Rural local roads	Export roads	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Freeways	1,773	8,636	—	300	—	—	10,709
State highways	15	6,780	—	385	—	—	7,180
Tourists' roads	—	1	—	59	10	—	70
Forest roads	—	—	—	1	6	—	7
Main roads	—	2,774	—	172	76	—	3,022
Unclassified roads	—	1,114	202	1	203	17	1,537
Totals	1,788	19,305	202	918	295	17	22,525

The table below shows the number of land purchase transactions completed and the amount of compensation and associated costs paid by the Board over the five years.

	1973/74	1974/75	1975/76	1976/77	1977/78
Number of land purchase cases settled	864	923	661	671	786
Compensation and associated costs paid by the Board	\$11.71m	\$19.34m	\$16.02m	\$20.97m	\$22.53m
Land purchase expenditure on unclassified roads under council supervision	\$0.88m	\$0.53m	\$0.73m	\$0.74m	\$1.26m

Of the \$22.53 million expended during the year, \$8.07 million was spent in purchasing properties from owners who demonstrated that they were incurring hardship due to the Board's future road proposals.

The Board received \$1,569,782 from 754 rented residential or commercial properties and 150 separate areas of vacant land. During the year 64 separate areas of surplus land were sold for \$1,296,587, 5 residential properties surplus to requirements were sold for \$119,000 and 35 houses were sold for removal for \$126,930.

The Board's objective in the payment of compensation is to ensure as far as possible that the owner is placed in the same financial position after the purchase of land as prior to the purchase.

A pamphlet entitled "Your property your roads" was issued during the year in an attempt to assist property owners in their dealings with the Board. Information contained in the pamphlet covers such matters as, negotiating the sale, property owners' entitlements, interest free loans, living in the property after compensation is paid, special cases of hardship and the actual payment of the compensation.

# Bridges

## Construction of new bridges

A total of 94 new bridges estimated to cost \$12,545,000 were commenced during 1977/78.

The following table gives a comparison between the number and estimated cost of bridge projects commenced in 1977/78 and those for the preceding financial year.

Description	1976/77		1977/78	
	No.	Est. cost	No.	Est. cost
New bridges commenced under the supervision of the Board's staff	56	\$12,670,000	42	\$9,265,000
New bridges commenced under municipal supervision with financial assistance from the Board	55	\$3,787,000	52	\$3,120,000
Miscellaneous — Sign structures, poles, footings, stone beaching and block facing				\$160,000
<b>Total bridges commenced</b>	<b>111</b>	<b>\$16,457,000</b>	<b>94</b>	<b>\$12,545,000</b>

## Major bridges completed in rural areas

Some of the major bridges completed in rural areas during the year under the direct supervision of the Board's staff included:

### Western Freeway, Ballan Section

- Eastern Interchange — two span concrete box girder structure, 100 m long and 9.8 m between kerbs.
- Werribee River — twin bridges, each three span prestressed reinforced concrete structure, 44.05 m long and 11.6 m between kerbs.
- Ballan-Daylesford Road Interchange — two span concrete box girder structure, 89 m long and 9.8 m between kerbs.
- Racecourse Road — twin bridges prestressed and reinforced concrete, each three span, 23 m long and 11.6 m between kerbs.
- Eastern Moorabool River — twin bridges of prestressed and reinforced concrete, 37 m long and 11.6 m between kerbs.

### Princes Freeway, Drouin Section

- Buln Buln Road — three span prestressed and concrete structure, 36.9 m long and 11.6 m between kerbs.

### Tambo Shire

- Nowa Nowa Main Road, road over rail overpass — three span prestressed concrete slab and reinforced concrete structure, 29.9 m long and 8.5 m between kerbs, plus 1.5 m footway.

Some of the larger bridges completed during the year under municipal supervision, with financial assistance from the Board were:

### Stawell Shire

- Stawell-Warracknabeal Road, over the Wimmera River at Glenorchy, 10 span prestressed beams, 155 m long and 9.8 m between kerbs.

### Avon Shire

- Bengworden Road, over the Avon River at Stratford, seven span, prestressed "I" beams, 129.8 m long and 8.6 m between kerbs.

### Bulla Shire

- Sunbury Road, over Jacksons Creek, two span, prestressed concrete beam and slab, 48.1 m long and 8.6 m between kerbs.

## Metropolitan bridges and overpasses

Among the larger bridges in the metropolitan area completed during the year under the direct supervision of the Board's staff were:

### Eastern Freeway

- Yarra River Bridges — twin, five span reinforced concrete, prestressed and post-tensioned beams each 140 m long and 20.5 m between kerbs.
- Merri Creek Bridges — twin bridges each two span cast in situ continuous post-tensioned multi cell block, each 67.0 m long and 24.3 m between kerbs.

### Mulgrave Freeway

- Scotchman's Creek Culvert — four cell precast concrete box culvert, 347.2 m long and 18 m wide.



Mulgrave Freeway — Scotchman's Creek Culvert.

## Grade separated pedestrian crossings

The Board is involved in the construction of grade separated pedestrian crossings as outlined below:

1. The construction of pedestrian overpasses over freeways or other important arterial roads to improve pedestrian access to areas on either side of the road.
2. The replacement of at-grade school crossings on heavily trafficked roads with pedestrian overpasses or underpasses, under the scheme introduced by the Victorian Government in 1965. The scheme provides for:
  - Applications for subsidies to be submitted to the Board by municipal councils;
  - Priorities to be decided by the Board and the Road Safety and Traffic Authority, taking into account traffic volume, average speed, number and age range of children crossing, and the type of road;
  - The total costs of approved crossings to be shared equally between the State Government (Treasury), the Transport Fund and the municipal council.

3. Assistance to municipal councils on request in the preparation of plans and specifications and supervision of construction in cases where the council pays the whole cost of construction.

The following crossings were constructed by the Board during the year:

**Restoration of pedestrian access**

- Greensborough Freeway, Watsonia Road Pedestrian Overpass — two span composite steel beam and reinforced concrete, 42 m long and 2.75 m wide, with two ramps each 15 m long.
- Greensborough Freeway, Grimshaw Street Pedestrian Overpass — single span post tensioned beam and RC structure, 26.17 m long.
- Eastern Freeway, Trennery Crescent Pedestrian Overpass — eight span pedestrian bridge of four post-tensioned and four reinforced concrete beams, 218.5 m long and 2.1 m wide.

**Grade-separated crossings to serve schools**

- Princes Highway, Dandenong, Dandenong High School Pedestrian Overpass — six span post-tensioned and reinforced concrete structure, 157 m long and 2 m wide. Twenty structures have now been constructed under the Victorian Government scheme.

**Elimination of railway level crossings**

In 1954 the State Government established the Level Crossings Fund with a view to providing finance to assist with the elimination of dangerous railway level crossings. Contributions were made by the Board and the Victorian Railways towards the cost of the projects. Since then 64 road overpasses, or underpasses, at a cost of more than \$42 million have been constructed to eliminate railway level crossings. Since 1st July, 1974, the total cost of this work has been charged to the Transport Fund.

The following projects were substantially completed by the CRB during the year.

- Princes Highway West, road over rail overpass at Weerite — three span prestressed concrete and reinforced concrete 41.97 m long and 9.76 m between kerbs.
- Camp Road, road over rail overpass, Broadmeadows — five span prestressed and reinforced concrete structure, 118.2 m long and 21.7 m between kerbs including two 8.5 m carriageways and three span off-ramp, 6 m wide.

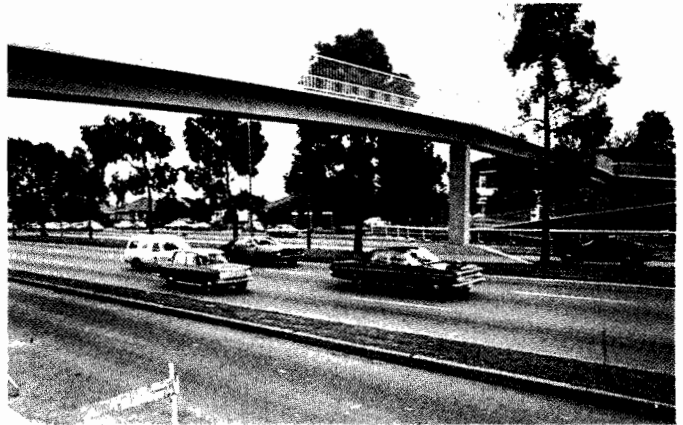
**Concrete Award**

The overpass carrying Yarra Bend Park Road over the Eastern Freeway received a certificate of merit from the Concrete Institute of Australia in its 1977 Excellence in Concrete Awards. The Institute made the award, one of six merit certificates from 40 entries of buildings and structures, for the "excellent way in which the concrete was used in this project".

The bridge was designed by the consulting firm Macdonald Wagner and Priddle Pty Ltd for the Planning and Highways Branch of the MMBW. It was constructed by Central Constructions Pty Ltd, which has since become part of Leighton Contractors Pty Ltd.

The overpass is a single span, portal frame, cast in situ prestressed concrete box structure, 91 metres long and 7.3 metres between kerbs.

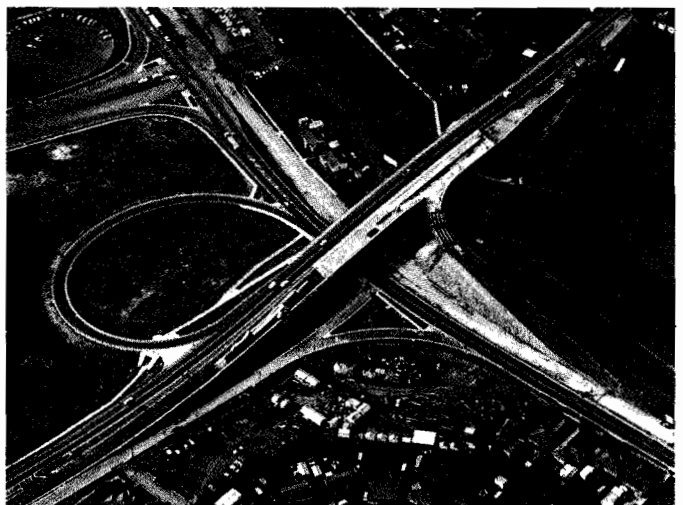
The overpass was completed in August 1975, at a cost of \$400,000 and was one of the projects under construction when the roading responsibilities of the MMBW were taken over by the CRB on 1st July, 1974.



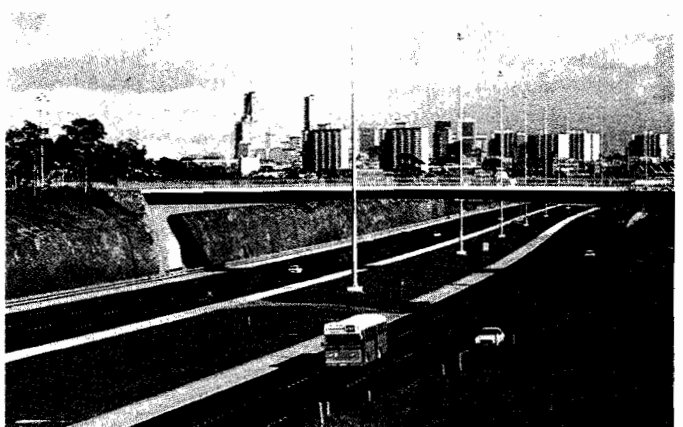
Princes Highway — pedestrian overpass near Dandenong High School.



Princes Highway — road over rail overpass under construction at Weerite.



Camp Road, Broadmeadows — elimination of railway level crossing.



Award winning bridge.

# Road planning

## Road planning studies

The road planning function of the Board is an essential and highly sophisticated operation, involving all of the many diverse skills required to reach a compatible balance between the community's desire for mobility and its various other needs. The staff of the Board's Planning Sub-branch brings together engineering, sociological, economic, environmental and town planning expertise in formulating and evaluating future road proposals. Specially trained officers in the Board's service, together with specialised equipment, are also able to provide technical advice on noise and air pollution, landscaping and general environmental matters.

Significant planning studies in which the Board was involved during the year are described below.

### Outer ring corridor study

In July 1977, the recommendations from the Outer Ring Corridor Study were forwarded to the Government. The study was under the control of the Road Planning Liaison Committee, consisting of representatives of the Ministry of Transport, the Melbourne and Metropolitan Board of Works and the Board, and examined the strategic significance of a new transport route around the main built up area of Melbourne.

The main recommendations from the final study report were:

- (a) that action be taken to preserve the opportunity to construct an Outer Ring road;
- (b) that for the longer term development of an Outer Ring road, planning should proceed in conjunction with local Councils and with appropriate public participation on the basis of an ultimate six lane freeway;
- (c) that special attention should be given to the section between Diamond Creek and Ringwood due to the nature of the area, the absence of a Melbourne Metropolitan Planning Scheme reservation and the imminent development of the area in some sections.

### Outer ring, Diamond Creek to Ringwood study

In adopting the recommendations of the Outer Ring Corridor Study, the Government announced its decision to proceed with a study for the section of the Outer Ring road, Diamond Creek to Ringwood.

As with the earlier Outer Ring Corridor Study, the Road Planning Liaison Committee is responsible to the Government for directing the current investigation and recommending a course of action.

The aim of the study is to determine the most appropriate future road system in the area between Diamond Creek and Ringwood which will enable the Melbourne Metropolitan Planning Scheme to be amended to preserve the option of future development of the road system, if required.

The detailed work of the study is being carried out by the Joint Road Planning Group, comprised of officers from the Melbourne and Metropolitan Board of Works and the Board.

Other authorities and organisations will also be consulted, including the Ministry for Conservation, the Middle Yarra Advisory Council, the State Electricity Commission and the Town and Country Planning Board.

The local municipal councils will be kept informed on the progress of the study and are being invited to contribute.

The major steps of the investigation are to:

- Develop a range of alternatives and make these available to the councils and the community for comment.

- Discuss the alternatives with the councils and the community and modify or refine where necessary in response to local suggestions.

- Prepare and publish an "Environment Effects Statement".

- Receive final council and community comments.

- Arrange for independent assessment of the statement and comments from the Ministry for Conservation.

- Make recommendations to the Government for a decision in principle.

Depending on the approved course of action any necessary amendment to the Melbourne Metropolitan Planning Scheme will then be sought.

### Omeo Highway between Omeo and Mitta Mitta

During the year the Board carried out a further investigation into the alternatives of either upgrading the existing Omeo Highway between Omeo and Mitta Mitta or constructing a new low level deviation of the highway.

The further investigation followed a previous study, the results of which were conveyed to the municipal councils concerned in January 1974. Since then, the State Co-ordination Council has been evaluating the alternatives with the objective of providing an improved road link between the north-east and eastern areas of the State.

The investigation involved the preparation of base data from topographical maps, aerial photographs, existing survey data, road inventory data, and field measurements. Geological maps and stream catchments were examined in detail. Horizontal and vertical alignment plans were produced for each route.

The design standards adopted were similar to previous studies with some reduction where topographical conditions were so severe as to make desirable standards very difficult and costly to attain.

The design standards adopted were:

Design speed	60-70 km/h (generally) 40 km/h (minimum)
Curve radius	130 m + (generally) 50 m (minimum)
Superelevation	1 in 10 (maximum)
Grade (desirable)	6-7% (ruling) 8% (general maximum)
Formation width	8.6 m + 0.9 m (drain) + 0.6 m (widening for guide posts)
Pavement width	8.6 m
Sealed width	6.2 m with 7.4 m (on curves)

An examination of snow, ice and fog conditions was carried out in conjunction with an officer from the Bureau of Meteorology. The general conclusions were:

- Snow is certain to occur more often on the existing Omeo Highway but the days on which snow is deep enough to close the highway are few and snow clearing can rapidly correct this situation.

- Ice can occur on either alternative and depends for its formation on a complex set of factors including the presence of water, air temperature, vegetation, aspect and air currents. On balance, it would appear that icing would be a greater problem on a low level deviation of the highway.

- Fog is unpredictable in its occurrence. It is not possible to conclude that either alternative has an advantage in this respect.

### Comparison of alternatives

The following comparison was formulated between the two alternatives:

	Upgraded Omeo Highway	New Low Level Deviation
(1) Length between common points	103 km	108 km
(2) Maximum elevation	1380 m	900 m
(3) Length in km above 900 m	30 km	—
(4) Horizontal alignment —		
(a) number of curves in the design speed range of		
40-50 km/h	67	79
50-70 km/h	94	93
over 70 km/h	71	79
(b) total number of curves	232	251
(5) Vertical alignment —		
Length in km (excluding section common to both alternatives)		
(a) 8%-10% grade	4.0 km	8.5 km*
(b) 10%-12% grade	2.5 km	—
(c) 12%	0.5 km	—
		(*Max. grade 8.8%)
(6) Estimated construction costs in \$ (June 1978)	\$29.5m	\$44.5m
(7) Estimated maintenance costs for a 30 year period at June 1978 prices	\$4.9m	\$4.4m (Plus maintenance of existing Omeo Highway of \$3.7m)
(8) Estimated travel time for a truck	Similar	

### Environmental effects

As a new low level deviation would be constructed in virgin bushland and would require considerable lengths of major cuttings and embankments involving the likelihood of erosion, there would be a major effect on the environment. In the process of upgrading the existing Omeo Highway there would be some environmental disturbance. However, this would be minimal, as the progressive nature of the upgrading would allow re-establishment of vegetation and keep disturbance to relatively minor lengths. Also, the disturbance would be confined to a relatively narrow band along the highway.

### Advantages of new low level deviation

The advantages of a new low level deviation were concluded to be:

- (1) rare likelihood of closure due to snow;
- (2) generally flatter grades.

### Disadvantages of new low level deviation

The disadvantages of a new low level deviation were concluded to be:

- (1) increased construction cost;
- (2) greater overall maintenance costs;
- (3) lack of opportunity for staging of construction, and hence of expenditure;
- (4) possible icing problems;
- (5) greater environmental impact; and
- (6) slightly more tortuous route.

### Conclusion

The investigations indicate that both the upgraded Omeo Highway and the low level route are essentially all weather routes. On the relatively small number of times when snow is of sufficient depth to impede traffic on the upgraded Omeo Highway route, effective snow clearing operations would be mounted without difficulty and keep the highway open. The Board concluded and has so recommended that the only practical course of action is to upgrade the existing Omeo Highway.

### Gardiners Creek Valley Study

The Board continued to be involved in the Gardiners Creek Valley Study, which investigated the need to link the South Eastern and Mulgrave Freeways.

The Government set up this corridor study involving the Ministry for Planning, Ministry of Transport, Ministry for Conservation, Melbourne and Metropolitan Board of Works, Town and Country Planning Board, Malvern, Camberwell and Hawthorn City Councils and the Country Roads Board to investigate and recommend a course of action on the future allocation of space in the Gardiners Creek Valley for transport, drainage, recreation, and other community uses.

The Steering Committee appointed to carry out the study forwarded its report and recommendations to the Government in January, 1978.

During the study, the community was kept fully informed of progress by the release of five bulletins, each with a distribution of about 25,000 in the Study Area. In addition, detailed technical reports prepared by the six study teams were also available for examination.

People were encouraged to respond and set out their ideas and views via group discussions, questionnaires, letters, phone calls and personal contact. All letters were individually answered and their contents summarised and classified as input to the Steering Committee and the Government. A display and mobile information centre were also arranged.

Three main issues were paramount throughout the study:

- increasing traffic and its intrusion into local streets, with its inherent adverse effects on the quality of the local environment;
- the importance of parks, creeks and open space, and
- the concerns of home owners of whose properties could be affected by any road proposals.

Consideration of these issues led the Steering Committee to reach the following basic conclusions:

1. The existing road system is unsuitable for carrying existing and expected future traffic.
2. There is a strongly expressed community view that the South Eastern and Mulgrave Freeways should be linked.
3. The significance of the Gardiners Creek Valley as a local and regional open space facility justifies provision for replacement of existing open space and sporting facilities which would be lost by making provision for the road reservation.
4. The section of Gardiners Creek between High Street and Scotchmans Creek is of such environmental importance to justify the selection of a route outside the existing reservation so as to avoid impact on this feature.

The Steering Committee recommended route "C3" which follows the Main Road Reservation in the Metropolitan Planning Scheme between Toorak and Burke Roads, then swings across to follow along the north side of the Glen Waverley railway line from High Street to East Malvern, then along Scotchmans Creek to the Mulgrave Freeway.

The Steering Committee reported that it recognised that the choice of route "C3" would undoubtedly conflict with the widely



expressed belief that any new road should be built within the existing Planning Scheme Main Road Reservation. However, the Committee considered that the choice of "C3" represents a compromise in favour of the needs of posterity in terms of the environment, recreation and traffic demand.

At the time of writing this Report a final decision on the Steering Committee's recommendation was still under consideration by the Government.

In addition to the above studies the Board continued its investigations on other road planning studies throughout the State, including the following:

**Urban**

- The Bell Street-Banksia Street connection, Heidelberg.
- The Eastern Freeway, Bulleen to Ringwood.
- A local bypass of Lilydale.
- The North-South Arterial Road Route, Sunshine.
- The Northern Arterial Road, Reynolds Road, Donvale, to Maroondah Highway at Croydon North.

**Rural**

- The Calder Freeway, Keilor to Diggers Rest Section.
- The Calder Freeway, Porcupine Hill to Big Hill Section.
- The Hume Freeway, Baddaginnie to Bowser Section.
- The Hume Freeway, Euroa Bypass.
- The Princes Freeway, Morwell Section.
- The Princes Freeway, Pakenham Section.
- The Princes Freeway, Tynong Section.
- The Princes Freeway, Geelong Bypass (in association with the Geelong Regional Commission).
- The Western Freeway, Ballarat Bypass.

**Increasing traffic volumes in the developing outer areas of Melbourne**

Traffic volumes in the developing outer areas of Melbourne have increased significantly over the last 10 years placing a heavier burden on many already over crowded roads and highlighting the need for road improvements.

Traffic counts conducted throughout Melbourne between 1968 and 1977 show traffic volume increases ranging up to 207%.

The map opposite illustrates the changes in traffic volume across a number of screenlines in the metropolitan area expressed as percentage increases from 1968 to 1977.

The percentage increases were obtained by counting the number of vehicles crossing an imaginary line in a nominated area, thus indicating the movement of vehicles in that area.

Traffic volume counts have also shown that on some major roads Sunday traffic volumes exceed the week-day volumes principally because of recreational trips. Some examples are shown in the following table:

Road	Location of Count	Traffic volumes, 24 hours two-way	
		Week-day	Sunday
Maroondah Hwy	at Coldstream	Jan 1976	Jan 1976
		8,100	14,000
		July 1976	July 1976
		7,900	14,000
Sth Gippsland Fwy	at Princes Hwy East	Jan 1977	Jan 1977
		7,500	10,000
		July 1977	July 1977
		8,900	11,600
Princes Fwy	at Lara	July 1975	July 1975
		14,300	22,400
		Jan 1976	Jan 1976
		22,200	27,600

**1977 Australian Roads Survey**

On several occasions in recent years the member authorities of the National Association of Australian State Road Authorities have conducted surveys of the road system to assist the Commonwealth Bureau of Roads and later the Bureau of Transport Economics in its task of providing advice to the Commonwealth Government on the framing of road legislation.

A major survey, termed the Australian Roads Survey 1969-74, was conducted in 1971/72. Since then, two limited surveys have been carried out, one in 1975 and the other in 1977.

The 1977 survey was restricted to National highways and the arterial road system in both rural and urban areas.

The main phases of this survey were:

- (i) collection of inventory data on roads and bridges,
- (ii) identification of deficiencies,
- (iii) generating and estimating the cost of improvement projects, and the preparation of maintenance estimates,
- (iv) economic evaluation of improvement projects,
- (v) selection of financial programmes allowing for restrictions on finance and other resources.

The first phase of the survey was carried out by the State Road Authorities and the other four phases largely by the Bureau of Transport Economics.

As a member of the National Association of Australian State Road Authorities, the Board undertook the survey in Victoria. During the year, the checking and revision of the Board's basic road and bridge inventory data was completed.

The objective of the 1977 survey was to obtain more up-to-date information about the Australian road system to assist the Bureau of Transport Economics in the preparation of its report to the Commonwealth Government about financial assistance for roads by the Commonwealth to the States. The report will be used in the preparation of legislation to replace the States Grants (Roads) Act 1977 which expires on 30th June, 1980.

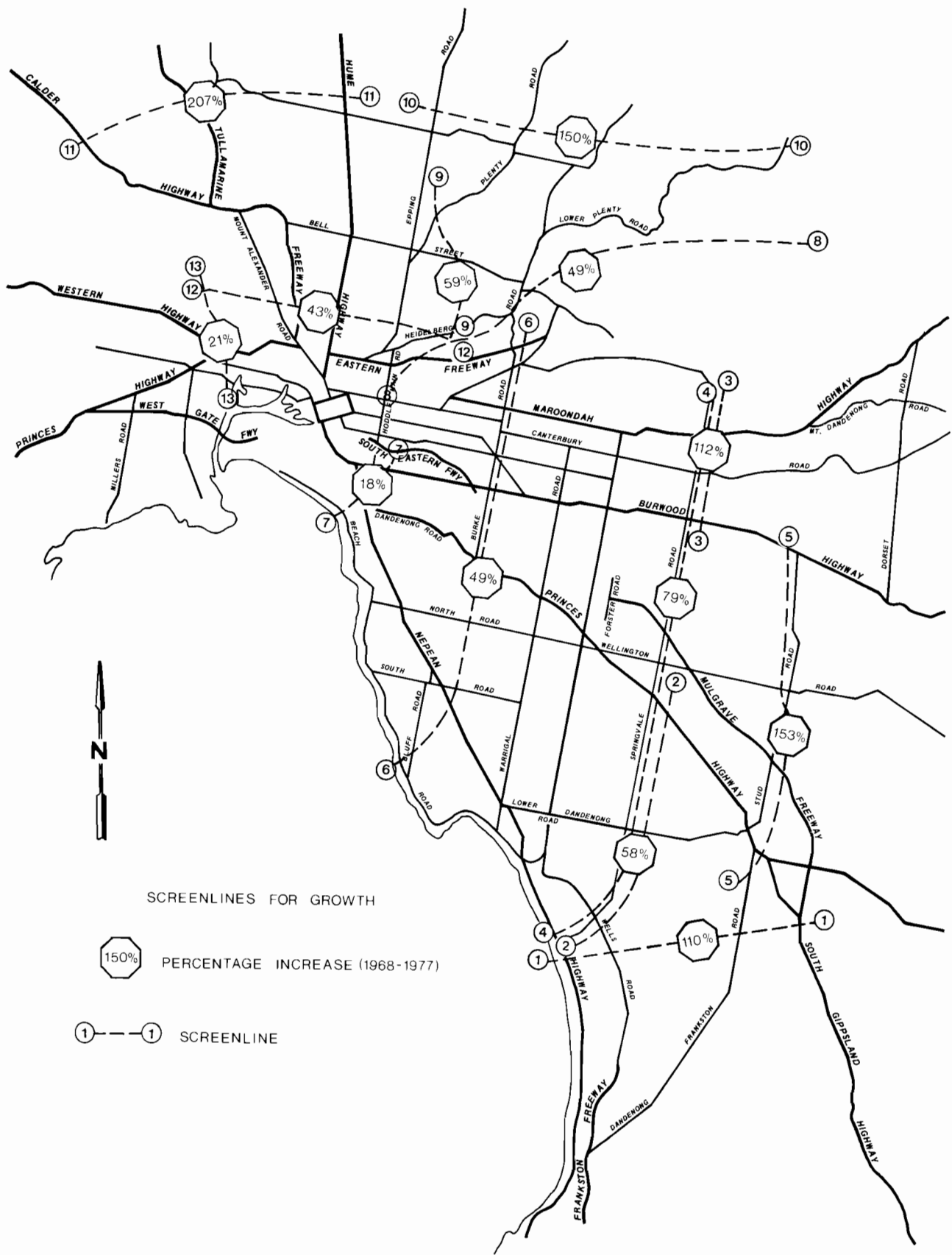
**Improvements to the rural road system**

In order to cater for the increasing demand for travel in a safe and efficient manner, there is a need to progressively upgrade State highways to divided highway or rural freeway standards.

**Rural road improvement criteria**

The Board adopted the following criteria in the development of road improvements in the rural areas of the State:

- the planning, design, construction and management of a network of arterial roads to be co-ordinated on a State-wide basis;
- the first priority to be a satisfactory programme of maintaining the existing road system including routine reconstruction and resealing;
- a system of divided roads and freeways, including town bypasses, on the more heavily trafficked routes to be stage developed;
- an adequate system of arterial roads to be developed in provincial cities and towns;
- existing roads, intersections and roadsides to be improved to reduce the number and severity of traffic accidents;
- bridges that are narrow, structurally deficient or of inadequate waterway to be improved or replaced;
- recreational and tourist traffic to be adequately provided for by the maintenance and development of roads of tourist interest, including the provision of a system of wayside stopping places and rest areas on all classes of roads;
- roadsides to be developed by the establishment and maintenance of plantations, minimising the removal of existing vegetation and control of advertising hoardings;



SCREENLINES FOR GROWTH

150% PERCENTAGE INCREASE (1968-1977)

① — ① SCREENLINE

- in the areas that are subject to development, a conscious policy to be followed to set aside land for future road needs, thus enabling development to proceed with assurance;
- all works to be implemented within the guidelines set out in the Government's Statement of Planning Policy No. 5 "Highway Areas".

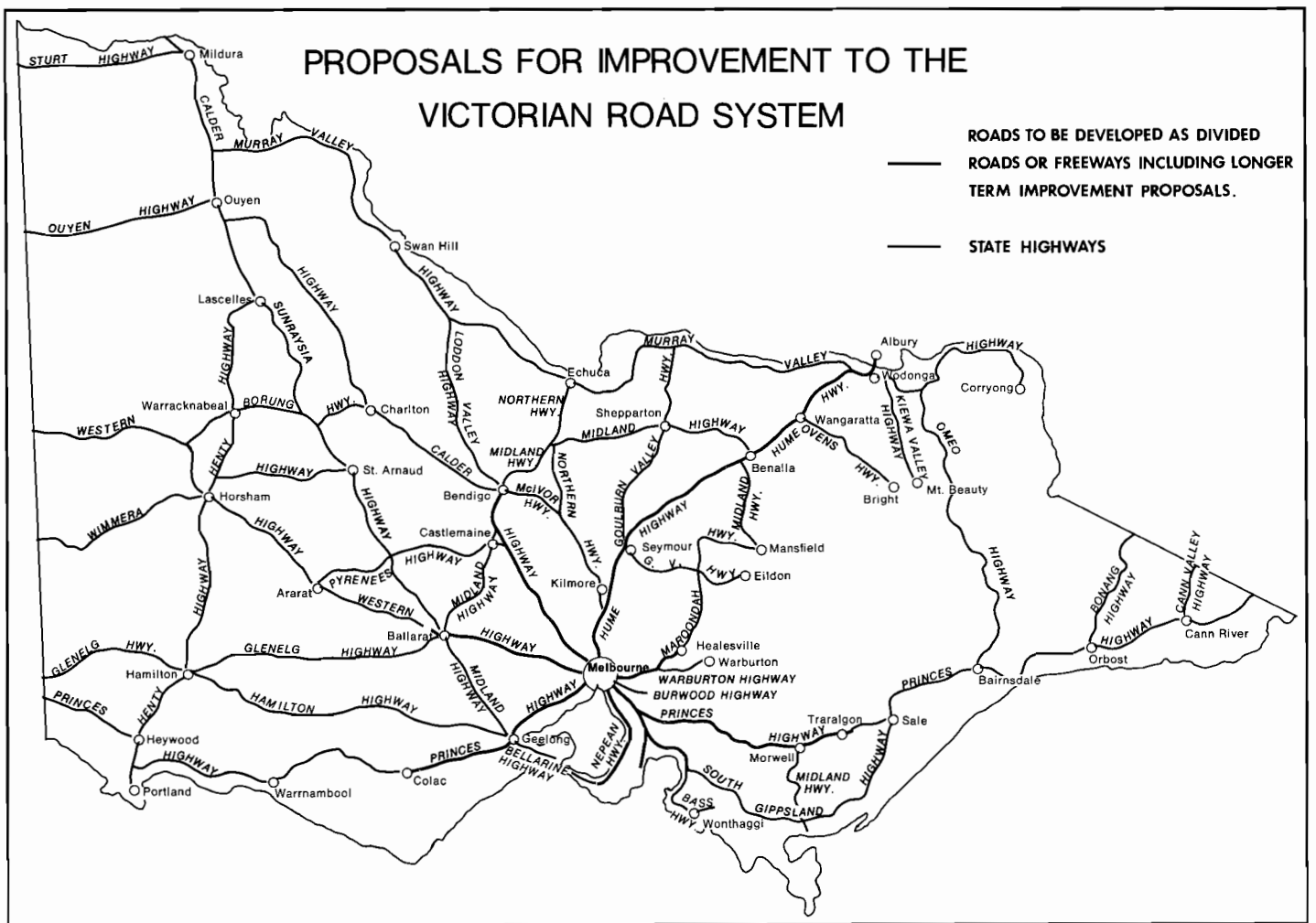
The map below illustrates the major rural highways that are proposed for progressive development as divided roads or freeways.

### Vehicle travel in Victoria

During 1976 the Australian Bureau of Statistics conducted its third survey of motor vehicle usage and the results were published in August 1977. Previous surveys were conducted in 1963 and 1971.

In Victoria, the major changes which have occurred in the five year period from 1971 to 1976 were:

- Total registered motor vehicles increased by 29% to nearly 1.8 million.
- Total travel increased by 28% from 22,700 million vehicle kilometres to 29,000 million vehicle kilometres.
- The amount of road freight moved, as measured by tonne-kilometres of commercial vehicle travel, increased by 22% from 6691 million to 8190 million and is now nearly three times the amount carried by rail.
- Average annual distance travelled by individual cars and station wagons decreased from 16,400 to 15,900 km, mainly as a result of the large increase in households owning more than one car. The average for all motor vehicles (including motor cycles) decreased from 16,400 to 16,100 km.
- The number of vehicles per head of population has increased from 1 vehicle per 2.5 persons to 1 vehicle per 2.1 persons.





# Traffic services

## Linemarking

During the 1977/78 financial year the Board spent \$1,605,592 maintaining Statcon markings and extending and maintaining linemarking and pavement markers throughout the State.

The length of linemarking maintained by the Board's linemarking machines was as follows:

- State highways and freeways — 7,789 km or 36,229 km of equivalent standard stripe
- Other CRB declared or proclaimed roads — 5,924 or 17,597 km of equivalent standard stripe
- Unclassified roads — 1,645 or 5,423 km of equivalent standard stripe.

The term 'equivalent standard stripe' means a 3 m stripe and a 10 m gap.

The cost of this work was

- \$23/km of standard stripe
- \$47/km of 75 mm wide

The cost of extending and maintaining the system of raised reflective pavement markers on declared roads was \$121,307; 56,432 reflective markers were laid.

## Control of overdimensional and overweight vehicles

In order to maintain safe conditions for road users and also protect both bridges and road surfaces from damage, limits are imposed by law on the width, height, length and weight of vehicles and their loads.

The Board has the responsibility under the provisions of the Motor Car Act, for issuing permits for the movement of overdimensional or heavy vehicles exceeding the legal weight, height, length and width —

(a) on roads declared or proclaimed under the provisions of the Country Roads Act, and

(b) for a journey which includes unclassified roads in two or more greater metropolitan municipalities as defined under the Motor Car Act.

The following table illustrates the number and types of permits issued during the year compared with those issued during financial year 1976/77.

	1976/77	1977/78
Single trip permits	20,075	21,021
Annual permits	3,526	3,061
NAASRA permits*	11,150	8,260
Total number of permits issued	34,751	32,342

\* This figure represents the number of permits issued in accordance with the NAASRA recommendations from the study into the Economics of Road Vehicle Limits. The permits will be effective until such time as they are made redundant by new legislation.

The number of offences reported during the year by the Board's twenty-two traffic officers and the four police officers seconded to the Board amount to 8,383. These offences resulted in over \$1 million in fines and costs which were paid into the Consolidated Fund.

## Traffic information services and driver education

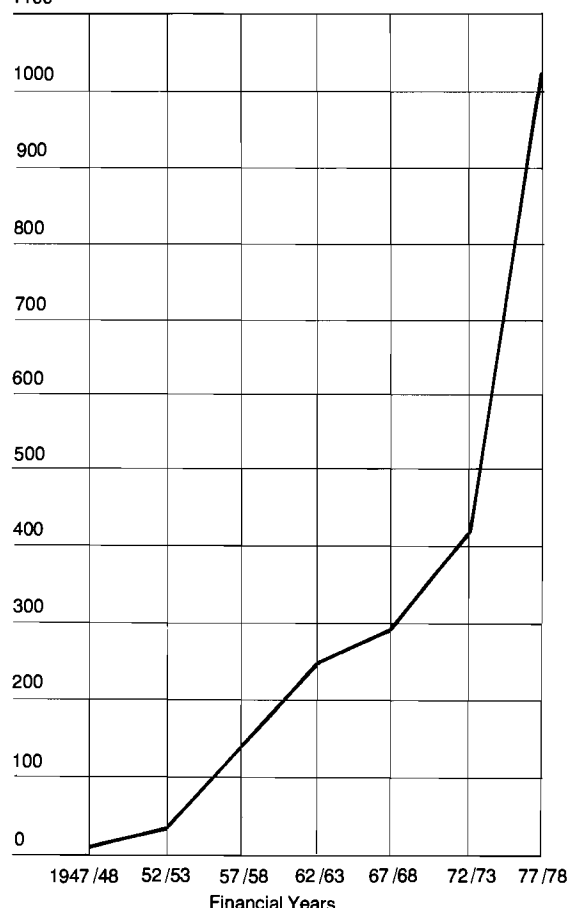
The Board continued the practice of issuing regular bulletins to the media and the police, fire brigade and ambulance services to provide information on the location of the Board's and municipal works which would cause delays in traffic flow.

Regular weekly Motoring Bulletins were issued during the year by the Board's Public Relations Section. In addition, special snow and flood reports were issued as required, describing the road conditions.

The Board published the following brochures during the year, to assist drivers:

- A Guide to Victoria's Rest Areas*
- Snow Driving, It's An Art (revised)*
- Fog Driving*
- Freeway Driving*
- Eastern Freeway Driver's Guide*

Fines and Costs  
\$'000s  
1100  
**Total Fines and Costs Imposed**



## Traffic management in South Melbourne

During the year a co-ordinating committee consisting of representatives of South Melbourne, Port Melbourne and St Kilda City Councils, the Road Safety and Traffic Authority and the Board investigated a series of traffic management measures to accommodate traffic flow expected after the opening of the West Gate and Johnson Street bridges.

One of the recommendations made by the committee to the Government was for an Advisory Truck Route through the northern section of the City of South Melbourne.

As detailed on the map below the route will facilitate the movement of heavy trucks between the new bridges and Kingsway and encourage the use of the Kingsway-Queens Road route.

Work on the route began in May 1978, and involves the installation of new and improved traffic signals and road improvements.

The Advisory Truck Route was one of a series of traffic management measures recommended to the Government by the committee. The recommendations are listed below:

- Action should be taken to accelerate the progress of work on the widening and short term improvements on the Nepean Highway between Gardenvale and Moorabbin with a view to completion of the work at the earliest practical time and to obtain early benefit to traffic during the staging of construction.
- As much traffic as is practicable should be attracted to the Kingsway-Queens Road-St Kilda Road-Nepean Highway route. In this regard traffic management measures and improvements should be implemented to increase the capacity and attractiveness of the route.
- While it is realised that the Kings Way-Queens Road route can not cater for all north-south trips, measures should be introduced to discourage and prevent if possible, any increase in the volumes of traffic using Canterbury Road and Beaconsfield Parade.
- Restrictions and/or bans should be introduced on the use of Beach Main Road, Canterbury Road and Graham Street south of Williamstown Road by heavy vehicles.
- Measures should be implemented urgently to discourage, and, or prevent through traffic from using local access streets in residential areas including any necessary closures and facilities required to maintain accessibility.

### West Gate and Johnson Street Bridges

#### Advisory Truck Route

1. *Lorimer Street/Rogers Street/Boundary Street*  
Intersection treatment and install traffic signals.
2. *Lorimer Street (in progress)*  
Road widening, Hartley Street to Gittus Street.
3. *Lorimer Street/Johnson Street*  
Adapt traffic signals.
4. *Footscray Road to Lorimer Street*  
Link traffic signals over Johnson Street bridge.
5. *Lorimer Street/Normanby Road*  
Minor channelisation and install traffic signals.
6. *Normanby Road/Clarendon Street*  
Intersection treatment — roundabout.
7. *Clarendon Street/City Road*  
Improve traffic signals.
8. *Clarendon Street/Grant Street*  
Install traffic signals.



Installation of Advisory Truck Route traffic signals at corner of Clarendon and Grant Streets, South Melbourne.

#### 9. *Market Street and York Street*

Conversion to one way pair. Pavement strengthening and alterations to parking — Clarendon Street to Kings Way.

#### 10. *Market Street/Moray Street*

Install traffic signals.

#### 11. *Market Street/Kings Way*

Provide median break and install traffic signals.

#### 12. *York Street/Moray Street*

Install traffic signals.

#### 13. *York Street/Clarendon Street*

Install traffic signals.

#### 14. *Clarendon Street, Market Street, York Street and Kings Way*

Link traffic signals from City Road to and including Kings Way radio controlled system.

#### 15. *Union Street*

Resurfacing between Queens Road and St Kilda Road.

#### 16. *Queens Road and Union Street*

Link existing signals between Lorne Street and St Kilda Road.

#### 17. *Market Street/Grant Street*

Conversion to one way pair. Modifications to intersections and traffic signals at City Road /Market Street and City Road /Grant Street.

*Note* — 12 hour clearways to be implemented for Clarendon Street, sections of Kings Way and Queens Road. Advisory signing to be located along truck route and approaches.

## Snow clearing

Snow clearing of roads to snow resorts was carried out in 1977/78 on the Alpine Road (Mt Hotham), Mt Buffalo Road (Mt Buffalo), Mt Buller Road (Mt Buller) and Bogong High Plains Road (Falls Creek).

Snow falls were generally light during the 1977 winter with most of the snow falling in late July. Snow clearing started in late May and finished in mid September.

Night snow clearing was carried out at Mt Hotham on Friday and Saturday nights during the season, and financed by a special Treasury Grant.

Snow clearing of car parks was carried out at the resorts as a charge against the respective administering authorities or

special Country Roads Board /National Parks Service grants in the case of Mt Buffalo. The heavy falls of snow in late July created problems in car park clearing at all resorts. Schmidt snow clearing equipment attached to a Mercedes-Benz Unimog prime mover and purchased in 1976/77, was put into service at Falls Creek with satisfactory results.

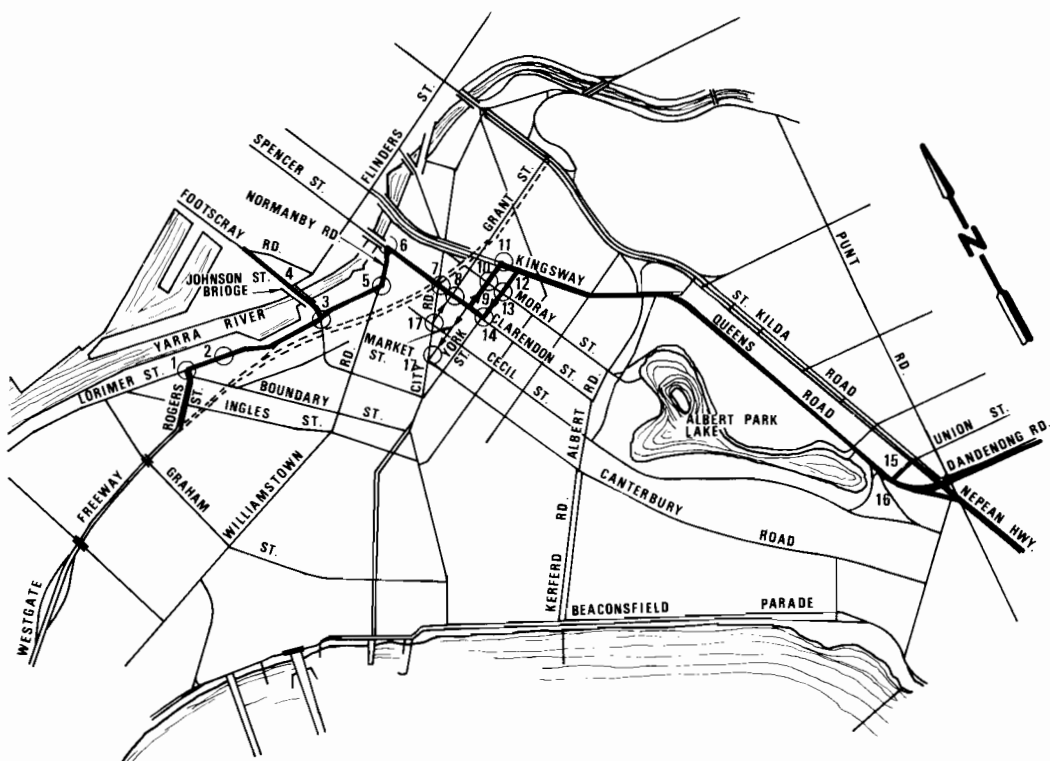
Trials of a M.A.N. 4-wheel drive truck and plough blade were conducted at Mt Buller and Mt Hotham during the latter part of the winter. Further trials will be necessary during the 1978 snow season to assess the vehicle as a possible replacement for the 4-wheel drive snowploughs currently in use.

Details of snowfall recorded during the 1977 winter by the Board's snow clearing gangs are shown in the following table:

Road	Resort	Earliest snowfall 1977	Latest snowfall 1977	No. of snow days	Max. daily snowfall (mm)	Average snowfall depth (mm)	Average length of road cleared (km)	Est. Cost 1977 season \$000
Alpine Tourists'	Mt Hotham	24 May	14 Sept	47	700	137	43	213.5
Mt Buffalo Tourists'	Mt Buffalo	30 May	13 Sept	28	250	108	17	41.3
Mt Buller Tourists'	Mt Buller	24 May	14 Sept	42	450	121	10.5	41.6
Bogong High Plains Tourists'	Falls Creek	24 May	13 Sept	34	400	143	11	43.3

Costs do not include:

- (a) clearing of car parks for Committees of Management;
- (b) night clearing at Mt Hotham financed by a State Treasury Grant of \$35,000;
- (c) 20% of the total cost of snow clearing on the Bogong High Plains Road, contributed by the State Electricity Commission of Victoria.



West Gate and Johnson Street Bridges  
Advisory Truck Route

## Emergency services

The Board provides a free emergency telephone service and assistance to drivers of immobilized vehicles on six major metropolitan traffic routes. The routes concerned are:

*Eastern Freeway*

*Kings Bridge*

*Mulgrave Freeway/South Gippsland Freeway*

*Tullamarine Freeway*

*South Eastern Freeway*

*Westgate Freeway*

The emergency service extends for 24 hours per day and includes providing assistance with minor mechanical problems, the sale of sufficient petrol to enable the vehicle to be restarted and driven clear of the freeway and also a towing service so that the vehicles can be cleared from the freeway.

The number of calls to the Board's Emergency Service Centre at Head Office has increased steadily from 4,800 calls in the first year of operation in 1975 to approximately 8,000 calls during financial year 1977/78.

Emergency telephones were installed on the Eastern Freeway in March 1978 and the installations on the Mulgrave Freeway and the South Gippsland Freeway between Forster Road, Mt Waverley, and Somerville Road, Hampton Park, were well advanced at the end of the financial year.

The Emergency Service Centre also permits continuous radio communication with the Board's road maintenance personnel and Traffic Officers outside normal working hours. The Emergency Services Officers are also able to provide up to date information outside normal working hours relating to road conditions especially during floods or bush fires.

The following table shows the distribution and types of calls received during financial year 1977/78.

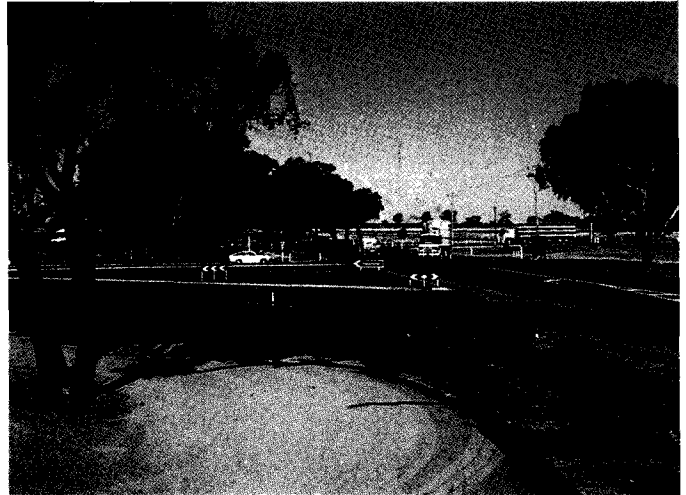
### Emergency Services — call analysis

Fault	Total	% of all calls	% of breakdowns
Petrol	1,516	19.3	25.8
Tyres	442	5.6	7.5
Radiator	552	7.0	9.3
Mechanical	2,516	32.0	42.8
Accident	224	2.8	3.8
Hoax	141	1.8	2.4
Hazard	408	5.2	6.9
Other	86	1.1	1.5
Sub Total	5,885	74.8	100.0
Other	1,980	25.2	—
Total	7,865	100.0	—

### Emergency Services — freeway analysis

Freeway	No. of calls	%
Tullamarine	2,792	47.4
Eastern*	795	13.5
South Eastern	1,554	26.4
West Gate	530	9.0
Kings Bridge	214	3.7
Mulgrave	—	—
Total	5,885	100.0

\*Half year only



Murray Valley Highway — Benalla-Tocumwal Road intersection.



Duplication of Bellarine Highway.

# Roads and the environment

## The environmental studies section

The Board has long been aware of the need to incorporate environmental considerations into its road planning studies, and as early as 1972 the first specialists in this area were appointed. In that year an economist, town planner and sociologist joined the staff of the then Freeway Planning Division where they worked as the "Community Impact Study Group". In 1976 the Board decided to constitute the group as a separate section, within the Planning Sub-branch, responsible to the Chief Planning Engineer. A group leader was appointed and the group was re-named the Environmental Studies Section. Over the years the Section has grown in number and now has the following officers:

*Leader*

*Town Planner*

*Assistant Town Planner*

*Economist*

*Sociologist*

*Assistant Sociologist*

*Landscape Architect*

*Engineering Assistant*

*Draftsman*

*Typist/Clerk*

The role of the Environmental Studies Section is to ensure that the non-engineering aspects of road proposals are properly assessed within the framework of a multi-disciplinary approach, and presented along with engineering and financial considerations so that balanced decisions can be made.

The main functions of the Section are:

- To undertake environmental studies for planning investigations ranging through corridor studies, route location investigations and traffic management studies.
- To give specialist advice when required such as in the review or development of guidelines, standards and policies or regulations which may apply to the Board's activities.
- To ensure that the environmental study techniques and procedures used are in line with current practice.
- To initiate applied research into problem areas or on special topics which might advance the field of understanding of environmental issues.

The Environmental Studies Section assisted in the preparation of two Environment Effects Statements during the year. In the City of Heidelberg a possible road connection between Bell Street and Banksia Street was investigated. The main objective of the proposed connection is to remove large volumes of through traffic from Burgundy Street which is an important shopping area and to relieve the dangerous traffic situation arising from the steep grade in Burgundy Street. Such a road connection would require the acquisition of houses and parkland and the Ministry for conservation requested that a full environmental assessment be prepared. The views of the public were obtained from a series of group discussions with local residents organised by the Environmental Studies Section. Comprehensive studies of the potential noise effects of a connecting road were also carried out to assess the effectiveness of remedial measures.

The second Environment Effects Statement concerned the Hume Freeway Bypass of Euroa. A Social Survey was undertaken in Euroa involving interviews with affected property owners, residents and business people in the town, in order to assess preferences for the various alternative routes. The Environmental Studies Section also conducts an annual review of the Board's proposed works programme in conjunction with officers of the Ministry for Conservation. These reviews were implemented following the Commonwealth Department of Transport's request that the Board provide environmental clearances of its proposed works programmes.

## Landscaping and roads

Landscaping of the roadsides plays an important role in providing a better travelling environment for the motorist. The landscaping treatment of a road takes into account the needs of the road users, in terms of driver safety as well as visual appeal, and the needs of people living adjacent to the road.

The Board is responsible for the management of the roadsides of State highways, freeways, tourists' and forest roads. During 1977/78, the Board planted a total 139,062 trees and shrubs at a total cost of \$49,016.

The table below shows the breakup of these figures by Board divisions and projects.

In planning road improvements — new freeways and widening and duplication of existing roads — the landscaping treatment is considered as part of the planning process.

### When a new road is planned

During the planning and design stages of a new road, an analysis is carried out of the corridor through which the road will pass.

Among the factors that are evaluated are land form, land use, drainage and existing vegetation.

These factors are then examined together with the functional demands of the road. The design of the road will determine the landscaping treatment to be used.

A new freeway that will carry a high proportion of large trucks is designed with long gentle curves and flat grades. The landscaping treatment is planned to integrate the freeway with the countryside, and where possible vegetation that is native to the area is used.

### Improvements to an existing road

When improvements to an existing road are needed, care is taken to preserve as much of the vegetation on the road reserve as possible.

Trees and shrubs are only removed where it is necessary to allow safe and efficient use of the road.

For major improvements, such as a major duplication of a State highway, the Board investigates purchasing additional land for the second carriageway so that trees and shrubs already growing in the road reserve can be retained.

During earthwork, the topsoil is generally removed and stored for use in the final restoration and planting.

### Landscaping to improve safety to motorists

The main safety function of landscaping the median between duplicate carriageways is to screen the headlight glare of oncoming vehicles.

Trees and shrubs planted in the median can also help to prevent motorists making illegal U-turns across the median.



Loddon Valley Highway, Bendigo.

Landscaping principles can be utilised to improve the safety and efficiency of roads, as follows:

- Concentrated plantings near cross roads, especially in undulating country, can help to warn motorists of the location of an intersection. Plantings of this type must not restrict visibility at intersections.
- Linear plantings within the road reserve in undulating terrain can be used to define the route of the road ahead.
- Trees can be grouped into separate stands along a road to complement the surrounding landscape, and provide variety and contrast for the motorist.
- By planning the most suitable treatment for roadside vegetation, the monotonous effect of a line of trees at a constant distance from the road can be avoided.
- A band of trees along a road can be formed to follow a wave effect which varies in distance from the road to provide a more interesting travelling route.
- In many rural areas, the roadside vegetation provides a pleasant travelling environment through country that is dominated by large, cleared grazing areas and land under cultivation.
- Roadside rest areas and wayside stops also contribute to the motorists' travelling environment.

While trees and shrubs are planted to provide an interesting travelling environment, careful planning is necessary so that they do not constitute a hazard in themselves.

### Controls

#### Fire

The vegetation in road reserves requires regular maintenance and management — cleaning up, thinning and under controlled conditions, burning off in cool weather — to minimise the likelihood of fires being started in roadside areas as a result of cigarette butts or matches being thrown from passing vehicles. In this way, the fire hazard risk is reduced while the attractiveness of the roadside is retained.

During maintenance work, the Board avoids wherever possible a conflict between the fire prevention measures and the demands of conservation.

Roads are frequently used as fire-breaks by fire control authorities.

#### Noxious weeds

Noxious weeds are a problem on roadside reserves. Wind carries the weed seeds on to medians and batters, and they quickly spread to endanger the vegetation.

As every gardener knows, repeated clearing of noxious weeds is an irksome, time-consuming task and adds to the costs of maintenance of the roadside.

### Preserving local flora and fauna

The Board plants indigenous trees and shrubs in roadside reserves wherever possible. In this way, roadside reserves play an important role in helping to preserve a region's native vegetation. For example, much of the distinctive character of the Mallee farmlands is derived from the native vegetation on the road reserves. The value of this vegetation for landscape preservation and conservation is especially high in the eastern and southern Mallee, where roadside vegetation often comprises the only remaining stands of indigenous flora in the area.

Native animals use reserves for their habitat, and birds use the trees and shrubs for nests and sources of food.

The continuation of an indigenous species in an area may also prove useful for land studies, as it permits the original pattern of the vegetation to be studied.

However, there are a number of situations where the planting of indigenous species is not possible. For example, major new roadworks may alter drainage patterns and affect water tables, or the micro-climate may be changed so that the indigenous species would not survive.

In such cases there is often a need to choose other planting material. Often only specially selected species will grow in the harsher environment of a roadside.

Engineering factors, such as the type of delineation and the width of the median, may result in non-indigenous plants being selected for an area.

### Numbers and cost of trees and shrubs planted during the 1977/78 financial year

Divisions	Trees and shrubs	Purchase cost
Bairnsdale	1,902	1,026
Ballarat	3,210	1,408
Benalla	3,060	1,521
Bendigo	3,160	1,270
Dandenong	40,737	13,176
Geelong	16,618	6,915
Horsham	7,200	3,200
Metropolitan	17,825	5,776
Traralgon	2,600	880
Warrnambool	4,800	1,327
<i>Projects</i>		
Eastern Freeway	13,300	4,655
Hume Freeway	5,100	1,700
Johnson Street Bridge	2,200	770
Mulgrave Freeway	17,000	5,270
West Gate Freeway	350	122
<b>Total</b>	<b>139,062</b>	<b>\$49,016</b>
1976/77	129,246	\$46,813

# Municipal

## Municipal allocations

Victoria's 212 municipal councils have been allocated \$79,625,000 for road works on main and unclassified roads for 1978-79.

This represents \$2,239,000 more than for 1977/78. However, in real terms the 1978/79 allocations will result in less work being carried out than in 1977/78 due to rising costs.

The total amount of the applications for funds for 1978/79 received from councils was \$174,774,000 but the Board was able to allocate only approximately 46% of this amount.

The table below shows the applications and allocations of funds to municipal councils for 1977/78 and 1978/79.

	1977/78		1978/79	
	Applications	Original allocations	Applications	Allocations
	\$000s	\$000s	\$000s	\$000s
Main roads	61,942	36,898	67,910	38,015
Unclassified roads	98,839	40,488	106,864	41,610
	\$160,781	\$77,386	\$174,774	\$79,625

## New procedures in allocation of funds to municipal councils

To allow councils greater flexibility in the use of the Board's funds and to reduce administrative work in municipal offices, the Board introduced for the 1977/78 financial year, a system of bulk allocations with associated simplification of financial and administrative procedures for works on unclassified roads. Simplified financial and administrative procedures were also instituted in respect to allocations for main roads.

Discussions with municipal officers have indicated that the new procedures have been favourably received and have generally achieved the desired objectives.

There has been a substantial reduction in the amount of paperwork passing between the Board and councils and in the clerical workload associated with the reimbursement of councils' expenditure.

The new procedures have also allowed councils greater flexibility and autonomy in the performance of works programmes and have encouraged closer liaison between the Board's and councils' officers.

## 34th Conference of Municipal Engineers

The 34th Conference of Municipal Engineers, convened by the Board in conjunction with the Local Government Engineers Association of Victoria was held at the Board's Head Office on 3rd and 4th April, 1978, concluding with a technical tour on 7th April, 1978.

The conference was officially opened by the Chairman, Mr R E V Donaldson, on behalf of the Hon J A Rafferty, MP, Minister of Transport.

The general theme of the conference was Continuing Education for the Engineer. The opening paper was a keynote address — "Overall Strategy Planning" presented by Mr K D Green, OBE, ED, Secretary, Premier's Department. Mr Green's address was well received by conference participants and set the pattern for a highly informative and successful conference. Approximately 250 local government and CRB engineers attended with representatives from some State Instrumentalities and Departments.

Following the key-note address, the papers presented and their authors were as follows:

Industrial Parks and Trends in Industrial Uses — Mr M J Pawsey, City Engineer, Berwick.

The Views of an Arbitrator on Engineering Contract Management — Mr J H Standish.

Developments in Pavement Design — Mr P W Lowe, Materials Research Engineer, CRB.

Use of Crushed Rock as a Pavement Material — Mr M L Williams, Major Projects Engineer, CRB.

Fixed Roadside Hazards — Mr E V Barton, Traffic Engineer, CRB.

CRB Approach to Traffic Noise Studies — Mr G W Jameson, Scientific Officer, CRB.

Use of Computers — Mr M V Jones, National Executive Engineer, Association for Computer Aided Design Limited.

Control of Local Road Intersections under the STATCON Programme — Mr A T Fry, Deputy Chairman, Road Safety and Traffic Authority.

Panel discussions on environmental considerations:

(i) Environmental Considerations in Road Planning: Mr R E H Saunders, Leader Environmental Studies Section, CRB.

(ii) The Public Involvement Programme for West Coast Highway: Swanbourne Area Study (WA) — Mr B M Robbins, Associate Director, Scott and Furphy, Engineers.

(iii) Landscape Concepts: Mr A Kelly, Landscape Architect, CRB.

(iv) Restoration of Areas after Roadworks: Mr D N Durant, Project Engineer, Mulgrave Freeway, CRB.

(v) Selection of Trees and Shrubs for Roadside: Mr H L Gray, Roadside Development Engineer, CRB.

(vi) Control of Erosion on Roadworks: Mr T Richmond, Engineer, Geelong Division, CRB.

SEC/CRB Code of Practice for Tree Clearing and Trimming:

Mr E T Oppy, Divisional Engineer, Ballarat, CRB;

Mr K W Pocknee, Field Practices Engineer, SEC;

Mr J A McKerrow, Shire Engineer, Bulla.

Commonwealth Road Legislation and CRB Allocations Procedures:

(i) Funds for Roads — A Municipal Viewpoint: Mr K J Dowling, City Engineer, Malvern.

(ii) Funds for Roads — Recent Developments: Mr N S Guerin, Deputy Engineer in Chief, CRB.

(iii) Road Funding — Application and Allocation: Mr K C Langdon, Shire Engineer, Warrigal.

(iv) New Financial and Administrative Procedures relating to the Allocation of Funds to Municipal Councils: Mr R G Cooper, Chief Accountant, CRB.

ARRB — An Overview: Dr M G Lay, Executive Director, ARRB.

Use of Rubber in Bituminous Suffacing Including Experimental Use of Scrap Rubber from Old Vehicle Tyres: Mr J D Bethune, Asphalt Engineer, CRB.

Developing the Civic Environment — The Streetscape: Mr P S Parkinson, Shire Engineer, Flinders.

Current Practices in Bridge Construction: Mr G D Black, Assistant Bridge Construction Engineer, CRB.

Review of Procedures for Preparation of Plans and Specifications for Municipal Bridgeworks: Mr B Addis, Bridge Design Engineer, CRB.

Plant and Equipment Innovations: Mr L J McKenzie, Shire Engineer, Ararat. Mr A G Thompson, City Engineer, Waverley.

Mr A R Keam, Shire Engineer, Dimboola. Mr N J Arbuthnot, Shire Engineer, Mildura. Mr M E John, Shire Engineer, Wycheproof.

Mr P M Jeffreys, Chief Mechanical Engineer, CRB.

Municipal road works (opposite page).

1. (full page) Reconstruction of 1.8 km of road south-east of Shepparton, Shire of Shepparton.
2. Reconstruction on the Warrnambool-Penshurst Road, Shire of Minhamite.
3. Widening of Stud Road, City of Dandenong.
4. Deviation of Bairnsdale-Paynesville Road at Eagle Point, Shire of Bairnsdale.
5. Reconstruction on the Rosebud-Flinders Road near Picnic Point, Shire of Flinders.

The technical tour on Friday morning, 7th April, included an inspection of construction work on the English Street Interchange, Lancefield Road (conversion to freeway standard); the Johnson Street Bridge and preliminary work for the West Gate Freeway, South Melbourne Section.

The Board extends its thanks and appreciation to the Local Government Engineers Association of Victoria for assistance in planning the conference, to Mr K D Green and to all engineers, particularly those who presented papers, for contributing to the success of the conference.

## Visits to municipalities

Each year the Board members make official visits to a number of municipalities throughout the State. This has been the practice since 1913 when the first Board members toured the State to decide which roads should be main roads. Most of the municipalities in Victoria are visited at approximately six yearly intervals. These visits include a tour of the municipality's roads, in company with councillors and council officers, and discussions on local road problems, thus providing the Board members with first hand information about road conditions and developments.

During the year the Board made official visits to 31 municipalities: the Cities of Ararat, Box Hill, Brunswick, Camberwell, Coburg, Echuca, Mildura, Preston, South Barwon, Waverley; the Shires of Ararat, Barrabool, Bass, Bellarine, Bright, Cranbourne, Deakin, Grenville, Heytesbury, Kara Kara, Korumburra, Lexton, Lillydale, Mansfield, Mildura, Myrtleford, Omeo, Rutherglen, St Arnaud, Yarrawonga and the Borough of Queenscliffe.

The Board places on record its appreciation of the assistance given by all Councillors and municipal officers during these visits.

## Deputations

The Board is always prepared to discuss matters of common interest with representatives of councils or other official bodies. These discussions provide a useful channel of communication between the Board and local administration. During the year the Board received deputations from the following councils:

The Cities of Box Hill, Camberwell, Collingwood, Fitzroy, Horsham, Melbourne and Mildura; the Shires of Buln Buln, Eltham and Morwell and the Borough of Wonthaggi.

The main topics were the general inadequacy of road grants to meet the State's road needs, the allocation of road funds to municipal councils by the Board, freeway planning and road construction.

## Municipalities Forest Roads Improvement Fund

The Municipalities Forest Roads Improvement Fund was established in the State Treasury in 1955 for the purpose of assisting municipal councils in the improvement and protection of roads adjacent to State Forest areas and to facilitate the extraction of forest produce. An amount of \$150,000 was authorised to be paid into the fund by the State Government during the year, increasing the authorised contributions to \$1,010,000.

The Board's Divisional Engineers combined with the appropriate Forests Commission Officers to determine the priorities of eligible works. Allocations for particular works were made by the Board with the agreement of the Forests Commission, but the limited funds available from the fund only enabled grants to be made for the most urgent works.

However, because of increases over the past two years in the authorised contributions to the Fund, outstanding current applications have been reduced from over \$300,000 to approximately \$190,000.





## Significant works on main and unclassified roads

### Main roads

Significant works completed or substantially completed during financial year 1977-78.

#### Avon Shire

##### *Bengworden Road*

Construction of a seven span bridge across the Avon River — 130 m long and 8.6 m between kerbs.

#### Bairnsdale Shire

##### *Bairnsdale-Paynesville Road*

Realignment of 4.3 km through McLeod Morass at Eagle Point.

#### Broadmeadows City

##### *Pascoe Vale Road*

Asphalt resurfacing between Chapman Avenue and Grandview Street, and Douglas Street and Devon Road.

#### Bendigo City

##### *Strathfieldsaye Road*

Reconstruction of 0.2 km between Pall Mall and Queen Street.

#### Broadford Shire and Yea Shire

##### *King Parrot Creek Road*

Construction of a four span bridge across King Parrot Creek and approach roads.

#### Camberwell City

##### *Canterbury Road*

Reconstruction between Elgar Road and Station Street.

##### *Doncaster Road*

Reconstruction between Wentworth Avenue and Keats Street.

#### Cobram Shire

##### *Benalla-Tocumwal Road*

Reconstruction of 3.2 km north of Katamatite.

#### Cranbourne Shire

##### *Cranbourne-Frankston Road*

Reconstruction and duplication between South Gippsland Highway and Monohans Road.

Reconstruction between Dandenong-Hastings Road and Pearcedale Road.

#### Creswick Shire

##### *Clunes-Creswick Road*

Reconstruction of 3.9 km north of Creswick.

#### Croydon City

##### *Canterbury Road*

Reconstruction of Dorset Road intersection.

#### Dandenong City

##### *Stud Road*

Reconstruction between Clow Street and David Street.

#### Deakin Shire, Kyabram Shire and Rodney Shire

##### *Kyabram-Rochester Road*

Reconstruction of 2 km.

#### Dunmunkle Shire

##### *Donald-Minyip Road*

Reconstruction of 4 km east of Minyip.

##### *Murtoa-Minyip Road*

Reconstruction of 8 km west of Muniyip.

#### Eltham Shire

##### *Eltham-Yarra Glen Road*

Reconstruction between Reynolds Road and Hurstbridge.

#### Essendon City

##### *Mt Alexander Road*

Asphalt resurfacing between Buckley Street and Kellaway Avenue.

#### Hampden Shire

##### *Gnarput Road*

Reconstruction of 1.7 km near Lake Gnarput.

#### Heidelberg City

##### *Heidelberg-Eltham Road*

Construction of a roundabout at McArthur Road intersection.

#### Healesville Shire

##### *Eltham-Yarra Glen Road*

Reconstruction and realignment of 1.4 km of road.

#### Heytesbury Shire

##### *Cobden-Port Campbell Road*

Reconstruction of 1.4 km north of Port Campbell.

##### *Cobden-Warrnambool Road*

Reconstruction of 1.8 km east of Elingamite.

#### Kerang Shire

##### *Koroop Road*

Reconstruction and realignment of 2 km.

#### Knox City

##### *Stud Road*

Duplication between Burwood Highway and High Street Road.

#### Mansfield Shire

##### *Mansfield Road*

Construction of two cell culvert and approaches across Timbertop Creek.

Reconstruction and realignment at Glenroy Road intersection.

#### Marong Shire

##### *Bridgewater-Maldon Road*

Construction of a three span bridge across Bradford Creek and construction of approach roads.

#### Melton Shire

##### *Diggers Rest-Coimadai Road*

Reconstruction and widening of 1.6 km.

#### Metcalfe Shire

##### *Bendigo-Sutton Grange Road*

Reconstruction and realignment of 1.6 km.

#### Minhamite Shire

##### *Warrnambool-Penshurst Road*

Reconstruction of 3.4 km north of Hawkesdale.

#### Moorabbin City

##### *Doncaster-Mordialloc Road*

Reconstruction and widening between Leslie Road and Kingston Road.

##### *Warrigal Road*

Reconstruction of Kingston Road intersection.

#### Mortlake Shire

##### *Terang-Framlingham Road*

Reconstruction and realignment of 2 km east of Framlingham.

#### Oakleigh City

##### *Doncaster-Mordialloc Road*

Reconstruction of Centre Road intersection.



Cobden-Port Campbell Road, Shire of Heytesbury — construction of bridge across Curdies River.

**Preston City***Epping Road*

Widening and reconstruction between Kenilworth Street and Mahoneys Road.

*Gilbert Road*

Reconstruction between Miller Street and Jacka Street.

**Shepparton Shire***Violet Town-Dookie Road*

Construction of 4 span bridge across the Broken River at Nalinga.

**Springvale City***Cheltenham Road*

Widening between Chandler Road and Corrigan Road.

Widening between Springvale Road and Howard Road.

**St Kilda City***Beach Road*

Reconstruction between Byrne Avenue and Kingsley Street.

Improvements to Head Street intersection.

**Stawell Shire***Stawell-Warracknabeal Road*

Construction of 10 span bridge across the Wimmera River at Glenorchy and construction of approaches.

**Tallangatta Shire***Talgarno Road*

Reconstruction and realignment of 2.8 km.

**Tullaroop Shire***Maryborough-Dunolly Road*

Reconstruction of 1.5 km at Bet Bet.

**Wangaratta Shire***Wangaratta-Yarrowonga Road*

Reconstruction of 1.5 km.

**Warmambool Shire***Allansford-Peterborough Road*

Reconstruction of 2.5 km.

**Waverley City***Doncaster-Mordialloc Road*

Intersection treatment at Waverley Road.

*Ferntree Gully Road*

Reconstruction between Springvale Road and Cootumundra Drive.

*High Street*

Reconstruction between Gallaghers Road and Dandenong Creek.

**Yea Shire***Whittlesea-Yea Road*

Reconstruction and realignment of 7.7 km at Junction Hill.

*Yea-Yarra Glen Road*

Reconstruction and realignment of 0.8 km north of Glenburn at Devlins Bridge.

**Unclassified roads**

Significant works completed or substantially completed during financial year 1977-78.

**Altona City and Werribee Shire***Merton Street*

Reconstruction between Queen Street and North Avenue.

**Bairnsdale Shire***Wy Yung-Calulu Road*

Construction of a three span bridge across Boggy Creek.

**Ballaarat City***Drummond Street North*

Reconstruction of 0.8 km between Webster Street and Duncan Street.

*Little Bridge Street*

Construction of 0.2 km between Peel Street and Main Road.

**Berwick City***Narre Warren North-Cranbourne Road*

Reconstruction between Pound Road and City Road.

**Box Hill City***Station Street*

Reconstruction and widening between Canterbury Road and Piedmont Street.

**Bright Shire***Wobonga Lane*

Construction of three span bridge across the Ovens River.

**Brunswick City***Blyth Street*

Reconstruction between Staley Street and Burchett Street.

*Victoria Street*

Reconstruction between Sydney Road and Burchett Street.

**Camberwell City***Balwyn Road*

Reconstruction and widening between Belmore Road and Doncaster Road.

**Caulfield City***Orrong Road*

Asphalt re-surfacing between Glen Eira Road and Blackburn Road.

**Coburg City***Cumberland Road*

Reconstruction between Bell Street and Gafney Street.

**Corio Shire***Sandy Creek Road*

Construction of 1.8 km north west of the You Yangs Road.

*Windermere Road*

Reconstruction of 2.3 km between Geelong-Ballan Road and Kees Road.

**Dandenong City***Heatherton Road*

Reconstruction between Namur Street and Chandler Road.

**Deakin Shire***Watson Road*

Reconstruction of 3.5 km south from Echuca-Kyabram Road.

**Doncaster and Templestowe City***Thompsons Road South*

Reconstruction between Manningham Road and the Koonung Creek.

**East Loddon Shire***Pyramid-Yarraberb Road*

Reconstruction of 8 km.

**Flinders Shire***Canterbury Jetty Road*

Construction between Fairsea Grove and Melbourne Road.

**Footscray City***Whitehall Street*

Reconstruction between Napier Street and Hopkins Street.

**Heidelberg City***Banksia Street*

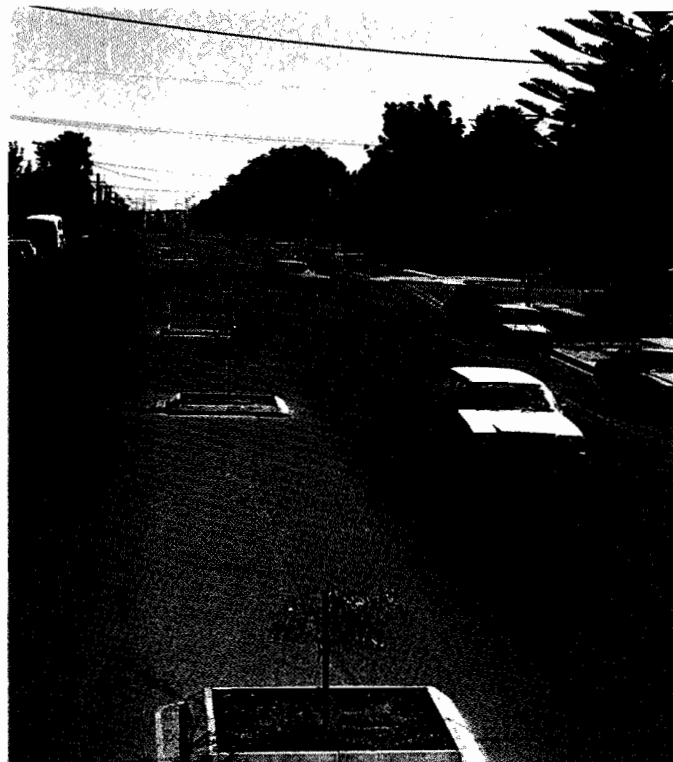
Reconstruction and widening through the Lower Heidelberg Road and Dora Street intersections.

*Upper Heidelberg Road*

Reconstruction between Montgomery Street and Altona Street.

**Horsham City***Urquhart Street*

Reconstruction and widening between Hamilton Street and O'Callaghans Parade (Western Highway).



Widening of Urquhart Street, City of Horsham.

**Knox City***Boronia Road*

Intersection treatment at Scoresby Road.

*Forest Road*

Reconstruction between The Glen and Burwood Highway.

**Lillydale Shire***Hull Road*

Reconstruction between Croydondale Road and Greenhills Road.

**Mansfield Shire***Mansfield-Howes Creek Road*

Reconstruction of 1.4 km.

*School Lane*

Reconstruction of 1.6 km near Merrijig.

**Melton Shire***Coburns Road*

Reconstruction between Western Highway and Centenary Avenue.

*Holden Street*

Construction of new bridge over Kororiot Creek and construction of approaches.

**Minhamite Shire***Kangertong-Glengleeson Road*

Reconstruction of 4 km.

**Moorabbin City***Charman Road*

Reconstruction between Glebe Avenue and LaTrobe Street.

**Mordialloc City and Moorabbin City***Charman Road*

Reconstruction between Balcombe Road and LaTrobe Street.

**Mordialloc City***Service Road (Nepean Highway)*

Construction of service road between Eighth Street and Warrigal Road.

*White Street*

Reconstruction and widening between Bradshaw Street and Boundary Road.

**Mortlake Shire***Occupation Lane*

Reconstruction of 3 km.

**Numurkah Shire***Rockliff's Road*

Reconstruction and realignment of 3.2 km between Fuzzards Road and Centre Road.

**Nunawading City***Main Street*

Reconstruction between South Parade and Canterbury Road.

**Orbost Shire***Bonang-Gelantipy Road*

Construction of single span bridge across Stockyard Creek.

**Oxley Shire***Benalla-Whitfield Road*

Reconstruction and realignment of 1.3 km including the construction of a three span bridge across Fifteen Mile Creek.

**Portland Shire***Winnap-Drik Drik Road*

Reconstruction of 2.1 km at Drik Drik.

**Preston/Broadmeadows Cities and Whittlesea Shire***Mahoneys Road*

Reconstruction and duplication of Mahoneys Road between the Hume Highway and High Street.

**Ringwood City***Loughnan Road*

Reconstruction between Heatherside Court and Ringwood Street.

**Springvale City***Heatherton Road*

Reconstruction between Westall Road and Springvale Road.

**Tambo Shire***Snowy River Road*

Construction of two span bridge across Wulgulmerang Creek.

**Upper Murray Shire***Briggs Gap Road*

Reconstruction and realignment of 2.6 km from the Tallangatta-Corryong Road.

*Thougla Road*

Reconstruction and realignment of 2.9 km from the junction with the Murray Valley Highway.

**Waverley City***Blackburn Road*

Reconstruction between Normanby Road and Duerdin Street.

**Werribee Shire***Nerowie Road*

Construction of 2.2 km west from Exford Road.

**Whittlesea Shire***Settlement Road*

Reconstruction east of High Street.

# Other projects and activities

## National Park roads

The State Government again provided loan funds repayable by the Board, amounting to \$100,000, for expenditure on roads and associated purposes in or near National Parks.

Allocations were made by the Board after consultation with the National Parks Service for maintenance and for other works in or near the following National Parks:

Brisbane Ranges National Park	Bannockburn and Corio Shires
Bulgua National Park	Alberton Shire
Cape Schanck National Park	Flinders Shire
Captain James Cook National Park	Orbost Shire
Ferntree Gully National Park	Sherbrooke Shire
Fraser National Park	Alexandra Shire
Glenaladale National Park	Bairnsdale Shire
Hattah Lakes National Park	Mildura Shire
Kinglake National Park	Eitham and Whittlesea Shires
Lind National Park	Orbost Shire
Little Desert National Park	Dimboola Shire
Morwell National Park	Morwell Shire
Mount Buffalo National Park	Bright Shire
Mount Burrowa Pine National Park	Tallangatta Shire
Mount Eccles National Park	Minhamite Shire
Mount Richmond National Park	Portland Shire
Mount Samaria National Park	Mansfield Shire
Organ Pipes National Park	Keilor City and Bulla Shire
Port Campbell National Park	Heytesbury Shire
Tarra Valley National Park	Alberton Shire
The Lakes National Park	Rosedale Shire
Warby Ranges National Park	Wangaratta Shire
Warrandyte National Park	Doncaster and Templestowe City
Wilson's Promontory National Park	South Gippsland Shire
Wingan Inlet National Park	Orbost Shire
Wyperfeld National Park	Karkaroc Shire

The works consisted of the construction and sealing of access roads to National Parks and roads and parking areas within National Parks, together with the maintenance of roads already constructed. The works were carried out either by the Board, the local municipal council concerned or the National Parks Service. The Government has made loan funds totalling \$1,497,000 available for these purposes since 1st July, 1963.

## Roads of tourist interest

The State Government provided loan funds totalling \$225,000 in 1977/78 for expenditure on roads of a tourist nature other than roads proclaimed as tourists' roads under the provisions of the Country Roads Act. The loan funds are repayable by the Board.

Allocations for particular projects were made by the Board after consultation with the Ministry of Tourism. The total amount made available by the Government since 1960 is \$3,669,000. Applications for financial assistance from these funds are well in excess of the amount available for expenditure.

The Board is required to make an annual payment into the Tourist Fund amounting to two per cent of the amount credited to the Country Roads Board Fund in the previous year from receipts under the Motor Car Act. An amount of \$1,216,027 was paid during the year. The Tourist Fund is administered by the Ministry of Tourism.

## National Association of Australian State Road Authorities

The National Association of Australian State Road Authorities (NAASRA) is an organisation of the Road Authorities of the six States and the Commonwealth Department of Construction, the members of NAASRA being the heads of the various authorities.

The aims of NAASRA may be briefly stated as providing uniformity of practice in road and bridge design, construction, maintenance and operation, improved construction methods and the production and updating of technical manuals to establish standard practices throughout Australia.

The Association also collects and disseminates statistical information relating to traffic, the types and standards of roads and road finance. The information collected is used in the formulation of the national road policies.

The technical work of NAASRA is performed by the Principal Technical Committee (consisting of the chief engineering officers of the authorities) and a number of supporting standing and ad hoc committees on which the Board is represented.

NAASRA's views on such matters as the Commonwealth's controls on road finance, and Commonwealth participation in works programming, road design and construction standards are presented to the Australian Transport Advisory Council Road Advisers Group of which the Board's Chairman, Mr R E V Donaldson, is a member. This group advises ATAC, the meeting of Ministers of Transport which determines policy.

The following NAASRA meetings were held during the year:

- 58th (Annual Meeting) Perth, 21st and 22nd November, 1977, attended by Mr T H Russell, Deputy Chairman.
- 59th (Intermediate Meeting) Melbourne, 9th May, 1978, attended by Mr R E V Donaldson, Chairman; Mr T H Russell, Deputy Chairman; and Mr W S Brake, Member.

Items considered by NAASRA during the year included:

- 1 Commonwealth road funds legislation.
- 2 State roads legislation.
- 3 Australian Road Surveys.
- 4 Road vehicle limits:
  - implementation of ERTL Study recommendations
  - operation of large combination vehicles.
- 5 NAASRA study of road maintenance standards, costing and management.
- 6 Environmental matters.
- 7 Principal national routes.
- 8 Productivity measures in the road construction industry.
- 9 NAASRA Data Bank System Study.
- 10 Uniform Road Statistics.
- 11 Reports of Australian Committee on Road Devices (ACORD) and Australian Transport Advisory Council (Road Advisers Group).
- 12 Truck Hire Rates.
- 13 Co-ordination of Road Research.
- 14 International Training Courses.
- 15 Draft Guidelines for Compensation for Properties affected by Road Proposals.
- 16 NAASRA Publications.

## Australian Road Research Board

The Australian Road Research Board was established in 1960. The Board of Directors includes the heads of the State Road Authorities, the secretary of the Commonwealth Department of Construction, the secretary of the Commonwealth Department of Transport and the Executive Director of ARRB.

Up to 10% of the ARRB's annual expenditure is borne by the Commonwealth Department of Construction. The remainder is shared by the six State road authorities on the percentage basis



adopted by the Commonwealth Government in making grants to the States under the States Grants (Roads) Act 1977 and the Transport Planning and Research (Financial Assistance) Act 1977.

The objective of the Board is to co-ordinate, encourage and arrange continuing research into problems associated with road and traffic in Australia, i.e. research into road planning, location, design, construction and maintenance, traffic operation and road safety.

The Directors of the Australian Road Research Board meet twice a year to consider management and policy matters and to review the progress of research projects.

Mr T H Russell, Deputy Chairman, attended the 35th Directors Meeting of ARRB at the Main Roads Department, Perth on 23rd November, 1977, while the Chairman, Mr R E V Donaldson who is also the Deputy Chairman of ARRB, attended the half yearly meeting held at the Australian Road Research Centre, Vermont on 10th and 11th May, 1978.

Technical conferences for the wider dissemination of the results of research and the exchange of knowledge are held biennially. Several CRB engineers are members of ARRB Technical or Specialist Committees.

As examples of the research projects being undertaken by ARRB, Dr M G Lay, Executive Director, ARRB, referred to the following projects in a paper presented at the 34th Conference of Municipal Engineers.

"Dynamic Truck Suspension Performance": a study of the forces that different types of truck suspensions apply to the road;

"Weighing Vehicles in Motion": a new weighing device called EMU (Electronic Mass Unit) has been developed. EMU not only measures the weight of the moving axle, but also measures the speed of the truck and the axle spacing and then assesses the type of truck;

"Speeds on Curves": an assessment of advisory speeds;

"Quality Control — Dimensions in Construction";

"Quality Control — Materials in Construction";

"Approval of Transport Planning Techniques";

"Design of Bituminous Plant Mixes": ARRB and the CRB are actively involved on field trials of some new asphalt mixes, especially designed for residential streets.

## Co-operation with Army Reserve

During the year the Board joined other State Government instrumentalities and employers in supporting the "Employer Policy Statement" of the State Committee for Support of the Reserve Forces.

The policy statement encourages enlistment in the Reserves, as a significant and economical method of providing defence forces in peacetime as well as being a valuable addition to employee development within an organisation.

The Board with other State Government instrumentalities, sponsors Royal Australian Engineers Supplementary Reserve units in the Australian Army Reserve. The units sponsored by the Board are the Headquarters 22 Construction Regiment and the 107 Plant Squadron (Heavy). Members of these units are drawn from Board personnel throughout the State and have an obligation to attend an annual 14 day training camp. Additional training courses for promotion and acquisition of specialist skills are conducted at other times during the year.

The 1977 annual camp was held at Puckapunyal where training in demolitions, water supply, infantry minor tactics and range shooting was undertaken.

During March 1978 members of the Plant Squadron applied their skills to practical advantage by dismantling a 30.5 m long Bailey Bridge spanning the Broken River near Swanpool in

north-eastern Victoria. This bridging, part of stocks held by the Board for emergency purposes, was erected following floods in 1974 which washed away the existing bridge. With the construction of the permanent concrete replacement bridge completed, the dismantling was carried out over a weekend and provided valuable community assistance as well as training benefit to unit members.

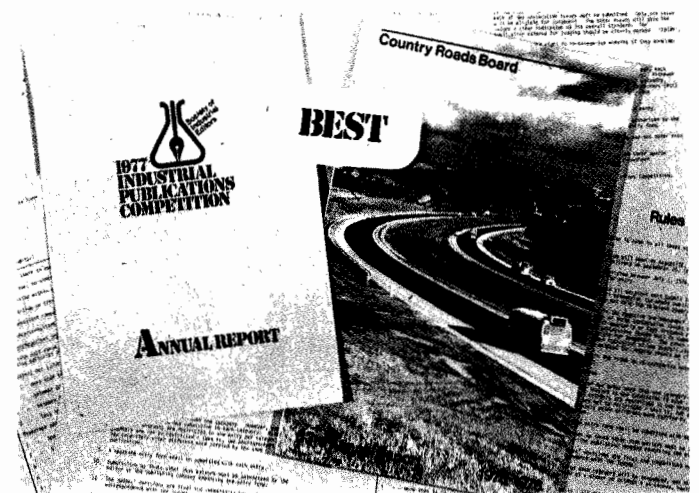
The Commanding Officer of the regiment is Lieutenant Colonel G R Hunt, ED, the Board's Project Engineer for the Eastern Freeway and the plant squadron is commanded by Major P M Hosking, ED, the Board's Property Officer. At 30th June, 1978, fifteen members of the Board's staff were officers of 22 Construction Regiment.

## Public relations

The Board continued to pursue the policy of informing the public of its functions and works. The Public Relations Officer and his staff prepared news releases and publications for public issue and arranged for audio-visual productions and displays relating to the Board's activities.

## Publications

In November, the annual national awards of the Society of Industrial Editors were announced. The Board received the First Award in the Annual Report Section for its 1975/76 Annual Report and the First Award in the magazine section for the 35th edition of CRB News, published in May 1977. This edition of CRB News contained the feature article, titled "Your Property . . . Your Roads" for which the Board received a commendation in the Awards.



During the year, the Board issued the following publications or pamphlets:

CRB News, Nos 36, 37, 38.

Roadside Rest Areas

CRB Colouring Book (for children)

The Princes Freeway, Drouin-Warrigul Sections

The Hume Freeway, Violet Town Bypass

Snow Driving . . . It's An Art (revised)

The Western Freeway, Melbourne to Ballarat

Pedestrian Overpasses and Underpasses

Driver's Guide to the Eastern Freeway

The Eastern Freeway

Fog Driving

Freeway Driving

Financial Facts, February 1978

#### Audio visual productions

During the year five short video productions were made for public exhibition:

*The Hume Challenge (revised)*

*The Bypass of Euroa*

*Western Roads*

*The Widening of Nepean Highway*

*Freeway Driving*

#### Anti-litter campaign

During the summer of 1977/78, the Board carried out a major public education campaign relating to the problem of roadside litter.

The main feature of the campaign was the production and distribution of 140,000 car tidy bags, and a number of colour posters which highlighted the Board's annual litter collection costs, currently estimated at \$600,000.

The campaign gained wide community support, and the Board wishes to express its thanks to the community groups, individuals, companies and the media who assisted in the campaign.

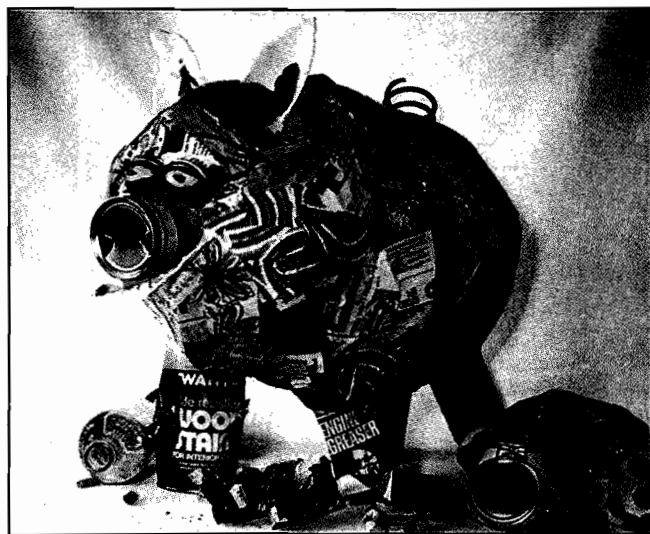
#### Personnel

The Board's personnel strength as at 30th June, 1978 was as follows:

Technological staff (professional)	615
Technical staff	519
Administrative staff	762
Supervisory staff — Field	176
— Depot	77
Clerk of works	83
Construction and maintenance personnel	2163
Workshop and depot personnel	630
Total	5025

For the first time in several years, the Board recruited a group of young civil engineers and technical staff during the year as part of its manpower planning programme. The group consisted of 19 civil engineers, 12 draftsmen and 8 survey assistants. The Board engaged 50 young people during the year as part of the Commonwealth Government initiated Special Youth Employment Training Programme. This programme encourages the development of job skills in young persons between the ages of 15-24 years who have been unemployed for six months. The young persons engaged were given on-the-job training for a maximum period of six months. The State Government encouraged its departments and instrumentalities to participate in the programme and gave financial support.

# WANTED



## \$600,000 REWARD

### Piggy Litter [alias Oink Oink] Wanted for visual pollution

Piggy and his mates cost you \$600,000 a year . . . that's how much it costs the CRB to pick up the garbage from the roadside. That money could be better spent making the roads safer for you.

We don't want to pick up the garbage.

We want you to pick up your \$600,000 community reward.

Don't be a Piggy. Pick up your reward right now by using a litter bag\* in your car.

**CRB** Roads to take you home...

\* Available from the CRB on request. Phone 860 2633 or divisional offices.

Forty school students also gained some work experience under the Work Experience Act. The Act was introduced by the State Government in January 1975 to provide work experience for up to twelve days in any one term for students over thirteen years of age. The State Education Department reimbursed the Board the salaries paid to the students.

The flexible working hours scheme introduced last year at Head Office was extended to regional Divisional Offices and the office at the Board's Mechanical Sub-branch at Syndal.

#### Workers compensation

Arising out of the engagement of an Occupational Health Specialist as the Board's part-time Medical Officer and the appointment of an experienced Workers Compensation Officer significant improvements were achieved in dealing with workers compensation claims. A Workers Compensation Administration Committee was established to examine all aspects of workers compensation claims received from personnel throughout the Board's organisation. Action taken by this committee together with a greater awareness of accident prevention measures throughout the Board led to a reduction in absences due to workers compensation. Valuable assistance was also provided to the Board's insurers resulting in speedier compensation payments to claimants.



### Apprenticeships

Thirty-eight new apprentices were employed during the year in the trades of motor mechanics (25), carpentry and joinery (6), structural steel fabrication (2), cooking (1), gardening (1), painting and decorating (1), lithographic printing (1) and plumbing and gasfitting (1).

The total number of apprentices in training at the 30th June 1978, was:

Motor mechanics	74
Structural steel fabrication	5
Carpentry and joinery	9
Painting and decorating	4
Electrical mechanics	3
Cooking	1
Automotive electrics	2
Gardening	3
Lithographic printing	2
Instrument making and repairing	1
Fitting and machining	1
Plumbing and gasfitting	2
Total	107

### Industrial relations

During the year the Board participated in several hearings before the Australian Conciliation and Arbitration Commission. Three cases in particular, involving the important A.W.U. Construction and Maintenance Award, were of direct significance to the Board.

The first case concerned wage and condition changes for employees engaged by certain companies in asphaltting operations. A strike by some of these employees occurred, causing delays in the surfacing of the Eastern Freeway. As a result of this case the wage rates of the employees concerned were increased on the basis of work value.

The second case involved wage claims on behalf of the Board's employees engaged in roadmaking operations. The decision resulted in the wage rates of these employees being incorporated into the Award without any increase.

The third case, not determined at 30th June, concerned conditions attaching to the payment of wages during inclement weather at construction sites.

The Board's work was also affected by a strike when employees of one of the Board's contractors engaged on resurfacing work on the Hume Freeway (Wallan to Broadford Section) stopped work in support of improvements in conditions. This strike lasted for one week, after which the parties were able to be brought together to confer on a number of on-site problems.

Fortunately, the very serious strike of State Electricity Commission maintenance employees late in 1977, which had devastating effects in some areas, ended before it adversely affected the Board's operations.

The Board decided in principle to issue safety footwear to its field and workshop employees. Stocks are expected to be available for issue early in the new financial year.

Generally, the Board's relationships with the trade unions and staff associations continued to be satisfactory. Two single day industrial relations training courses for job representatives of two staff associations — The Municipal Officers' Association of Australia and the Association of Architects, Engineers, Surveyors and Draughtsmen of Australia — were held at the Board's Head Office under the auspices of the Trade Union

Training Authority. The Board's Personnel Manager, Industrial Relations Officer and Personnel Officer presented papers to the courses.

Details of Awards to which the Board is a respondent party and the number of its personnel covered by these Awards are as follows:

Award	
Australian Workers Union Construction and Maintenance	1807
Building Construction Employees and Builders Labourers	139
Carpenters and Joiners	18
Engine Drivers and Firemen	5
National Building Trades Construction	78
Metal Trades	319
Transport Workers (General)	254
Municipal Officers (Country Roads Board)	1815
Municipal Officers (Country Roads Board) Senior Officers	19
Professional Engineers (Country Roads Board, Victoria)	527
Professional Engineers (Country Roads Board, Victoria) Senior Engineers	21

The remaining employees are covered by Victorian Wages Board Determinations.

### Training and development

As in previous years the Board's internal training and development programme was designed to meet the needs of apprentices, field and workshop personnel, supervisory staff, technical staff, administrative staff and professional staff.

Training courses were conducted covering legislation affecting the Board's work, pre-retirement planning, supervision, project management, and many technical aspects of the Board's activities. The personal development of young engineers and draftsmen was assisted by work experience rotation schemes and the Study Leave Scheme.

During the year the Board had the responsibility of conducting the International Training Course in Road and Bridge Engineering for 19 African and Asian Engineers. This three month course is conducted annually by the National Association of State Road Authorities in association with the Australian Development Assistance Bureau, and is rotated between the various State Road Authorities each year.

## Retirements

During the year the following personnel retired after substantial service with the Board:

Name	Position	Location	Length of service (years)
Taylor, C R	Patrolman	Dandenong Division	47
Liddell, C C	Deputy Secretary	Secretary's Branch	42
Smith, R S T	Superintendent of Works	Benalla Division	40
Macdonald, C T	Cleaner/Gardener	Bairnsdale Division	37
Nolan, D J	Articulated Vehicle Driver	Mechanical Sub-Branch	37
Fowler, A K	Patrolman	Benalla Division	36
Drury, (Miss) W G	Senior Receptionist /Typist	Office Services Section	35
Perry, A F	Overseer	Warrnambool	35
Lilley, R	Supervising Draftsman	Materials Research Division	33
Upton, L P	Workshop Supervisor	Ballarat Division	33
Malcolmson, K	Ganger	Bridge Sub-Branch	32
Sanders, A T	Ganger	Benalla Division	31
*Wilby, L G	Superintendent of Works	Urban Projects Sub-Branch	31
*Cooper, H W	Construction and Maintenance Worker	Benalla Division	30
Everard, H C	Traffic Officer	Bendigo Division	30
Palm, R O	Painter	Mechanical Sub-Branch	30
Pevitt, A G	Patrol Assistant	Warrnambool Division	30
Ronald, J W A	Divisional Accounts Clerk	Geelong Division	30
Acreman, G F	Fitter Leading Hand	Mechanical Sub-Branch	29
Alexander, E W	Foreman	Mechanical Sub-Branch	29
Brayshaw, H D	Workshop Foreman	Traralgon Division	29
Howlett, E C	Assistant Secretary	Secretary's Branch	29
Andree, W A G	Divisional Engineer's Clerk	Mechanical Sub-Branch	28
Coppleman, L G	Clerk of Works	Major Projects Division	28
Hardy, R S A	Truck Driver	Traralgon Division	28
*Anderson, J L	Owner /Truck Driver	Traralgon Division	27
Carey, D	Patrolman	Ballarat Division	27
*Wilson, L R	Traffic Officer	Warrnambool Division	27
Daly, C J	Patrolman	Benalla Division	26
McCarthy, J P	Fitter	Ballarat Division	26
Napaduik, D	Pipelayer	Traralgon Division	26
Gibb, J McD	Clerk of Works	Benalla Division	25
Jones, W E	Senior Prosecutions Officer	Traffic Section	25
McLeod, E E	Engineering Assistant	Bairnsdale Division	25
Renn, W S	Overseer	Urban Projects Sub-Branch	25
Rodwell, J S	Engineering Assistant	Bairnsdale Division	25
Rylow, P	Traffic Controller	Traralgon Division	25
Whitelaw, K N	Construction and Maintenance Worker	Bairnsdale Division	25
Mauger, (Mrs) M M	Senior Machine Operator	Mechanical Sub-Branch	24
*Dell, G C	Patrolman	Dandenong Division	23
Garland, K L	Patrolman	Bairnsdale Division	23
Worland, P	Patrol Assistant	Benalla Division	23
Bronkhorst, A	Depot Clerk	Warrnambool Division	22
Lyberis, J	Construction Carpenter	Bridge Sub-Branch	22
Shiel, (Miss) M E	Clerical Assistant	Correspondence Registry	22
Trickey, D J	Carpenter	Horsham Division	22
Whitechurch, C G	Traffic Officer	Traffic Section	22
Barton, G M	Cost Clerk	Geelong Division	21
*Seager, O K	Carpenter	Bridge Sub-Branch	21
King, H	Mobile Crane Driver	Ballarat Division	20
*Nancarrow, L W	Roadmaster	Horsham Division	20
*Wos, J	Mechanical Plant Operator	Dandenong Division	20

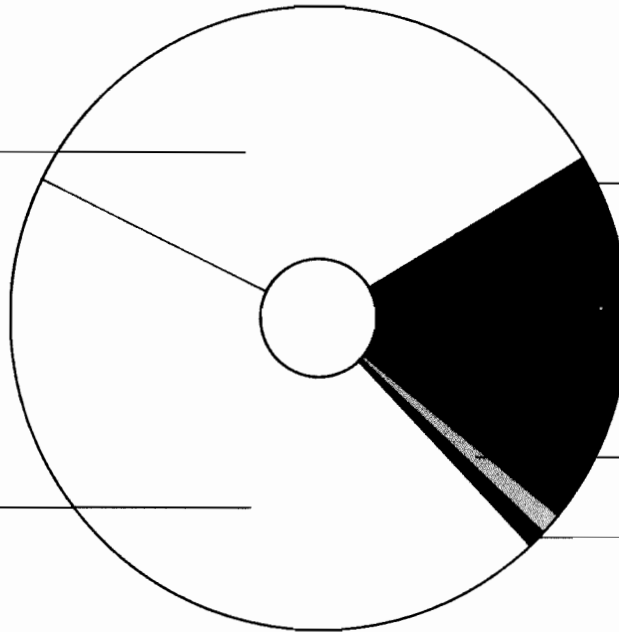
\* Deceased

# Finance

## Receipts 1977-78

Registration fees, drivers' licence fees etc.  
33.93% \$75,978,000

Commonwealth Grants  
44.20% \$98,980,000



Tonne kilometre tax  
4.38% \$9,818,000

Allocation from Roads (Special Projects) Fund  
14.94% \$33,456,000

Municipal repayments  
1.29% \$2,891,000

Other  
1.26% \$2,830,000

## Payments 1977-78

State highways  
18.95% \$42,253,000

Other  
1.33% \$2,972,000

Planning and research  
1.26% \$2,817,000

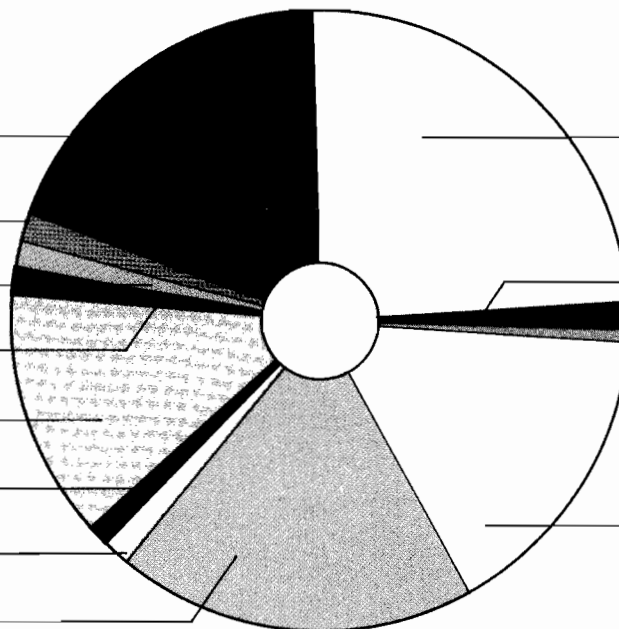
Capital  
1.4% \$3,122,000

Management and operating  
13.05% \$29,102,000

Statutory payments  
1.09% \$2,422,000

Interest and sinking fund  
1.34% \$2,993,000

Unclassified roads  
18.92% \$42,170,000



Freeways  
24.43% \$54,463,000

Tourists' roads  
1.45% \$3,227,000

Forest roads  
.73% \$1,617,000

Main roads  
16.05% \$35,785,000

## Receipts

The Board's receipts were obtained from the following main sources:

After deducting the cost of collecting revenue received under the Motor Car Act, the total funds available to the Board during the year, including the allocation from the Roads (Special Projects) Fund, was \$224,745 844. The funds were derived from:

State sources	124,972,830
Commonwealth sources	98,980,094
Balance brought forward from year 1976/77	792,920
	<hr/>
	\$224,745,844

### State sources:

#### Motor registration fees:

Fees payable on the registration and re-registration of motor vehicles and trailers less the costs of collecting the fees (excluding metropolitan omnibus registration fees and the specified proportion of registration fees paid to the Roads (Special Projects) Fund.

#### Registration number plate fees:

Fees payable for the provision and/or replacement of number plates less the costs of providing the plates and collecting the fees.

#### Examiners' licence fees:

Fees payable by persons licensed to conduct motor car road-worthiness examinations, less cost of collection of the fees.

#### Authorized log book fees:

Fees payable for the purchase of log books less the cost of providing the books and collecting the fees.

#### Learner driver permit fees:

Seven-eighths of the permit fee and the permit extension fee payable by applicants for and/or holders of learner driver permits less seven-eighths of the cost of collection of the fees (one-eighth less one-eighth cost of collection is paid to the Drivers' Licence Suspense Account).

#### Drivers' licence testing fees:

Seven-eighths of \$4 of the fee payable for the test of proficiency of candidates for motor car drivers' licences less seven-eighths of the cost of conducting the test and collecting the fee (one-eighth of \$4 less one-eighth cost of collection is paid to the Drivers' Licence Suspense Account) and the amount of each fee above \$4 is paid to the Consolidated Fund.

#### Motor car drivers' licence fees and tractor drivers' licence fees:

One-eighth of the fees payable for the issue of drivers' licences less one-eighth of the cost of collecting the fees (one-half, less one-half cost of collection, is paid to the Consolidated Fund; one-quarter, less one-quarter cost of collection, is paid to the Municipalities Assistance Fund; one-eighth, less one-eighth cost of collection, is paid to the Drivers' Licence Suspense Account).

Motor driving instructors' appointment and testing fees: Fees payable by candidates for motor driving instructors' licences, less cost of collection of the fees.

#### Motor driving instructors' licence fees:

One-quarter of the fees payable for the issue of motor driving instructors' licences less one-quarter of the costs of collection of the fees (one-half, less one-half cost of collection, is paid to the Consolidated Fund; one-quarter, less one-quarter cost of collection, is paid to the Municipalities Assistance Fund).

#### Unregistered vehicle permit fee:

A fee for the issue of a permit to use an unregistered motor car or trailer on a highway for a period of not more than 7 days, less the costs of collection of the fee.

#### Proprietorship notification fee:

A fee payable with notification by a proprietor of a motor car or trailer of repossession of the item under a hire purchase agreement, bill of sale or like instrument, less the costs of collection of the fee.

#### Fines imposed under the provisions of the Country Roads Act.

All moneys received under Part II of the Commercial Goods Vehicles Act (tonne kilometre tax).

Municipal payments on account of main road works.

Special moneys appropriated by Parliament.

Loan money.

Allocation from Roads (Special Projects) Fund.

**Commonwealth sources:**

- Receipts under the States Grants (Roads) Act 1977, Transport Planning and Research (Financial Assistance) Act 1977, and Transport (Planning and Research) Act 1974.
- Grant towards Traffic Engineering and Road Safety Improvements.

The following table shows the funds available to the Board for the construction and maintenance of roads in 1977/78 compared with 1976/77.

Item	1976/77	1977/78
	\$	\$
<b>Receipts from State sources</b>		
Fees under the Motor Car Act less cost of collection	60,801,371	75,978,153
Commercial Goods Vehicle Act	9,967,856	9,817,988
Municipalities contributions	2,517,696	2,890,536
Loan funds	325,000	325,000
Special grant from State treasury	638,000	581,000
General receipts	1,745,537	1,923,860
Allocation from Roads (Special Projects) Fund	28,963,388	33,456,293
	104,958,848	124,972,830
Balance brought forward at 1st July	3,175,871	792,920
	108,134,719	125,765,750
<b>Receipts under Commonwealth grants for roads</b>		
National highways	25,600,000	29,000,000
Export and major commercial roads	5,200,000	3,800,000
	30,800,000*	32,800,000†
Urban arterial roads	39,600,000	28,900,000
Urban local roads	3,100,000	3,600,000
Rural arterial roads	4,300,000	11,100,000
Rural local roads	10,700,000	19,000,000
Minor traffic engineering and road safety improvements	1,045,000	2,270,000
	58,745,000	64,870,000
Balance brought forward at 1st July	4,986,435	—
	63,731,435**	64,870,000†
Traffic engineering and road safety	146,572	8,855
<b>Receipts under Transport (Planning &amp; Research) Act 1974</b>	1,500,062	14,573
<b>Receipts under Transport Planning &amp; Research (Financial Assistance) Act 1977</b>		1,286,666
	1,500,062	1,301,239
<b>Total funds available for expenditure by the Country Roads Board</b>	204,312,788	224,745,844

\* National Roads Act 1974

\*\* Roads Grants Act 1974

† States Grants (Roads) Act 1977

**Matching Commonwealth Grants for roads**

The Commonwealth States Grants (Roads) Act 1977 fixes for each year a 'quota' of expenditure to be made on roads by each State from its own resources. The achievement of the quota over the three year period ending 30th June 1980 is necessary for each State to qualify in full for the total amounts of the Commonwealth grants to be made under the States Grants (Roads) Act 1977. Failure to expend an amount at least equal to the overall quota would require a State to pay to the Commonwealth the amount of any shortfall against the quota or such lesser sum as the Commonwealth Treasurer determines.

Victoria's quota for the year 1977/78 was \$123,600,000.

## Expenditure

Expenditure in the form of cash payments during the financial year amounted to \$222,942,677 leaving a balance of \$1,803,167 to be carried forward into financial year 1978/79.

The following table shows expenditure incurred by the Board, including that from the Roads (Special Projects Fund), in the years 1976/77 and 1977/78.

Item	1976/77	1977/78
	\$	\$
Construction and maintenance of roads and bridges	169,475,841	182,486,681
Capital expenditure (plant, workshops, offices, etc.)	2,092,381	3,121,769
Planning and research	2,843,525	2,817,237
Salaries operating accounts and other administrative expenditure	24,041,489	29,101,827
Statutory payments to Traffic Authority Fund, Transport Regulation Fund and Tourist Fund etc.	2,132,733	2,422,112
Interest and Sinking Fund payments	2,933,899	2,993,051
<b>Total</b>	<b>203,519,868</b>	<b>222,942,677</b>

## Sharing the costs of roadworks

The Country Roads Act provides that no more than one-half of the amount expended from loan funds and one-third of the amount expended from the Country Roads Board Fund on main roads during the preceding financial year shall be apportioned between the various municipalities benefited thereby. The Act also provides that the amount apportioned to a council in respect of expenditure charged to the Country Roads Board Fund may be reduced where the cost of maintenance is excessive due either to motor traffic not of local origin or to timber traffic. The revenue, valuation, and rating of the municipality and its financial obligations for loan expenditure on permanent works are taken into account in deciding the level of contribution by a council.

In September 1977 expenditure on the normal program of main roads works in financial year 1976/77 was apportioned in accordance with the Country Roads Act, resulting in the following distribution of expenditure other than Loan Fund expenditure:

Expenditure from Country Roads Board Fund	\$17,530,115
Expenditure from Commonwealth funds	8,896,420
Expenditure from proceeds of tonne/kilometre tax (Commercial Goods Vehicles Act)	5,884,680
	<b>\$32,311,215</b>

Amount of Country Roads Board Fund expenditure apportioned to councils	<b>\$2,654,780</b>
--	--------------------

Within the limit of funds available, the Board made allocations to municipal councils for works on unclassified roads. The expenditure incurred from the allocations made by the Board in financial year 1977/78 compared with 1976/77 was as follows:

	1976/77		1977/78	
	CRB	Council Contribution	CRB	Council Contribution
	\$	\$	\$	\$
Patrol maintenance	2,391,553	1,046,240	2,567,219	1,159,647
Construction, reconstruction and other maintenance	31,909,877	7,952,078	35,728,625	8,511,193
<b>Total</b>	<b>34,301,430</b>	<b>8,998,318</b>	<b>38,295,844</b>	<b>9,670,840</b>

Municipal councils were not required to contribute towards the cost of works involving an expenditure during the year of \$101,559,000 on State highways, freeways, tourists roads and forest roads (including expenditure from the Roads (Special Projects) Fund).

# Appendix 1

## Special projects

Projects financed in whole or part from the Roads (Special Projects) Fund, during the financial year.

Project No.	Name and Descriptions
24	Eastern Freeway — Construction of a multi-lane freeway from Alexandra Parade, Collingwood to Thompsons Road, Bulleen.
33	Princes Freeway — Construction of a new bridge over the Snowy River at Orbost and realignment of approaches.
40	Princes Freeway — Construction of a second carriageway between Moe and Hernes Oak.
41	Princes Freeway / Princes Highway — Construction of dual carriageways between Morwell and Traralgon.
43	Princes Freeway — Bypass of Drouin and Warragul.
44	Tullamarine Freeway — Construction of interchange at Essendon Airport and conversion of Lancefield Road to Freeway.
46	Omeo Highway — Improvements between Omeo and Mitta Mitta.
47	Calder Highway — Improvements between Harcourt and Bendigo.
48	Princes Highway East — Duplication through Pakenham and improvement of Army Road intersection.
50	STATCON — The installation of stop signs, give way signs and traffic signals throughout the State.
51	Bellarine Highway — Construction of duplicate carriageways and new bridge at Fenwick Gully, Wallington.
52	Great Ocean Road — Reconstruction from Marengo to Calder River.
54	South Gippsland Freeway — Construction of road and bridge at Hampton Park.
55	Eastern Freeway — Construction of multi-lane freeway between Thompsons Road, Bulleen and Doncaster Road, Balwyn North.
56	Latrobe Terrace — Construction of multi-lane highway between Hope Street and Settlement Road, Geelong.
57	Mornington Peninsula Freeway — Construction of multi-lane freeway between Eel Race Drain, Seaford and Springvale Road, Keysborough.
58	Nepean Highway — Construction of multi-lane highway between Cochrane Street, Elsternwick and South Road, Moorabbin.
59	Calder Freeway — Bypass of Keilor between Erebus Street and west of Keilor-Melton Road.
60	Princes Highway East — Construction of multi-lane highway between Hawthorn Road and Waverley Road, Malvern.
61	Western Highway — Construction of four-lane highway between Princes Highway and Ashley Street, Sunshine.
62	Princes Freeway — Construction of bypass of Berwick.
63	Princes Highway East — Improvements between Tonghi Creek and Bluenose Creek, Shire of Orbost.

Project No.	Name and Descriptions
64	Princes Highway East — Improvements between Rankins and east of Jones Creek Road, Shire of Orbost.
65	Omeo Highway — Improvements between Sarsfield and Bruthen.
66	Cann Valley Highway — Improvements between Weeragua and NSW border.
67	Mallacoota Tourists' Road — Improvements between Halls Creek and Mangans Lane.
68	Sunraysia Highway — Improvements between Bet Bet Creek and Lamplough.
69	Murray Valley Highway — Improvements at Killara and construction of bridges over Kiewa River.
70	Midland Highway — Improvements between Reef Hills and Barjarg south of Benalla.
71	Murray Valley Highway — Improvements between Wood Wood and Piangil.
72	Phillip Island Tourists' Road — Improvements between Anderson and the Nobbies.
73	Hamilton Highway — Improvements between Bruce Creek and west of Inverleigh.
74	Wimmera Highway — Improvements between Rupanyup and west of Marnoo.
75	Henty Highway — Princes Highway West — Improvements between Portland North and Bolwarra deviation.
76	Henty Highway — Improvements between Heywood and Branxholme.



# Appendix 2

## Motor Registrations

Registrations under the Motor Car Act during the year 1977/78 totalled 2,274,465 an increase of 5.8% over the total for the previous year.

Vehicle	Financial year 1976/77		Financial year 1977/78		Increase	Decrease
<i>Private</i>						
New	125,504		121,125			
Secondhand:						
Re-registered	52,355		58,915			
Renewed	1,393,199	1,571,058	1,489,284	1,669,324	98,266	
<i>Commercial and hire</i>						
New	18,092		16,579			
Secondhand:						
Re-registered	5,407		5,823			
Renewed	129,323	152,822	135,221	157,623	4,801	
<i>Primary producers' trucks and tractors</i>						
New	3,521		4,168			
Secondhand:						
Re-registered	2,716		2,864			
Renewed	77,934	84,171†	80,773	87,805*	3,634	
<i>Licences under the Motor Omnibus Act</i>						
Trailers		820		871		51
Motorcycles		295,230		311,997		16,767
		45,602		46,845		1,243
<b>Totals</b>		<b>2,149,703</b>		<b>2,274,465</b>		<b>124,762</b>

† Includes 42,577 no-fee tractors

\* Includes 43,512 no-fee tractors

# Appendix 3

## Statement of receipts and payments for year ended 30th June 1978 (Adjusted to nearest dollar)

### Country Roads Board

	Country Roads Board Fund	
	Act 6229	Act 6222 road maint. A/c
<b>Receipts</b>		
Balance as at 1st July 1977	792,920	
Motor Car Act 1958 (No. 6325)		
Motor Car Registration Fees	83,597,194	
Drivers Licence Fees	1,632,113	
Drivers Licence Testing Fees	489,657	
Trailer Registration Fees	2,460,737	
Learner Drivers Permit Fees	234,943	
Examiners Licence Fees	8,742	
Sale of Log Books	14,928	
Motor Driving Instructors Licence — Appointment and Testing Fees	3,620	
Motor Driving Instructors Licence Fees	5,510	
	88,447,444	
Less: Cost of Collection	12,469,291	75,978,153
Municipalities Contributions		
Permanent Works — Main Roads	128,805	
Maintenance Works — Main Roads	2,761,731	2,890,536
Fees — Commercial Goods Vehicles Act No. 6222 — Road Maintenance A/C		9,817,988
Public Works and Services Act No. 9068	581,000	
Fines — Country Roads Act No. 6229	8,154	
General Receipts	1,915,706	
State Loan Funds — Act No. 6229		
Allocation — Roads (Special Projects) Fund		
Commonwealth Grants		
States Grants (Roads) Act 1977		
Transport Plan. & Res. (Fin. Asstnce.) Act 1977		
Transport (Planning & Research) Act 1974		
Adjustment of Grants for year ended 30th June 1977		
Traffic & Road Safety Improvement		
	\$82,166,469	9,817,988
<b>Payments</b>		
Road Expenditure		
Main Roads — Construction and Reconstruction	12,400,590	
Maintenance	6,307,584	6,445,884
State Highways — Construction and Reconstruction	2,167,777	
Maintenance	10,466,606	2,638,727
Freeways — Construction and Reconstruction	11,207,510	
Maintenance	1,123,179	733,377
Tourists' Roads — Construction and Reconstruction	629,611	
Maintenance	1,781,132	
Forest Roads — Construction and Reconstruction	686,474	
Maintenance	930,385	
Unclassified Roads — Construction and Reconstruction	10,549,342	
Maintenance	1,104,206	
Contribution to Melbourne & Metropolitan Tramways Board Tram Tracks Reconstruction	355,837	
Rail/Road Bridges Protection	455,842	
State Intersection Control (STATCON) Programme		
Murray River Bridges and Punts	286,553	
Traffic Line Marking	1,605,592	
Statutory Payments		
Interest and Sinking Fund	2,993,051	
Traffic Authority Fund	608,014	
Tourist Fund	1,216,027	
Transport Regulation Fund	598,071	5,415,163
Planning & Research		1,515,998
Capital Expenditure		
Plant Replacement and Additions	2,058,636	
Buildings, Workshops, Etc.	1,063,133	3,121,769
Management & Operating Expenditure		8,467,829
	\$80,578,979	9,817,988
Balance available to the Board as at 30th June 1978	\$1,587,490	

### Auditor General's Certificate

The accounts of the Country Roads Board for the year ended 30th June 1978 have been audited. In my opinion, the above Statement of Receipts and Payments fairly presents in summary form the transactions during that period.  
B. J. Waldron, Auditor-General, 11th September 1978



# Appendix 4

## Loan liability as at 30th June 1978

	Main roads etc.	Developmental roads	Total
	\$	\$	\$
<b>Permanent works</b>			
Main roads	16,730,322.16		16,730,322.16
State highways	19,279,304.20		19,279,304.20
Freeways	3,000,000.00		3,000,000.00
Tourists' roads	227,316.44		227,316.44
Forest roads	2,167.89		2,167.89
Developmental roads		12,851,515.09	12,851,515.09
Discount and expenses	752,978.22	585,302.89	1,338,281.11
<b>Total amount borrowed</b>	<b>39,992,088.91</b>	<b>13,436,817.98</b>	<b>53,428,906.89</b>
<b>Less redemption of loans</b>			
Redemption funds	170,438.11	1,292,772.73	1,463,210.84
Main roads sinking fund	571,376.76		571,376.76
Developmental roads sinking fund		110,166.02	110,166.02
State loans repayment fund	3,621,057.87		3,621,057.87
National debt sinking fund	9,417,599.89	8,690,808.85	18,108,408.74
Consolidated fund	52,111.36		52,111.36
	13,832,583.99	10,093,747.60	23,926,331.59
<b>Loan liability at 30th June 1978</b>	<b>26,159,504.92</b>	<b>3,343,070.38</b>	<b>29,502,575.30</b>

# Appendix 5

## Works executed on behalf of Commonwealth and State Government Authorities

for the year ended 30th June 1978  
(Adjusted to nearest dollar)

Departments	Description of works	Expenditure
<b>Commonwealth</b>		
Department of Construction	Access roads to various Commonwealth establishments	7,395
<b>Victoria</b>		
Crown Lands & Survey Department	Reconstruction of Dunmoor Road, Glenelg	173
Melbourne and Metropolitan Tramways Board	Construction of East Burwood Tram Extension	508,909
Ministry of Tourism	Additional snow clearing on the Alpine Road to Mt Hotham	37,427
Ministry of Tourism	Construction of Rest Area at Rennick on Princes Highway	6,280
Ministry of Transport	Grade separated level crossing projects etc. charged to the Transport Fund	3,643,644
	Grade separated pedestrian crossings charged to State Treasury, Municipalities and Transport Fund	359,545
Premier's Department	Roadworks in connection with Wonderland and Sundial Roads, Stawell Shire	300
Rural Finance & Settlement Commission	Roadworks in Commission land settlement areas throughout the State	3,673
State Treasury	Kings Bridge — sundry expenditure less proceeds of rental of properties acquired in connection with construction of Kings Bridge	14,496 Cr
State Treasury	Improvements to various roads adjacent to State Forests to facilitate the extraction of timber and charged to Municipalities Forest Roads Improvement Fund	126,349
State Treasury	Restoration works on roads and bridges damaged by floods and bushfires	410,946
		522,799
		<b>\$5,090,145</b>