



news

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SPECIAL SHOW ISSUE

- FOR CHILDREN . . .

How a road is built, Page 14

- FOR THE DRIVER . . .

Freeway driving techniques, Page 6

- FOR THE TRAVELLER . . .

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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 23,657 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 7049 km, freeways 231 km, main roads 14,548 km, tourists' roads 797 km, forest roads 1032 km.



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Our Cover

Learning the rules of the road . . .
Preparatory grade children from
Moomba Park Primary School,
Fawkner, take a lesson in road
safety at the Melbourne City
Council traffic school in Carlton.
For some of the basic rules of
driving on freeways, see Page 6.

Personnel

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A start on the \$15 mil. Keilor Bypass

Work will commence in October on the Calder Freeway bypass of Keilor with a start on diverting the Maribyrnong River upstream of the Calder Highway.

Work on diverting 100 metres of the river must be completed before earthworks on the freeway can start.

The first section of the project, from Erebus Street to Arundel Road, is scheduled to be completed and opened to traffic in late 1980.

The second section, from Arundel Road to Keilor-Melton Road, is currently planned for completion in early 1983.

The total project is estimated to cost \$15 million at 1977 prices.

In 1977-78 the CRB will spend more than \$500,000 on the project and about \$320,000 on Calder Highway improvements through Keilor township.

In March, 1978, earthworks and drainage work will be started on the first section of the freeway.

In 1978-79 approximately \$2.5 million will be spent on the bypass project.

The bypass will initially be constructed with two traffic lanes in each direction. The design has provision for a third lane to be constructed if required in the future. Two bridges will span the Maribyrnong River Valley to the east of Keilor township.

During April and May, 1977, a model of the project and a statement of environmental considerations were displayed at the Keilor municipal offices.

In late May a public meeting was held in Keilor to discuss plans for the project with CRB engineers.

CALDER HIGHWAY WORK

An \$8 million three-year works program for the Calder Highway to be carried out by the CRB was announced in June.

The program will include major realignment and widening of the highway between Kangaroo Flat and Harcourt, to eliminate bottlenecks and improve the traffic flow.

The work scheduled for the next three years includes:

- *Completion of the first stage of the Keilor bypass;*
- *Improvements between Harcourt and Porcupine Hill;*
- *Widening the Bullock Creek bridge south of Bridgewater and replacing the Buckeye Creek bridge;*
- *Two extra traffic lanes south of Kangaroo Flat shopping centre;*

- *Widening the highway in Bendigo between Station and Maple Streets.*

A proposed 10-year works program for the Calder Highway provides for the completion of bypasses of Keilor, Gisborne and Diggers Rest, and for a start on the bypass of Kyneton.

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For further information relating to articles in this publication, or other matters concerning the CRB, contact the Public Relations Section, telephone 860 2160 or 860 2584.

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Danny Gocs

Minimising traffic noise on freeways

Traffic noise may cause annoyance by interfering with home and work activities. It may make conversation harder to understand, or disturb sleep, or intrude on recreational activities.

Each year the number of vehicles using the State's roads increase. Consequently, noise from traffic becomes progressively worse. Yet if the problems associated with traffic noise are to be reduced, they must primarily be tackled at the noise source — the vehicle's engine.

The CRB recognises the need to minimise the effects of traffic noise, especially on freeways which carry high volumes of traffic.

Traffic noise is one of the environmental factors taken into account when planning and designing a freeway.

How noise is measured

Sound is measured in units of decibels (dB).

Since the human ear is not equally sensitive to all parts of the sound frequency range, the scale most commonly used to take account of this is the A-weighted decibel, or dB(A).

For traffic studies, the CRB assesses noise impact over an 18 hour period. To measure noise, the L10 figure is used. This is the sound in dB(A) which is exceeded for 10 per cent of the 18 hour period, i.e. the L10 (18 hour).

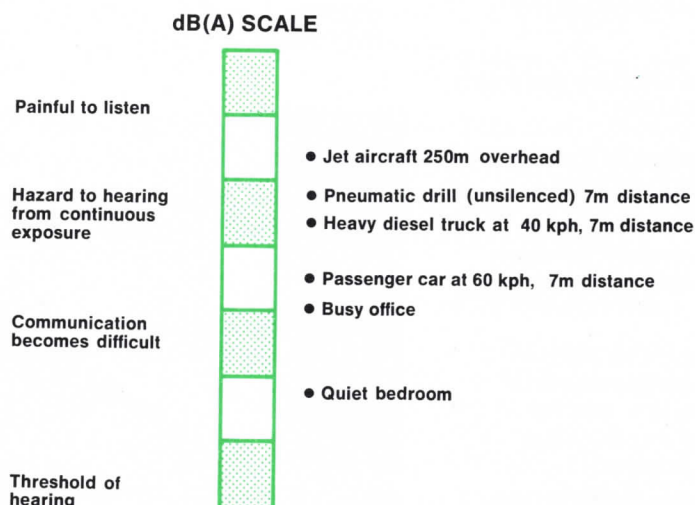
The CRB recently adopted as an interim policy a standard of 70 dB(A) L10 (18 hour) as the predicted traffic noise level at which corrective measures should be examined on freeways and expressway type facilities.

Higher noise levels would be generally unacceptable where a practical remedy existed.



● **A Community Noise Analyser . . . the CRB uses this equipment to record traffic noise.**

Typical noise levels are:



Noise Studies

Noise studies combine data based on existing conditions with predictions of future noise levels. Studies are carried out along alternative freeway routes to determine existing and future noise levels. (Traffic noise is one of the factors the CRB takes into account in selecting a final route from the various alternatives.)

The data is plotted on plans of the area and contours of noise levels are drawn.

If the freeway is planned through an urban area, the contours will extend as far as the first row of houses facing the freeway. Houses behind the first row are subject to less impact as they are shielded by the first row and are further away from the road.

The precise amount of shielding given by the first row of houses varies greatly with each building and location.

Factors affecting traffic noise

● Traffic Variations

The noise from a single vehicle in light traffic conditions can be clearly heard. The vehicle's noise level can be heard to rise, reach a peak, and then decline as it moves away.

A heavy stream of traffic, however, produces a more constant noise with the exception of peak values produced by noisier vehicles such as trucks and motor-cycles.

● Traffic Volume

The primary cause of variations in traffic noise is the number of motor vehicles using a road at any given time.

A 3 dB(A) increase in noise levels will result from a doubling of traffic volume.

● Traffic Speed

The noise produced by a typical traffic stream will increase about 4 dB(A) as the average speed increases from 30 kph to 100 kph.

● Traffic Composition

Trucks and other large vehicles add significantly to traffic noise levels. Thus the ratio of large, heavy vehicles to the total number of vehicles will influence the amount of noise generated by a stream of traffic. On Melbourne's freeways, trucks comprise about 10 per cent of the total number of vehicles using the freeway.

On urban roads it is common for the percentage of trucks using roads to increase when the morning peak period is over and to decrease when the evening peak approaches. This has the effect of keeping noise levels fairly constant throughout the working day.

● Traffic Congestion

There is not a significant difference between the total noise produced over a period by freely flowing traffic and congested traffic. However, additional annoyance may be caused by concentrating the noise in bursts, e.g. with each traffic light phase.

● Road Gradient

Vehicles travelling on a rising road gradient use additional power, and make additional noise.

For a very steep climb it may be necessary for the driver to engage a lower gear, resulting in higher noise levels. However, this is less likely to occur on freeways, which are designed with more gradual grades.

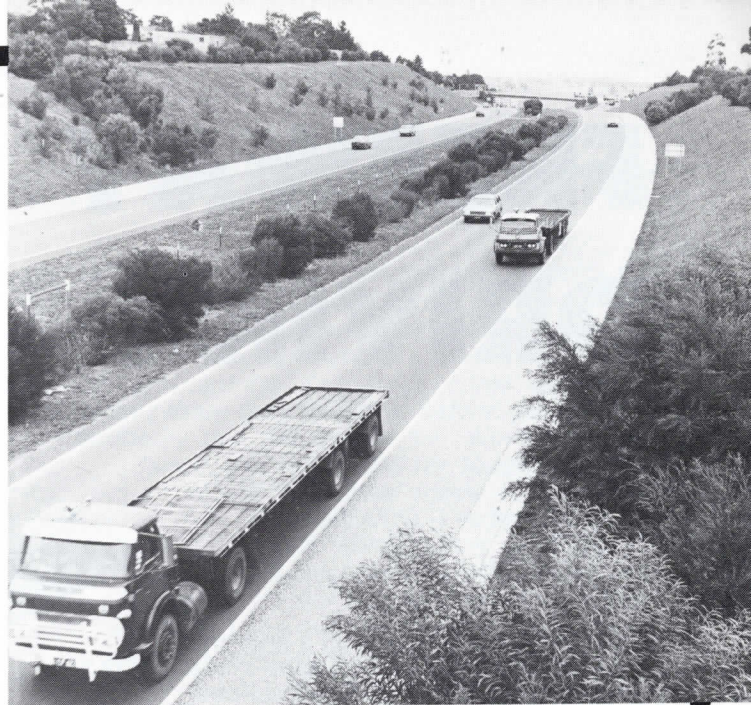
Designing a freeway to minimise noise

There are a number of measures that planners and engineers utilise in freeway construction to reduce the noise level that would result from the vehicles using the freeway.

The route is usually selected in areas where noise and other environmental problems can be minimised.

The road surface is smooth. There are not any valve or man-hole covers that add to the traffic noise as on many urban roads.

Elevated road surfaces have little effect on reducing traffic noise. But a road surface below ground level helps to reduce the amount of noise reaching adjoining properties. The amount of noise reduction will depend on a number of factors including the shape and surface material



● *Mulgrave Freeway, Doveton . . . The freeway has been constructed in a cut with sound barriers on both sides to minimise the effects of traffic noise.*

of batter slopes, the distance from the carriageways to the batter slopes, and the depth of cut in which the road is placed.

Noise Barriers can substantially reduce the effect of noise on adjoining properties.

Traffic noise can be reflected by retaining walls or overhead structures. The provision of special absorbing surfaces to an otherwise reflecting surface is also a worth-while measure to help reduce the effect of traffic noise.

The wide road reserve boundaries alongside freeway carriageways allow earth banks and noise barriers to be constructed. These are designed to blend in with the trees and shrubs planted as part of the freeway landscaping.

Trees and shrubs alongside the roadway and in the median strip may help to absorb noise and scatter sound. Different types of plants have different characteristics in this regard, but studies indicate that the plantings need to be particularly dense to be effective. Vegetation and landscaping have psychological benefits. They give motorists a pleasant environment to travel in and give residents who live near the freeway an aesthetic screen between their houses and the freeway.

Sound weakens as the distance from the source to the listener becomes greater. Noise from a line of traffic becomes less intense as the listener moves further from the road. Therefore the occupants of dwellings which are adjacent to wide road reserves will notice less traffic noise than the occupants of dwellings adjacent to narrow road reserves, assuming that all other factors are equal.

Planners can help to shield sensitive areas from the worst impacts of traffic noise by providing buffer zones between freeways and new residential developments, or by arranging for activities which are not sensitive to noise to be sited along freeways. These would have the effect of shielding the more sensitive land uses.

By careful planning and design, and by incorporating the various noise reduction measures, the effects of traffic noise can be minimised.

FREEWAY DRIVING

Next time you head out on a journey on Melbourne's road system, stop and think for a moment about the route you choose.

Does it include a section of freeway?

Many motorists plan a route via a freeway because they want a smoother, safer and faster journey. Melbourne has about 75 kilometres of freeway, with new sections of freeway being constructed and planned.

However, for you and other motorists to get the best use from a freeway, there are some basic driving rules and courtesies to observe.

Freeway driving is a team effort. As more and more people use freeways each year, motorists must co-operate to get the optimum value from the freeway system.

● Safe and rapid journeys

Freeways are divided roads designed for rapid and safe movement of motor traffic. There are no intersections, sharp bends, roundabouts, steep hills or traffic lights. Carriageways in each direction are separated by medians, and traffic is generally able to travel faster than on other roads.

For safety reasons, pedestrians, cyclists and vehicles that have to move slowly are not permitted on the freeways.

● Getting onto a freeway

Entry lanes lead into the freeway — from these lanes you can adjust to the freeway flow before becoming part of it.

Sight a safe gap in the freeway traffic and use the length of the entry lane to gradually increase speed so that you enter the chosen gap at the speed the vehicles already on the freeway are travelling.

Once you have joined the freeway stay in the left-hand lane until you have had time to judge traffic flow and get used to the speeds at which the traffic is moving.

And if you're on the freeway travelling towards an entry lane, watch for vehicles on the entrance ramps and adjust speed if necessary. It is courteous to allow the vehicle on the ramp space to enter without significantly slowing down.

● Keep to the left

Slower vehicles should keep to the left lane of the freeway. This allows faster vehicles to pass on the right-hand lane.

Changing lanes and overtaking

When travelling on a freeway, don't change lanes unnecessarily, or let your car wander into adjoining lanes.

Signal before changing lanes, and allow a greater warning time than on normal roads to compensate for the higher travelling speeds. Other freeway drivers must know your intentions well before you start to change lanes.

When you change lanes, first look in the rear vision mirror, then signal and when it's safe, make your move. Remember that vehicles may be coming up from behind more quickly than on an ordinary road.

Overtaking vehicles on a freeway is almost entirely a matter of sufficient spacing between cars and giving adequate warning of your intentions.

Mirror checks are vital. Signal that you plan to overtake a vehicle well before you start to move out. Many drivers start their signalling very late, when they are already part of the way into another lane.

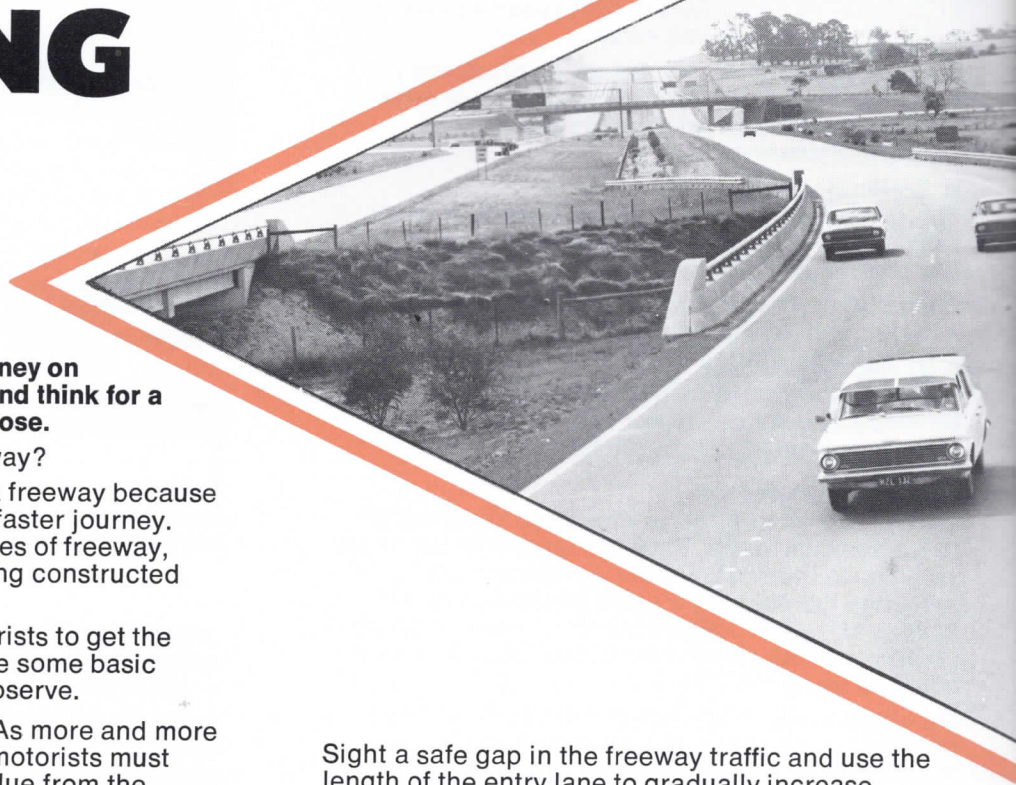
Then consider whether you are travelling fast enough, or if you can accelerate sufficiently to overtake without baulking any vehicles that may be coming up fast behind you.

Look ahead to make sure there is nothing to prevent you from overtaking safely, e.g. a lane closed for repairs.

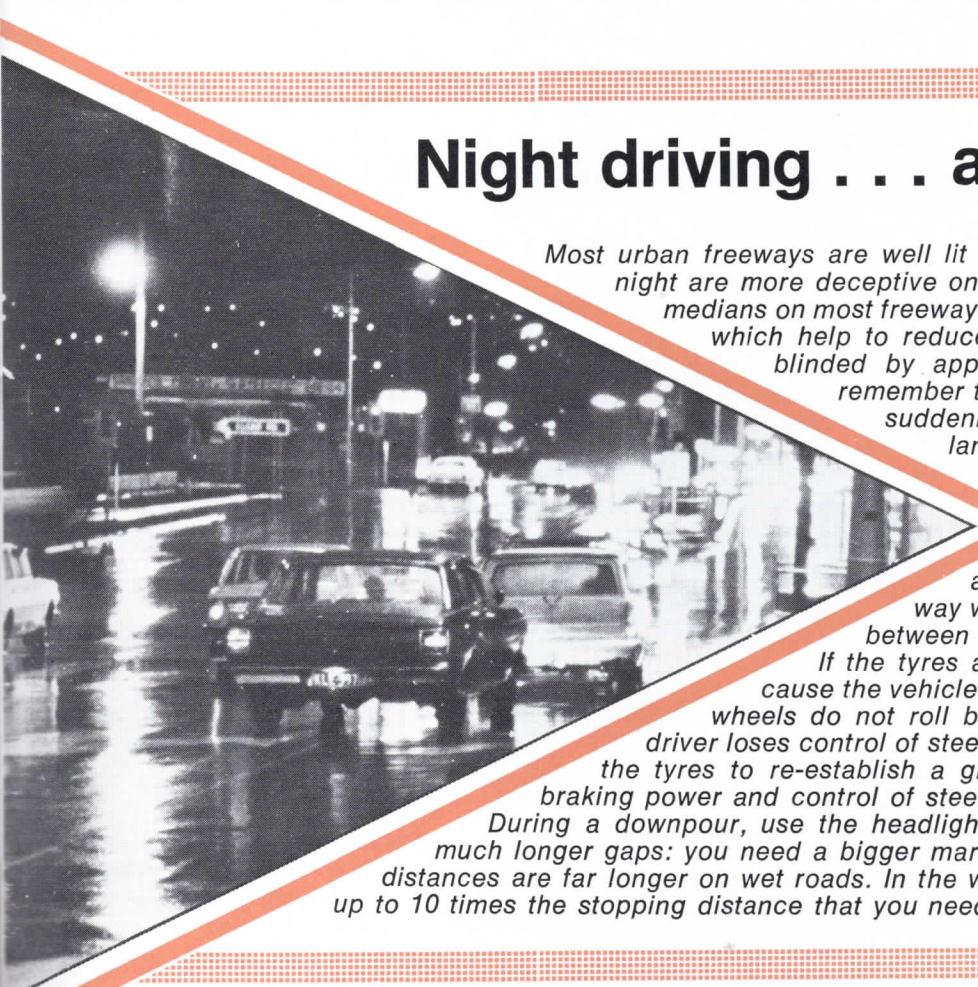
Start to overtake well back from the vehicle you are going to overtake, so that you can move out on a smooth, easy course. Don't suddenly move to the right.

Pass the vehicle and move back into the left lane as soon as you can, taking care not to move in too soon in front of the vehicle you have passed.

Normally you should not overtake on the left. But if the traffic on the right lane is moving more slowly than you are, maintain the speed of the traffic in your own lane and pass on the left.



Night driving . . . and wet weather



Most urban freeways are well lit at night, but speeds and distances at night are more deceptive on freeways than on ordinary roads. The medians on most freeways are landscaped with trees and shrubs, which help to reduce headlight glare. If you are suddenly blinded by approaching headlights, slow down. But remember there may be traffic behind you — don't suddenly put the brakes on. When changing lanes, use indicators for longer than you would on normal roads.

WET WEATHER reduces visibility and affects tyre grip on the road. Occasionally after heavy rain, a film of water may form on the carriageway which has the effect of forming a wedge between the vehicle tyres and the road surface. If the tyres are bald or badly worn, the water can cause the vehicle to aquaplane — when this happens the wheels do not roll but slide over the wet surface and the driver loses control of steering. Speed must be reduced to enable the tyres to re-establish a grip on the road and thus re-establish braking power and control of steering.

During a downpour, use the headlights. Keep your speed down and leave much longer gaps: you need a bigger margin between vehicles because braking distances are far longer on wet roads. In the worst weather conditions you can need up to 10 times the stopping distance that you need for a dry road.

● Cruising on the freeway

Keep a safe gap between your car and the vehicle ahead.

● Stopping on freeways

Stopping on freeway carriageways in normal conditions is prohibited. Only stop on the carriageway if it will prevent or avoid an accident.

If something goes wrong with the car, move to the emergency stopping lane as quickly as you can.

And when you stop there, don't open the driver's side doors. Warn your passengers of the danger of passing vehicles, and keep children and animals off the carriageway.

The emergency stopping lane at the side of the freeway is for use only in an emergency — not for sightseeing stops, having a picnic or taking photographs.

● Emergency telephones

Emergency telephones are being installed on most urban freeways, usually at one-kilometre intervals.

The telephones are linked to the CRB's Emergency Service which is manned 24 hours a day. These phones are for emergencies only — not for personal calls.

● Getting off the freeway

Getting off the freeway should be no problem if you plan your route and know your exit. Signs on the freeway will give you adequate warning that you are approaching your turn-off.

Then you should move to the left-hand lane and watch for your exit.

Don't rush your exit. Use the rear vision mirror and signal well in advance.

Where the freeway carriageway has more than two lanes, move to the left one lane at a time — don't suddenly move across lanes.

When you enter the exit lane, gradually reduce speed. There are "End of Freeway" signs at all exits from these roads. Remember that the road

you are joining is subject to different rules, so watch for any signs which tell you about speed limits, two-way traffic, etc.

● After leaving the freeway

When leaving a freeway, reduce speed. After travelling in freeway conditions for a few kilometres your judgement of your own speed will almost certainly be affected. Nearly everyone underestimates their speed on a normal road — 60 or 65 kph may seem more like 30 kph. Check your speedometer for a few minutes, until you have had time to readjust to the slower speeds on ordinary roads.

● The car's condition

Of course, check that you have plenty of petrol, oil and water before making a freeway journey. To run out of any of these can be dangerous, inconvenient and costly.

Almost 30 per cent of calls to the CRB's Emergency Service last year were by motorists whose vehicles had run out of petrol on the freeway.

WIND AND FOG . . . HAZARDS OF FREEWAY DRIVING

Cross-winds are another freeway hazard. They may affect your steering much more than cross-winds on ordinary roads. If the wind is blowing from your left, be especially careful when passing a large vehicle.

Watch out when passing bridges or high embankments — a sudden gust as you leave the shelter of buildings or trees could cause your car to swerve.

If there is a fog on a freeway the only safe rule is that you must be able to stop well within the distance you can see to be clear.

Fog also affects your judgement of speed and distance, so reduce speed.

ROAD PUBLICATIONS

The following publications can be obtained from the CRB by filling in the attached coupon and returning it to Public Relations Section, Country Roads Board, 60 Denmark Street, Kew, 3101.

CRB—General

- ☐ The Roadbuilders
- ☐ Melbourne's Road Needs
- ☐ Snow Driving—It's an Art
- ☐ Roads with Built-In Safety
- ☐ Science in Road Development
- ☐ Urban Freeways
- ☐ Back Issues, CRB News
- ☐ Your Property . . . Your Roads (Land Acquisition Guide)

CRB—Project brochures

- ☐ Widening of Nepean Highway (Revised)
- ☐ The Hume Challenge
- ☐ Orbost (Princes Freeway)
- ☐ Calder Freeway (Keilor Section)
- ☐ Converting Lancefield Road to Freeway

NAASRA

- ☐ Roads and Traffic Noise
- ☐ Roads and Traffic Safety
- ☐ Roads and Pollution
- ☐ Roads and Public Utilities
- ☐ Roads and Pedestrian Safety

Name

Organisation

Address

SOUTH MELBOURNE STUDY RELEASED

A \$500,000 traffic, land use and environmental study of South Melbourne and Port Melbourne was completed in June.

The study was carried out by the CRB with the co-operation of the South Melbourne and Port Melbourne councils.

Its objectives were to record traffic patterns in the area; establish predicted volumes of traffic in the area after the opening of West Gate and Johnson Street Bridges and before the F9 Freeway is completed; to identify any improvements to the road system which should be implemented prior to the completion of the F9 Freeway; to allow an objective evaluation to be made of proposals to restrict truck movement on certain routes; to investigate the long term traffic management requirements and the development of the F9 corridor.

In the land use and environmental study, areas were identified where it could be desirable to restrict through traffic.

The study showed that traffic using four city bridges — Spencer Street Bridge, Kings Bridge, Queens Bridge and Princes Bridge — is expected to drop by 25 per cent when the West Gate and Johnson Street bridges are completed.

The lessening of traffic flows on the four city bridges will substantially cut traffic congestion in the western end of the city business district.

SHORT TERM IMPROVEMENTS

The study suggested a series of short term improvements to cater for traffic in the period between the opening of the bridges and the opening of the freeway.

Improvements were recommended on the following routes:

- *Graham Street-Bay Street and Pickles Street-Beaconsfield Parade*
- *Ingles Street-Dorcas Street*
- *Montague Street-Ferrars Street-Canterbury Road*
- *Lorimer Street-Yarra Bank Road*
- *City Road-Pickles Street*
- *Park Street-Kings Way-Queens Road*
- *Albert Road-Kerferd Road*
- *Grant Street*

In June a meeting was held between the CRB and the councils and authorities to discuss the study reports.

Another meeting was held in July to discuss the short term traffic improvements outlined in the reports.

Counting the traffic...

Data from the CRB's annual traffic count provides up to date information on traffic volumes on many of the State's roads.



This information is used by CRB planners and engineers when assessing Victoria's road needs.

The traffic count is carried out during March and April each year at more than 1500 locations throughout the State.

Among the recorders taking traffic counts this year were CRB staff, council officers, students and pensioners.

They were stationed at various intersections and along State Highways.

The results of the March, 1977 Traffic Census will be published later this year.

*** PICTURE: Traffic recorders Sally Boon, 19 (left) and her sister Jenni, 20, on duty in Heidelberg.**

Victoria's road network provides a web-like link between cities, communities and thousands of holiday attractions.

There are roads to take travellers to almost any type of holiday resort or recreation spot . . . and home again.

Each year thousands of people drive to the popular resorts or discover new places to spend a holiday.

Victoria has more than 160,000 kilometres of roads, including thousands of kilometres of State highways.

Many of the State highways are wide, sealed roads that provide for high speed travel over long distances.

Along many of these routes, the CRB, local councils and other authorities have provided rest areas, wayside stops and scenic viewpoints.

Many rest areas are landscaped with trees and shrubs, and have barbecue facilities, toilets, tables, shelters and litter bins.

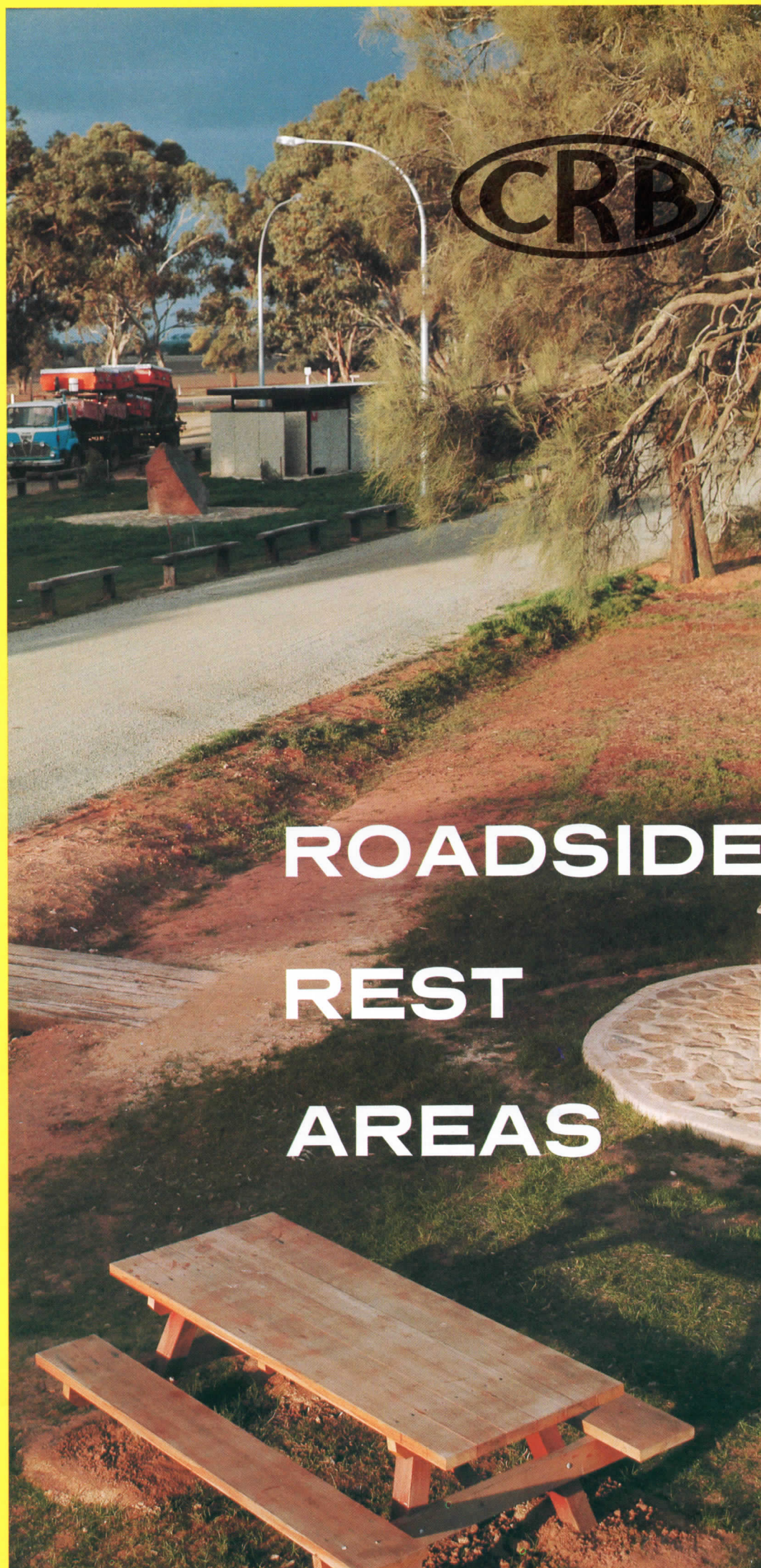
Roadside facilities give drivers and passengers an opportunity to take a break from the concentration of driving — which promotes safer and more courteous driving — in an attractive roadside environment.

When travelling along a State highway, motorists should watch for signs indicating Wayside Stops and Rest Areas.

On the maps on the following pages are listed some of the rest areas on Victoria's major highways, and the facilities they provide.

The maps do not include rest areas in towns.

● **Picture:** The rest area on the Western Highway at the Victoria-South Australian border. It was constructed by both State road authorities and the local councils. It has picnic, barbecue and toilet facilities and a tourist information board.



ROADSIDE REST AREAS

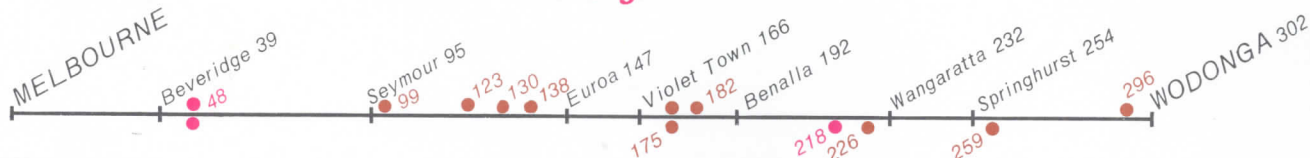
ROADSIDE REST AREAS



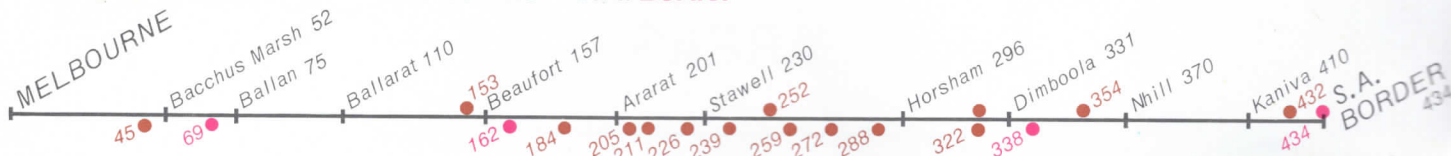
Roadside rest areas on major routes

Rest Areas with toilets Scenic Lookouts Townships Rest Areas without toilets

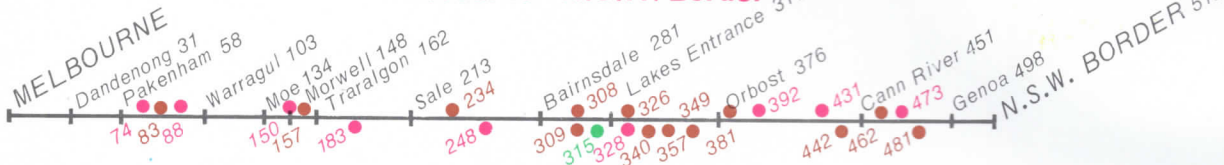
HUME HIGHWAY Melbourne - Wodonga



WESTERN HIGHWAY Melbourne - S.A. Border



PRINCES HIGHWAY Melbourne - N.S.W. Border



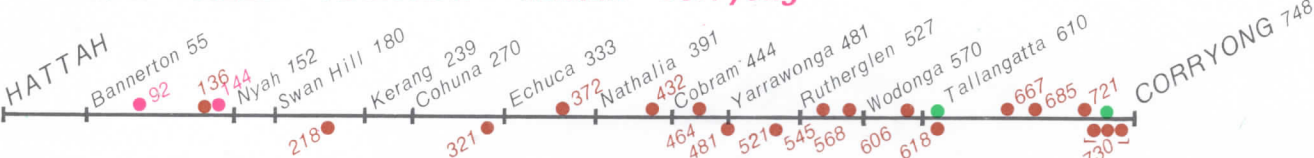
CALDER HIGHWAY Melbourne - N.S.W. Border



MAROONDAH HIGHWAY Ringwood - Mansfield



MURRAY VALLEY HIGHWAY Hattah - Corryong



GREAT OCEAN ROAD Torquay - Bay of Islands



Other routes

ACHERON WAY

DONNA BUANG ROAD

GLENELG HIGHWAY

GOULBURN VALLEY HIGHWAY

GOULBURN VALLEY HIGHWAY

HENTY HIGHWAY

MT DANDENONG ROAD

NEPEAN HIGHWAY

NORTHERN HIGHWAY

PHILLIP ISLAND ROAD

PRINCES HIGHWAY WEST

SOUTH GIPPSLAND HIGHWAY

STURT HIGHWAY

WARBURTON-WOODS POINT ROAD

Kilometres shown are from Melbourne or towns marked *.

Warburton*, 7, 9, 23, St Filians

Healesville*, Mt Donna Buang, 25, 27, 33, Warburton

Ballarat, 135, 208, 214, Hamilton, 348, Casterton, 353, 369, SA Border

Seymour, 111, 162, 170, Shepparton, Strathmerton

Seymour*, 18, 22, 40, 50, Alexandra, 79, 91, Eildon

Portland*, 32, Hamilton, 159, 166, Horsham, 334, 349, Lascelles

Upper Ferntree Gully, 35, 50, 51, 56, Montrose

Melbourne, 46, 60, 69, Dromana, 83, 88, Portsea

Wallan, 51, 85, 96, 155, 158, 165, Rochester, Echuca

Anderson, 121, 138, Cowes

Melbourne, 15, 52, Geelong, Colac, 164, 252,

Warrnambool, 275, 330, 338, 352, 404, 417, 446, SA Border

Melbourne, 61, 73, 83, 106, Leongatha, 136, 139, 146, 164, 186, 195, 212, Sale

Mildura*, 12, 36, 117, SA Border

Warburton*, 3, 4, 11, 14, 21, 22, Woods Point.

ROAD CONSTRUCTION

CRB News reprints the views of construction, contracting and motorising organisations on Victoria's road needs and the importance of free-ways in the State's transportation system.

● *From Highway Transport, June, 1977, the journal of the Long Distance Road Transport Association of Australia:*

At a time when the New South Wales Government has announced its intention to scrap urban radial freeways in its future road planning and, even more stupidly, to sell off irreplaceable corridors of real estate which had been resumed to make way for the new roads, it is encouraging to note that the Victorian Government is not indulging in such folly. Far from it in fact.

The Country Roads Board has announced three new projects in the Melbourne environs for new sections of freeway or upgrading existing roads. The new projects include the widening of the Nepean Highway between Elsternwick and Moorabbin, the construction of the Calder Freeway (Keilor section) and the conversion of Lancefield Road, Essendon to a freeway.

The Long Distance Road Transport Association of Australia applauds the continuing foresight shown by the Victorian authorities in their road construction programme. Some of their more northerly neighbours could certainly take a lesson from them.—*By the Executive Director.*

● *From the Earthmover, January, 1977, the journal of the Earthmovers and Road Contractors Association of Australia:*

We have previously pointed out the curious anomaly that the government stimulates the manufacture of motor vehicles as a counter to unemployment while at the same time reducing the value of spending on roads—let alone providing for the increased traffic volume this policy causes.

But putting aside the needs of the contracting industry, it can be shown fairly conclusively that even in strict cash terms, reduction of spending on roads costs far more money than it saves.

To economise on public money by having an inefficient road system only transfers the cost to the private sector which must pay the price in increased wear and tear on vehicles, greater time spent getting from place to place, greater petrol consumption, and accidents to both people and vehicles.

What is required now is a stronger and more concerted attack, with the construction industry, suppliers of equipment and materials, the transport industry and motorists' organisations working together to make the government loosen the purse strings in spite of inflation and adopt a more sensible and far-sighted plan for road funding.—*Editorial.*

● *From Royauto, July, 1977, the monthly magazine of the Royal Automobile Club of Victoria:*

In the search for the answer to the problem of traffic in Melbourne, it is not a case of simply choosing between public and private transport.

If existing multi-million dollar freeways were linked up with others under construction, the movement of people and products in and between Melbourne suburbs would be easier, quicker and less expensive.

Melbourne residents make around five million trips (for various purposes) in the metropolitan area on a normal working day.

A total of 90 per cent of the five million trips are inter-suburban and many of these are not suited to public transport facilities. The remaining 10 per cent of the trips, about 500,000, are trips to or from the Central Business District.

Public debate on transport frequently focuses on trips to the CBD, in particular trips by car, in the belief that those motorists could and should use public transport, thus avoiding the need for better roads.

The RACV believes that this is placing emphasis on a minor 10 per cent to the total problem.

The main reason for providing a linked-up freeway system in the metropolitan area is not to cater for the 500,000 trips in and out of the Central Business District each day, but rather to cater for the 4.5 million trips being made elsewhere throughout the metropolitan area.

There is, however, the consequential benefit by providing the freeways of relieving city streets and approaches of about one million trips through the Central Business District because they have no alternative at present.

"Speaking Of . . ." is a regular feature of CRB News, where reprinted or discussion articles are published on matters relating to roads and transport in general. They do not necessarily represent the views of the CRB but are published as a matter of interest and discussion.

WORLD ROAD NEWS

Poland plans to spend \$1,108 million this year on the construction, modernization and maintenance of roads, an increase of 8% over the previous year. About 715 km of new roads are planned while 4,943 km will be modernized and another 1,400 km reinforced to carry heavy loads.

★ ★ ★ ★

Engineering improvements should be emphasized as much or more than the human factors if Great Britain wanted to improve its highway safety, according to "Night Driving Safety News", a publication of Petters-Ballotini Ltd.

"On a motorway, not only is the road engineered to provide a driver with a tolerance for error, but the driving task is immeasurably easier because the environment is designed to give a driver maximum guidance.

"In terms of death rate per 100 million vehicle miles, it is more dangerous to be driving in the country than to be walking in town. Almost two-thirds of motor deaths occur in rural areas. A 10-year trend shows that while casualties in daytime driving have increased, night-time casualties have increased by over 10%."

★ ★ ★ ★

The need for the repair and upgrading of a large percentage of roads and bridges in the United States is referred to in an article in the October 1976 Asphalt Magazine.

"America's road system, the world's finest is deteriorating insidiously and also imperceptibly," the magazine article said.

"It must be realised that the motor vehicle is here to stay and that good, safe roads are vital not just for public well-being but also for preservation and enhancement of the American standard of living."

★ ★ ★ ★

The Times of London in a recent article looking at transportation in the next 10 years had this comment about roads:

"The greatest of the transport myths is the 'roads lobby', that nebulous entity which is thought by many to cause Parliament and people to use its products against their will and better interests, and thus to be the root cause of waste, inefficiency and disintegration within the country's transport system.

"The growth in road transport, while undoubtedly the greatest of our transport problems in environmental and geographical terms, is the product not of a conspiracy but of millions of free choices by millions of partly free people who may be presumed to be doing what they judge to be in their own best interests."

★ ★ ★ ★

The German motorway system, now 6,600 km, will be up to 8,000 km in 1980, according to government plans.

★ ★ ★ ★

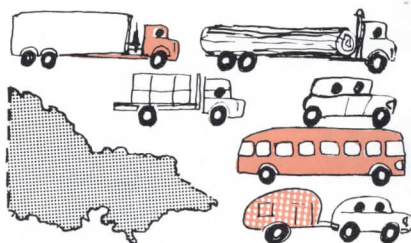
A poll taken for the Society of Motor Manufacturers and Traders Ltd in Great Britain found that 5.5 million people thought they would have to move if they did not have a car, and another 4 million would have to change jobs.

★ ★ ★ ★

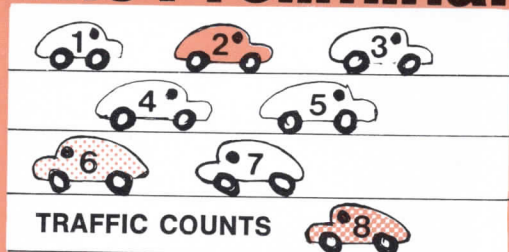
The



THE COMMUNITY



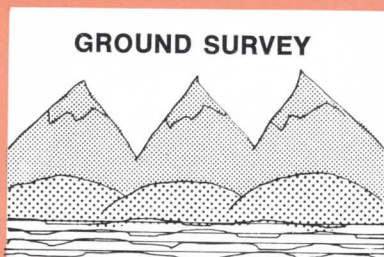
The Preliminary Steps...



TRAFFIC COUNTS



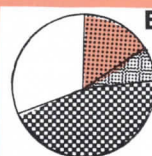
AERIAL SURVEY



GROUND SURVEY

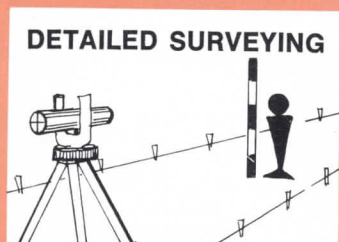
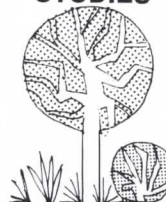


SOCIOLOGY

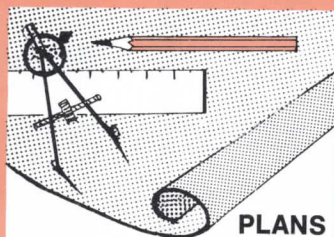


AVAILABILITY OF FUNDS

ENVIRONMENTAL STUDIES



DETAILED SURVEYING



PLANS



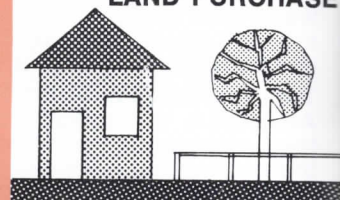
FINANCE

GOVERNMENT APPROVAL

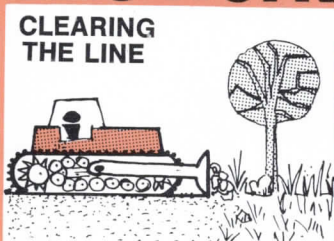


VICTORIA

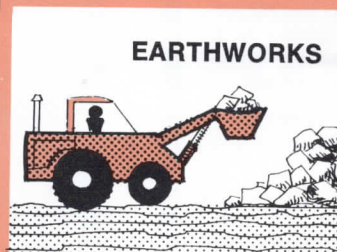
LAND PURCHASE



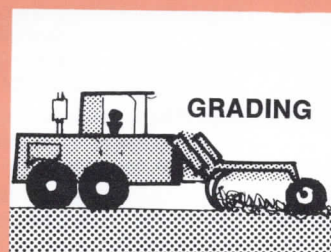
The Work..



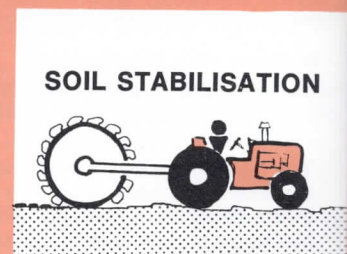
CLEARING THE LINE



EARTHWORKS



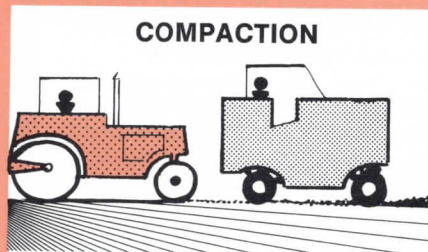
GRADING



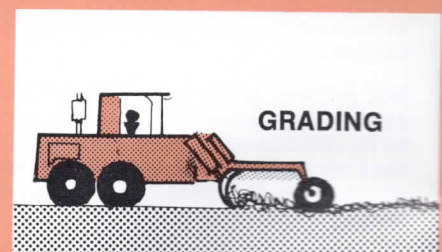
SOIL STABILISATION



LAYING FOUNDATION



COMPACTION



GRADING

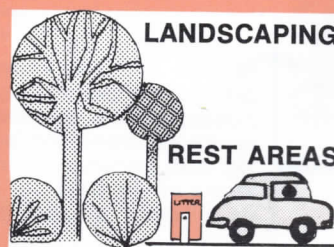
The Final Touches...



LINEMARKING



SIGNS & SIGNALS



LANDSCAPING

REST AREAS

Benefits



FREEWAYS

Road Builders

Roads are built to serve the community's needs. They are constructed in a variety of locations and lengths, depending on the particular traffic requirements of an area.

In Victoria, the CRB constructs State highways, freeways, forest roads and tourists' roads. Other roads are usually constructed by local councils.

Although roads range from small country roads to major freeways, they all involve the same general processes. And all of them involve hundreds of people, thousands of dollars and many months of work.

• THE PRELIMINARY STEPS ...

When the need is established for a new road to be built, the CRB or the local council carries out preliminary investigations.

Traffic counts are taken, and surveys are carried out on the ground and by taking aerial photographs and using them for mapping (a process known as photogrammetry). On the ground, surveyors peg out the line of the road and record the location of buildings and power poles. The sociological and environmental aspects are studied.

Preliminary plans showing the number of traffic lanes, bridges, etc., are prepared by engineers and draftsmen. The road width and the required road strength are determined according to the type and quality of the soil and the type and volume of traffic which will use the road.

Then detailed design starts. All the field work is translated into detailed plans, showing the cross-sections and road curves.

A guide for children

Details about the topography of an area are fed into the computer to determine the best choice for the road route. Computers are also used to calculate the amount of earth that must be removed to build the road.

If there are any properties in the path of the planned road, they have to be acquired.

The CRB has specialist staff to work on these aspects of road building.

• THE WORK ...

The first task is to clear trees and undergrowth from the line on which the road will be built. Graders remove the topsoil, which is later used for roadside landscaping.

Rock in cuttings is broken up by using explosives.

Underground drains are constructed. If necessary, materials are mixed into the soil by a stabilisation process to improve its strength and quality, and the level earth is then ready for the laying of the pavement.

People often call the footpath a "pavement". To roadbuilders, the pavement is what supports the traffic. It is made up of layers of concrete, crushed rock or gravel. After each of these layers are in place, the surface is rolled by steel-wheeled and rubber-tyred machines and is then graded.

The layers are tested to ensure that the materials have been properly compacted.

Small stones (or aggregate) are spread out and rolled into sprayed bitumen on the road surface to make the road stronger and to protect it from rain.

• THE FINAL TOUCHES

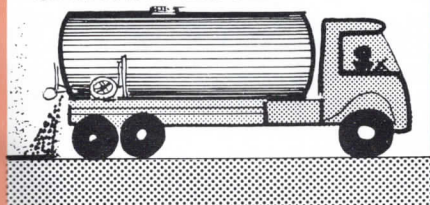
Direction signs, speed limit signs and information signs are erected. Lines which are made reflective by adding small glass beads are painted on the road.

Median strips and roadsides are landscaped with trees and shrubs. On many country roads there are rest areas and wayside stops.

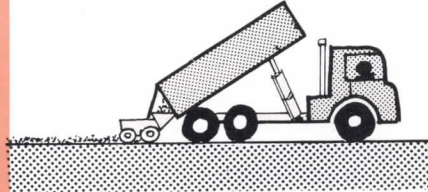
SOIL TESTS



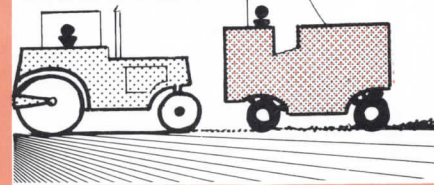
SPRAYING BITUMEN



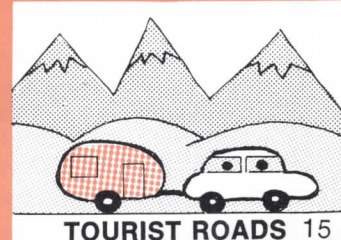
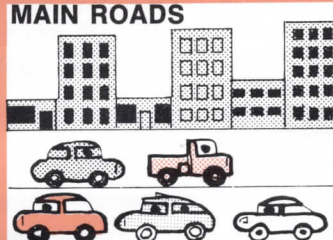
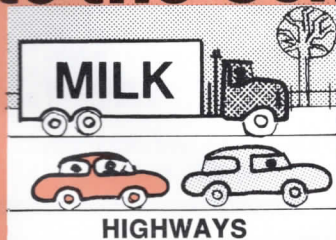
AGGREGATE SPREADING



FINAL ROLLING



to the Community...



Towards better roads

● **TOWARDS BETTER ROADS** details progress on improvements by the CRB to the major road network of the State.

The cost estimates used are current as at September, 1977.

Major works currently under construction by the CRB are summarised below.

F9 Freeway, South Melbourne

Work on site clearance for the F9 Freeway between Graham Street, Port Melbourne and Grant Street, South Melbourne, has commenced. Other works programmed to begin this year include improvements to Grant Street between St Kilda Road and Sturt Street; improvements to local roads in Port Melbourne east of the existing freeway; and foundation investigation for the elevated roadway.

The estimated cost of the freeway is \$80 million and is scheduled for completion in late 1981.

Mulgrave Freeway

Preliminary works for the extension of the Mulgrave Freeway from Forster Road to Warrigal Road have commenced. Work is in progress on a major culvert to carry Scotchman's Creek under the freeway east of Stanley Avenue and on services relocation works east of Huntingdale Road.

Construction of the freeway to Warrigal Road is scheduled for completion in 1980 at an estimated cost of \$12 million.

Eastern Freeway

Roadworks are generally well advanced. Ancillary freeway works nearing completion include lane marking, erection of signs, installation of traffic loop detectors and emergency telephones, erecting guardrails and landscaping.

The construction of twin bridges over the Merri Creek has been completed and the construction of the Yarra River bridges is nearing completion. Work is in progress on a pedestrian bridge across the freeway at Trenerry Crescent and also on the diversion of Trenerry Crescent under the Merri Creek bridges.

The freeway between Hoddle Street and Bulleen Road is expected to be completed later this year.

Adjacent to this freeway, work has begun on a new Burke Road bridge across the Yarra River at Kew and on a pedestrian bridge across Hoddle Street near Vere Street, Collingwood.

Planning is proceeding on the proposed Eastern Freeway extension from Bulleen Road to Doncaster Road.

Mornington Peninsula Freeway

Due to wet weather, work on this 6.6 km section from Eel Race Drain, Seaford to Springvale Road, Keysborough, has slowed down over the winter months. A full program of road and bridge construction is planned for the drier months. The work is estimated to cost \$11.2 million and is scheduled for completion in 1980.

South Gippsland Freeway, Hampton Park

All major earthworks on this project between Pound Road and the South Gippsland Highway, Hampton Park, have been completed. The freeway bridge over the South Gippsland Highway is scheduled to be completed in October, 1977, and the interchange opened for traffic in November, 1977. The whole project between the Princes Highway and the South Gippsland Highway is estimated to cost \$12 million.

Hume Freeway

Construction is under way on four sections of freeway north of Seymour.

Bypasses of Seymour and Avenel

— Major earthworks and drainage over a length of 5 km are in progress north of Avenel, and between the Goulburn Valley Highway and the Hume Highway north of Seymour.

The 20 km section between the Goulburn Valley Highway north of Seymour to north of Avenel is scheduled for completion in 1981 at an estimated cost of \$16 million.

Avenel to Tubbs Hill — Duplication work on the 12 km section is expected to be completed in late 1978 at an estimated cost of \$7.5 million.

Bypass of Violet Town — Work is proceeding on the relocation of services and the construction of culverts and access roads on this 6.3 km section of freeway.

The project is estimated to cost \$5.5 million and is scheduled for completion in mid-1979.

Violet Town to Baddaginnie — Duplication of this 10.4 km section is expected to be completed late this year at an estimated cost of \$4.3 million.

Goulburn Valley Highway

Construction of a 5 span bridge over the Goulburn River at Tra-wool replacing an old timber bridge has been completed and opened to traffic. Construction of 3 km of the highway on a new alignment in the vicinity of the new bridge is continuing. Total cost of the project is expected to be \$1.25 million.

Johnson Street Bridge South Melbourne

Work is continuing on the construction of twin bridges across the Yarra River linking Johnson Street, South Melbourne, and Footscray Road, Melbourne.

Beams on the eastern bridge have been placed and the approach roadworks are well advanced. This project is expected to be completed by mid 1978 at an estimated cost of \$32 million.

Princes Freeway

Drouin and Warragul Sections — Work has commenced on the construction of the Princes Freeway from Robin Hood to east of Warragul, bypassing the townships of Drouin and Warragul.

The current work involves the duplication of two kilometres of the existing Princes Highway as part of a future freeway interchange two kilometres east of Drouin.

The total cost of the two sections is estimated to be \$31 million.

Orbost bypass — Work is continuing on the 8.4 km freeway bypass of Orbost. The main bridge across the Snowy River was opened to traffic in November, 1976, and bridges at Ashbys and Watts Gulch have been completed.

The eastern 2.6 km section of the freeway from Lochiel Street to Jones Creek is nearing completion.

The whole project is scheduled for completion late in 1977 at an estimated cost of \$9.5 million.

Princes Highway East

Simpsons Creek Bridge — Reconstruction and realignment of 3.8 km of highway and construction of a three span concrete bridge west of Orbost was completed in July, 1977, at a cost of \$680,000.

Morwell to Traralgon — Duplication of 12 km at an estimated cost of \$6 million is continuing. The last 2.5 km section to be duplicated is scheduled for completion in mid 1978.

Trafalgar — Duplication of 0.8 km through Trafalgar has commenced at an estimated cost of \$1 million.

Warragul — Duplication of 0.7 km between Tarwin Street and Hunter Crescent is scheduled for completion in early 1978 at an estimated cost of \$500,000.

Officer to Pakenham — Duplication of 8.8 km of highway is estimated to cost \$3 million and is scheduled for completion in mid 1978.

Princes Highway West

Weerite — Construction of a road over rail overpass and 1.6 km of highway is scheduled for completion in February, 1978, at an estimated cost of \$700,000.

Geelong — The widening of 3 km of the highway to three lanes in each direction between Cox's Road and Plantation Road is continuing. The work is estimated to cost \$500,000 and is scheduled for completion by December, 1977.

Western Freeway

Ballan Section — Construction of an 8.4 km section of freeway bypassing the township of Ballan is progressing.

Construction of twin freeway bridges over the Werribee River

has been completed and construction of twin freeway bridges over the eastern Moorabool River and overpass bridges at three locations is continuing.

The \$8.2 million project is expected to be completed in mid 1978.

Western Highway

Horsham — Work is continuing on the remodelling of the existing bridge over the Wimmera River in Horsham. This is the last phase of construction of 1.7 km of divided highway on the southern approach to Horsham. The whole project is scheduled for completion in late 1977 and is estimated to cost in excess of \$1 million.

Calder Highway

Ouyen — Work is in progress on two projects near Ouyen. The intersection of the Calder and Sunraysia highways south of Ouyen is being reconstructed to improve safety. A section north of Kiamal is being regraded and widened to remove several sharp crests.

The work is scheduled for completion in October, 1977, at an estimated cost of \$250,000.

Harcourt — Reconstruction and realignment of the Calder Highway north of Harcourt is in progress and scheduled to be completed in October, 1977.

Wimmera Highway

Rupanyup to Marnoo — Work is in progress on resheeting and widening a narrow section of the Wimmera Highway between Rupanyup and Marnoo.

The work is scheduled for completion late in 1977 and is estimated to cost \$400,000.

Nepean Highway

Site survey and demolition of properties purchased on the first 2.4 km section of this widening project between Cochrane Street, Elsternwick and Hampton Street, Brighton is under way.

The total 6 km project between Cochrane Street and South Road, Moorabbin is scheduled for completion by 1983 at an estimated cost of \$32 million.

Camp Road, Broadmeadows

Construction of a road over rail overpass at Camp Road is well advanced and when completed,

will eliminate the existing level crossing and carry Camp Road over Pascoe Vale Road.

The project is scheduled for completion in late 1978 at an estimated cost of \$4.4 million.

Tullamarine Freeway

The upgrading to freeway standard of Lancefield Road along the western boundary of Essendon Airport is continuing.

When completed in early 1980, the \$6 million project will provide an interchange to Essendon Airport and improve local street access to the freeway.

Greensborough Freeway and F5 Ring Road

Construction of road over rail overpasses is continuing at Watsonia Road and Grimshaw Street, Watsonia, to eliminate these railway level crossings.

The overpasses are scheduled for completion in early 1978 at a cost of \$5.5 million.

Investigations are proceeding for the first section of the F5 ring road between Heidelberg-Kinglake Road, Greensborough and Bundoora.

Fisher Parade Bridge Footscray

Work is continuing on the construction of a new bridge and approaches across the Maribyrnong River.

The project is scheduled for completion in 1978 at an estimated cost of \$1.2 million.

Murray Valley Highway, Swan Hill

Work has begun on a \$780,000 Shopping Park in Swan Hill. The project involves the remodelling of the Murray Valley Highway to provide two lanes for traffic, improved pedestrian safety and landscaping which provides shaded seating for shoppers and tourists.

Great Ocean Road

Reconstruction of 7 km of the Great Ocean Road west of Apollo Bay is under way. The work is expected to be completed by mid 1978 at an estimated cost of \$1 million.

"Roads do not cause traffic accidents, drivers do"

Dear Sir,

Roads do not cause traffic accidents, drivers do. One doesn't need to be an expert driver to negotiate a series of bends on a stretch of highway — just a properly concentrating mind.

It should be interesting to note that in a recent fatal smash the vehicle responsible for the accident was completely on the incorrect side of double lines at the time of impact, and contained an open, partly filled can of beer by the driver's feet. One would surmise the driver had been drinking whilst driving.

Should we blame road making authorities, driver error or lack of police attention to drinking drivers?

We know the capabilities of drivers during licence tests, but they never perform these in a semi-drunken state. It seems to us that too much emphasis is placed on Driver Education Schools and not enough on the fuzzed brain.

In many cases the drivers killed in accidents have blood alcohol levels in excess of the .05 limit.

**Officer in Charge
Foster Police**

CONTRACTS

- A summary of major contracts over \$100,000 entered into by the CRB from 26th February, 1977, to 8th July, 1977.

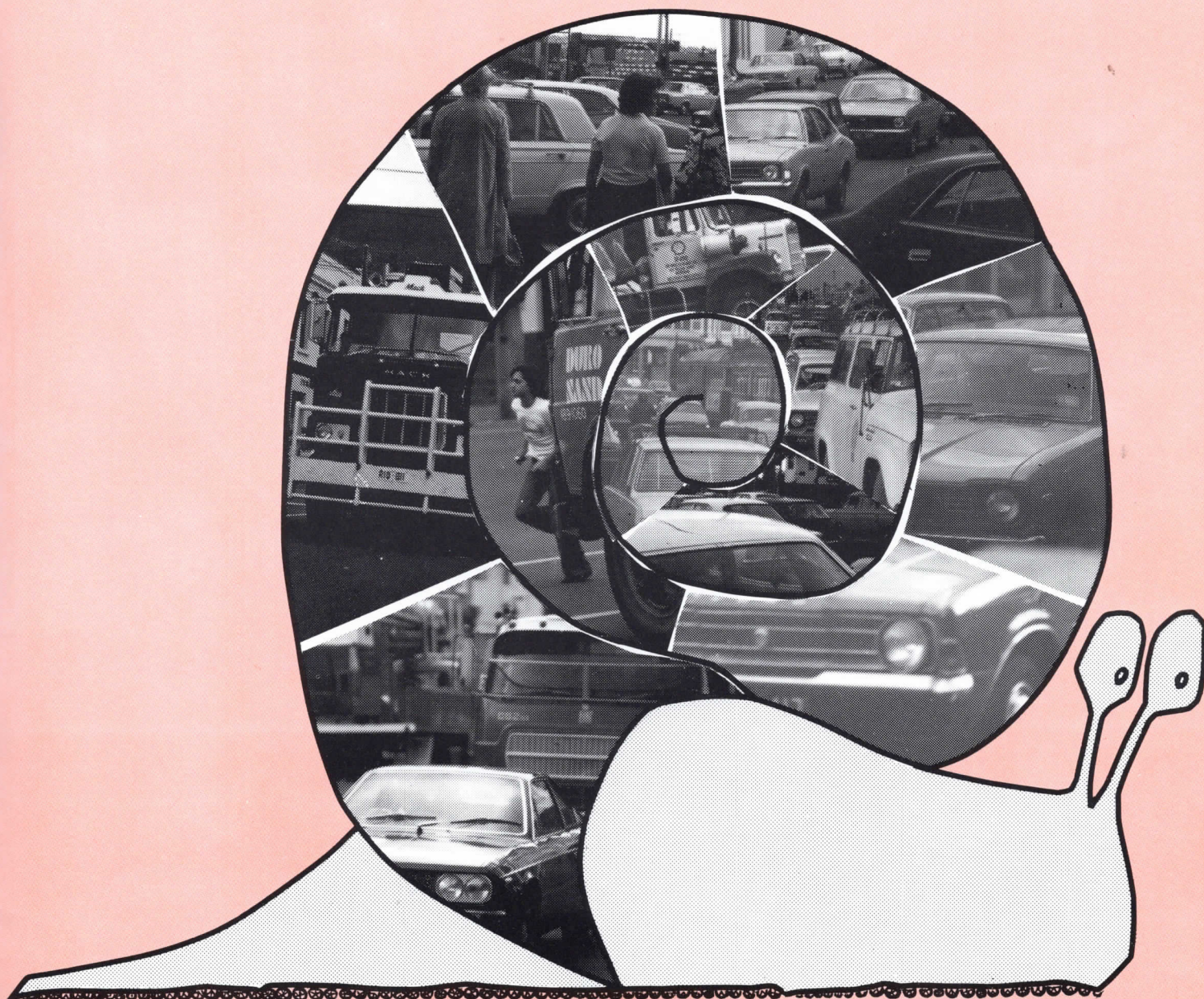
Road construction

ROAD	DESCRIPTION	CONTRACTOR	AMOUNT \$
Western Freeway (Gordon Section)	Supply, delivery, spreading and compaction of approximately 1,000 tonnes of asphalt on the Western Freeway.	Boral Resources (Vic) P/L	354,700
Princes Freeway (Laverton)	Supply, delivery, spreading and compaction of 7,900 tonnes of asphalt on both carriageways of the Princes Freeway (Laverton Section).	Associated Asphalt P/L, South Melbourne	188,020
Calder Freeway (Keilor)	Supply, placing and delivery of asphalt between the Calder Freeway interchange at the south and Melrose Drive (formerly Lancefield Road) interchange at the north.	Construction Materials (Aust) Ltd, Burwood	170,925
Hume Highway (Wodonga)	Supply, delivery and compaction of asphalt on the Hume Highway between South Street and Wodonga Street, Wodonga.	Allan Bros (Asphalting Contractors) Ltd, Wodonga	102,420
Princes Freeway (Lara)	Supply, delivery, spreading and compaction of 6,200 tonnes of asphalt on the Geelong bound carriageway of the Princes Freeway (Lara Section).	Boral Resources (Vic) P/L, Hawthorn	155,126
Hoddle Street (Abbotsford)	Upgrading traffic signals and control system for Hoddle Street between the Eastern Freeway and the Albert Street and Elizabeth Street intersection.	L. M. Ericsson P/L, Broadmeadows	130,258
Mornington Peninsula Freeway	Supply and delivery of crushed rock base for the Mornington Peninsula Freeway between Patterson River and Wadsley Drain.	Kerrs Quarries, Ferntree Gully	158,063
Hume Freeway (Avenel)	Supply of prestressed concrete beams for bridges over Hughes Creek on the Hume Freeway near Avenel.	Mays Vibrated Concrete P/L, Moorabbin	114,816
Hume Freeway (Violet Town)	Construction of earthworks and drainage on the Hume Freeway at Violet Town.	Mecho Constructions P/L, Mount Waverley	1,072,085
Fisher Parade Bridge (Cities of Essendon and Footscray)	Construction of a 5-span bridge 107.8 metres long over the Maribyrnong River at Fisher Parade.	Leewill Constructions P/L, Villawood, NSW	373,228

Other contracts

Supply of residual bitumen for pavements for the period 1st July, 1977, to 30th June, 1978.	Mobil Oil Australia Ltd, Melbourne	1,730,000
Supply of residual bitumen for pavements for the period 1st July, 1977, to 30th June, 1978.	Shell Co of Aust Ltd, Melbourne	1,245,000
Supply of residual bitumen for pavements for the period 1st July, 1977, to 30th June, 1978.	BP Australia Ltd, Melbourne	1,160,000
Supply of white road-marking paint between 1st July, 1977, and 30th June, 1979.	Wattyl P/L, Moorabbin	710,000

Question: What has 2,000,000 wheels and travels at 20 k.p.h.?



Answer: Melbourne's peak hour traffic.

Each year more people want to use the roads. More people buy more cars to service their private and business needs.

But providing Melbourne with an adequate and efficient road system is a mammoth task.

To help beat the traffic jams, five major Country Roads Board projects are underway in Melbourne at a total cost of \$270 million.

There is a major new freeway to serve the eastern suburbs, a new bridge and a new freeway in South Melbourne, the widening of Nepean Highway, and continued work on the Mulgrave Freeway.

These projects will help, and there are others planned for the future.

You, the motorist can help, too.

So many cars travelling during peak hour carry only one person—the driver.

If you are driving alone to work, ask yourself: Is it really necessary to travel by car instead of public transport? Could I get a lift with a neighbour or friend? Or better still, offer him a lift.

And help speed up that peak-hour crawl.



Roads to take you home...

For further information on Melbourne's road needs, write to the Public Relations Officer, CRB, 60 Denmark Street, Kew, 3101.

A trip to the snow requires the right equipment for skiing and driving . . . including a shovel.

The roads to the resorts are cleared by CRB graders and snow blowers, but overnight falls in the car park could make your car snowbound.

At Hotham Heights car park, Virginia Mansell shovels snow from a parked car.



Clearing the way through the snow . . .



Clearing snow from the road at Hotham Heights . . . A CRB Rolba 1500 snow blower throws snow clear of the road. Snow clearing teams worked throughout winter on the roads leading to ski resorts at Mt Hotham, Mt Buller, Falls Creek and Mt Buffalo.