

VICTORIA

Report

of the

ROAD CONSTRUCTION AUTHORITY

for the

Year ended 30 June 1989

Ordered by the Legislative Assembly to be printed

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RCA

**ROAD CONSTRUCTION
AUTHORITY**

**ANNUAL REPORT
1988-1989**



The Honourable J. H. Kennan, QC MP
Minister for Transport
589 Collins Street
Melbourne 3000

Dear Mr Kennan,

In accordance with Section 234 of the Transport Act 1983, I have pleasure in submitting to you for presentation to Parliament the Report of the Road Construction Authority on its operations for the period 1 July 1988 to 30 June 1989.

A major issue facing the Authority during the year was the possible merger of functions with the Road Traffic Authority. RCA staff overwhelmingly supported a total merger of the Authorities as the most effective way to reduce areas of overlap and duplication and to provide improved road services to all Victorians.

The work in preparing for the creation of the Roads Corporation was carried out smoothly and quickly and I pay tribute to the many RCA employees who made the merger possible.

Community consultation was emphasised in the past year in the importance of defining and meeting the needs of the Authority's customers. This was illustrated through a major review of the delivery of services in the metropolitan area and the VICROADS 2000 study. More effective delivery of road services and management of resources will be the central outcomes of this focus on customer needs.

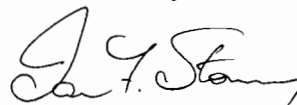
The introduction in the past year of Business Area Planning was another important development which has created a business oriented approach to management, leading to cost savings and increased efficiency of operation.

Many productivity improvements were introduced to improve the efficiency of a great many aspects of the Authority's work. The development of new and expanded information systems to enhance financial and resource management and technical improvements such as the continuing introduction of Computer Aided Drafting will continue the drive to improve efficiency.

The many achievements of the Authority were due to the dedication and professionalism of all staff and I congratulate them for their important contribution to the economic and social development of the State.

Kindest Regards,

Yours sincerely



Ian F. X. Stoney
Chairman and Managing Director

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The Road Construction Authority

The Road Construction Authority, in partnership with local government and the Road Traffic Authority, manages Victoria's roads.

Its purpose is to contribute to the economic and social development of Victoria by efficiently managing the principal road network as part of the overall transport system. This includes planning, designing, constructing and maintaining roads, as well as managing road use and providing information and services to:

- Improve road safety for all road users
- Improve traffic management
- Provide access to facilities and services
- Assist the efficient movement of freight and people
- Reduce road user costs
- Minimise disruption caused by roadworks
- Complement land use and development
- Assist public transport.

The responsibilities of the RCA to the people and the Government of Victoria are to:

- Provide sound policy advice
- Actively support Government strategies
- Identify and address community needs through consultation, openness and responsiveness
- Provide value for money by working efficiently
- Be sensitive to the environment
- Provide a stimulating and healthy work environment and encourage participation and development of all staff
- Ensure a vital and flexible organisation committed to serving the community.

LANE KILOMETRES OF ROAD ('000's)

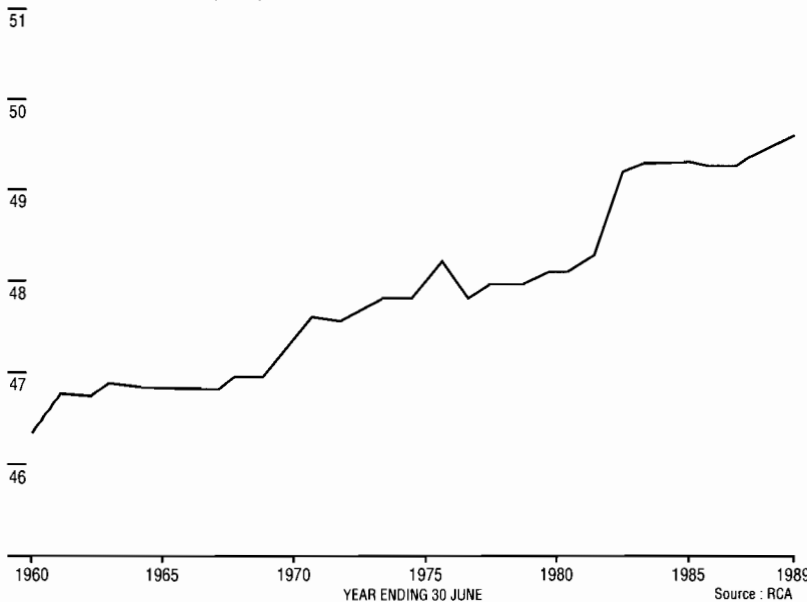


Figure 1.
*The Declared Road System.
(Freeways, State highways,
main roads, tourist and
forest roads)*

DIVISIONS AND REGIONS

RCA Corporate Development provides strategic management of the road network through corporate planning, road planning investigations and program development, development of the organisation and its business, and services to the Minister and Government.

Operations Division provides day to day operational management of the principal road network: it assists municipalities, develops and implements detailed works programs, and is responsible for project management of construction and maintenance activities.

The main units of the Operations Division are the 8 rural and 2 metropolitan Regions. Each Regional Manager is responsible for the operational management of the principal road network in the Region, and for assisting municipalities. Regional Managers are accountable for the management of resources in their Region, except resources under the direct management of Project Managers. Very large construction projects are managed by Project Managers, with a Project Office at the site.

Technical Resources Division develops technical standards and practices. It provides Regional and Project Managers with technical support services beyond their normal capacity, through central cost centres.

Management Services Division provides centralised administration, finance, management information systems and audit services. It also develops standards and practices for these functions.

Human Resources Division develops the RCA's human resources. It provides personnel services to line managers throughout Victoria.

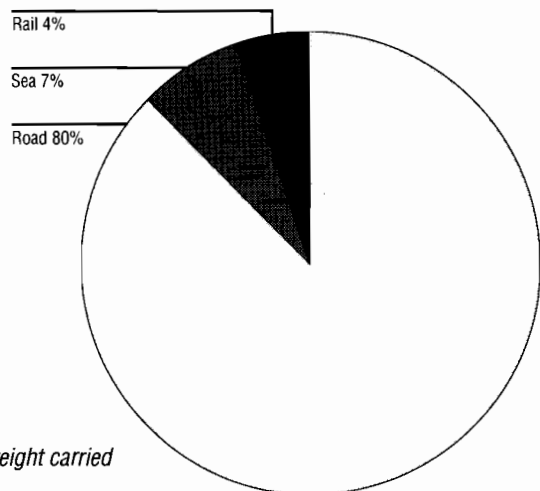
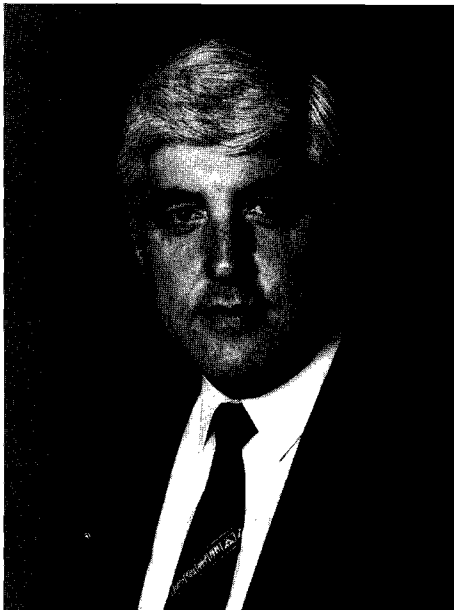


Figure 2.
*Tonnes of freight carried
by mode.*

MEMBERS OF THE RCA

The Transport Act 1983 set up an Authority of 10 members:

- The Director-General of Transport
- The RCA Managing Director
- An officer of the Authority nominated by the Managing Director
- A person having knowledge of and experience in the transport industry
- A person having knowledge of and experience in the operation of road transport vehicles
- A councillor of a municipality
- Two members elected by RCA employees, and
- One other person



*Ian Stoney
Chairman and Managing Director*

The members of the Authority during the year were:

■ Ian Stoney

Chairman and Managing Director

Ian F X Stoney, AASA, Dip.Bus.Studies, MAGI, FAIM, was General Manager of the Grain Elevators Board of Victoria, and was Managing Director Designate of the proposed Victorian Ports Authority before being appointed Chairman and Managing Director of the Road Construction Authority.

■ John B King

Director-General of Transport

John B King, LL.B. (Melbourne), MBA (Harvard), appointed Director-General of Transport in February 1988, is an ex-officio member of the Authority. His previous positions include Secretary to the Attorney-General's Department, Commissioner for Corporate Affairs, Deputy Secretary for Courts with the Law Department, and Acting Director of Consumer Affairs. Before joining the Public Service, Mr King spent 17 years as an academic with the Graduate School of Business Administration at the University of Melbourne, being Chairman of the School from 1977 to 1981.

Dan Hourigan was Alternative Member for Director-General of Transport.

■ Peter Stuart

RCA Officer nominated by the Managing Director

Peter Stuart, MBA, AASA (Senior), is the Director - Management Services. He joined the RCA in January 1985 after a period on secondment to the Ministry of Transport. He has had 12 years in the Transport portfolio, before which he worked in private enterprise, both in Australia and overseas.

■ John Wise

Knowledge of road transport vehicles

John Wise, FCIT, is a member of the Executive Council of VRTA, Chairman of the NFFA, President of the Victorian Branch ARTIO and an executive member of TIAC. He has 37 years experience in the transport industry and is the Resident Director of TNT Limited Victoria and South Australia.

■ **Bill Shum**

One of two members elected by RCA employees
Formerly from the RCA's Survey and Mapping Group, Bill is currently Co-ordinator of Consultation. His role is to identify change projects and establish appropriate consultative procedures. The position also provides education, advice and assistance to staff involved in organisational changes, as well as liaison within the Transport portfolio and staff unions. Formerly a shop steward on the Westgate Freeway Project, Bill is a member of the RCA Municipal Officers Association. He has travelled widely overseas and within Australia, working in projects in Western Australia and the Northern Territory. He has been a member of the RCA Board since November 1985.

■ **Bruce Phillips**

One of two members elected by RCA employees
Bruce Phillips is Manager of the RCA's South Western Region. He joined the RCA (then the CRB) in Traralgon in 1962 and has been with it all his working life, including a period of secondment to the Snowy Mountains Engineering Corporation on the Pakistan-Australian Highway Construction Training Project in Pakistan. He has worked in various parts of Victoria and is a Member of the Institution of Engineers, Australia.

■ **Jim Davis**

Involved in the Transport Industry
Jim Davis has extensive knowledge and experience of employment in the transport industry. He is Federal President of the Transport Workers' Union of Australia and has been involved with the Union at branch level for 18 years, currently being Victorian Branch Secretary.

■ **Roger Banks**

Representing private road users
Roger Banks, BEE, FTS, FIE (Aust), FAIM, FSSE, is a Councillor of the Royal Automobile Club of Victoria and a member of its Finance and Services Committees. He has been involved in senior management positions in telecommunications, engineering and marketing.

■ **Ray Holloway**

Councillor of a municipality
Ray Holloway, OAM, JP, is a councillor of the Town of Bairnsdale and has served three terms as Mayor. A Past-President of the Gippsland Municipalities Association and the Providential Cities, Towns and Boroughs Association, he is currently a Vice-President of the Municipal Association of Victoria. He has been very active in road funding campaigns and chairs the East Gippsland Roads Group.

■ **Jenny Morris**

Nominee for the Minister for Transport
Jenny Morris, BA (Hon), PhD, worked for the Australian Road Research Board from 1979 to 1982. She brings to the Authority expertise in Transport research, in which she has been involved in both England and Australia.

Declaration of Pecuniary Interests

All Board Members and Officers of the Authority required to complete a Declaration of Pecuniary Interests did so for the year 1988/89.

CORPORATE MANAGEMENT GROUP

The Corporate Management Group consists of the Chairman and Managing Director, the Director - Corporate Development, Director - Operations, Director - Technical Resources, Director - Management Services, and Director - Human Resources.

At 30 June 1989, the Directors were:

■ Chairman and Managing Director

Ian Stoney. Mr Stoney's credentials are listed under his role as a Member of the Authority.

■ Director - Corporate Development

David Berry, ME, BE (Civil), CD, Cert TP&C, MIE Aust, AMITE, has worked for the CRB/RCA since 1960, and has held various engineering and management positions. He was appointed General Manager - Road Design and Traffic Engineering, in 1983 and became Director - Corporate Development in October 1986. He leads the team establishing the RCA's future directions through corporate planning and strategic management of the road network.

■ Director - Operations

Reg Patterson, Dip CE, CE Cert. TP&C, MIE Aust, has been with the CRB/RCA for 37 years in various engineering and management positions in both metropolitan and rural regions and including a period as General Manager - Bridges. He was appointed Director - Operations in June 1987.

■ Director - Technical Resources

Dr Max Lay, BE (Civil), MEng Sc, PhD FIE Aust, F ATS, F CIT, M ASCE Councillor RACV, holds this position on a job exchange from his position as the Executive Director of the Australian Road Research Board. He has been Engineer in Charge in the Structural Engineering Group at the SEC and Engineering Research Manager BHP. Dr Lay has received numerous awards for his contribution to engineering and is the author of textbooks on road and structural engineering. He is a member of the Faculty of Engineering of the University of Melbourne and a number of advisory boards and committees.

■ Director - Management Services

Peter Stuart. Mr Stuart's credentials are listed under his role as a Member of the Authority.

■ Director - Human Resources

Anne Evans, BA, BMA, has held the position of Director - Human Resources since December 1986 following nine months as Manager - Personnel Development at the Port of Melbourne Authority. Prior to that appointment she spent 12 years with the Department of Employment and Industrial Relations, preceded by 10 years with the Department of Veterans' Affairs.

OTHER ROAD ORGANISATIONS

The RCA involves itself with various other road organisations whose aims and objectives it supports. These include the National Association of Australian State Road Authorities (NAASRA), the Australian Road Research Board (ARRB), and the Australian Transport Advisory Council (ATAC). The RCA also convenes, in association with the Local Government Engineers Association, an annual conference of Municipal Engineers.

■ National Association of Australian State Road Authorities (NAASRA)

The Chairman and Managing Director, Ian Stoney, is a Director of NAASRA, which is an organisation of the seven State Road Authorities, the ACT Administration, and the Federal Department of Transport and Communications. Its Directors are the Chief Executives of those bodies.

NAASRA aims for improvement of the national road system through co-operative effort. It has been able over the years since it was formed in 1934 to co-ordinate and rationalise road and bridge design standards, construction and maintenance practices and road research projects - and to gather and publish facts about Australia's principal road network. This work is carried out through working groups and committees.

■ Australian Road Research Board (ARRB)

The RCA Chairman and Managing Director, Ian Stoney, is Chairman of the ARRB for this year. The ARRB, set up by the NAASRA in 1960, is the focal point for road research in Australia. Its Board comprises the NAASRA directors plus the Executive Director of the ARRB and as from May 1989 a representative of the Australian Local Government Association. Its aim is to co-ordinate, encourage and arrange continuing research into road and traffic problems in Australia. Its work on roads and road transport continues to be of major significance in terms of efficiency, economy and safety.

The ARRB, which since 1965 has been registered as a non-profit making company, gets about 28% of its annual funding from the Federal Government through the Department of Transport and Communications. The State Road Authorities contribute about 45%.

■ Australian Transport Advisory Council (ATAC)

The Chairman and Managing Director, Ian Stoney, is a member of the Road Group of the Australian Transport Advisory Council, which is made up of all the Commonwealth and State Ministers responsible for transport, roads, marine and ports matters.

The Road Group advises ATAC on such matters as road safety, construction and maintenance of roads, vehicle limits, road funding, national highway strategy plans and all road transport policy issues. The National Association of Australian State Road Authorities (NAASRA) also directs matters to ATAC through the Road Group.

ATAC was set up in 1946 to initiate discussions on Transport matters and to report to the Federal Government. It is supported and advised by a Standing Committee on Transport (SCOT), and by a number of boards, committees and groups encompassing motor vehicle, motor transport, railway, road and general transport interests.

Managing the Infrastructure

A total merger of the functions of the Road Construction Authority and the Road Traffic Authority was determined in February 1989 as the best way to gain the highest level of effectiveness for improved road services for Victorians. Planning was completed and considerable preparatory work was undertaken during the year to have the merger in place from July 1, 1989.

For many years, road services in Victoria were provided by a number of organisations, and since 1983 they have been concentrated in the RCA and RTA, both working with local government. This further amalgamation will remove areas of duplication and overlap, and will greatly help overcome problems of community confusion on areas of responsibility for road and traffic issues. Under the new format of the Roads Corporation, the merging of RCA and RTA functions such as human resources, finance, executive services, management information technology, public relations and corporate affairs, traffic and accident data, plus traffic management and traffic engineering will progressively save about \$15 million a year, to be deployed for improving roads and services.

Access by the public will be improved through 'one stop shops' and increased regional networks. This move is part of an overall rationalisation of transport services: the Metropolitan Transit Authority (The Met) and V/Line are also being merged.

An important lead-up to the merger was an in-depth review of the way the RCA and RTA provide their services through their metropolitan regional structures. The review considered existing and possible future services to road users and the community in the Melbourne metropolitan area, with the task of establishing the best arrangements to operate these functions over the next decade.

Consultation was held with a wide range of authorities, municipalities, community organisations, industry and business groups, the staff of both Authorities and their staff associations and unions to ensure that maximum effect would be gained from the arrangements recommended. A Working Party consulted with the Ministry of Transport, Metropolitan Transit Authority, various municipal associations, Local Government Engineers' Association, Police, Victorian Automotive Chamber of Commerce, RACV, Motoring Schools Association of Victoria and other major interest groups. The Working Party consisted of senior officers of the RCA and RTA, reporting to a Steering Committee of Directors of both Authorities.

This review was undertaken with a high focus on customer requirements and the mechanisms needed to deliver road services. The need to be close to customers, to ensure that community needs are understood and effectively communicated, was established as one of the most important principles for the assessment of regional arrangements.

In undertaking this review it was sought to provide the most effective relationship with the community, giving recognition to:

- Municipal groupings and their characteristics.
- State government administrative, and other agency boundaries.
- Locations of high public demand, and
- Urban growth, and major traffic corridors.

Services were assessed so they could be organised to be provided with utmost efficiency, using techniques of resource sharing and with adequate levels of skilled staff. In considering staff structuring, priority was given to matters such as having sufficient authority to make and honour commitments, to be able to respond quickly and to be able to provide the widest possible range of services in "one-stop-shop" situations.

HUMAN RESOURCE STRATEGY

Effective management requires the development of a flexible, skilled and productive workforce. To help us effectively meet change and to address major issues facing us in the management of our people, a Human Resource Strategy has been formulated. Its principal theme is for people to be in the right jobs, to be adequately trained, have opportunities for advancement and to be clear about the organisation's functions, philosophies and directions.

While managers have the primary role in its implementation, the strategy encourages participation by all people in the development of their own careers; by targeting areas such as:

- Managing change
- Flexibility and productivity
- Training and education

A booklet outlining these matters was issued to all staff in December 1988, and a video was produced to assist managers communicate the strategy to staff.

■ Career development

In order to assist the people of the RCA in developing their skills and careers, a Career Development group was formed this year to build:

- A safe and healthy work environment,
- The skills of its people to meet the RCA's future needs,
- A reservoir of talent at all levels,
- Responsibility by individuals for their own careers,
- and to match peoples' career aspirations and abilities with the RCA's needs.

The Group have counselled a large number of staff, in a wide range of disciplines during the year, which has resulted in job rotations, secondments and relocation opportunities, as well as training and retraining, new career paths and job redesigns.

Career counsellors have been nominated by each work area as part of a career development network and the training of these officers will soon be underway.

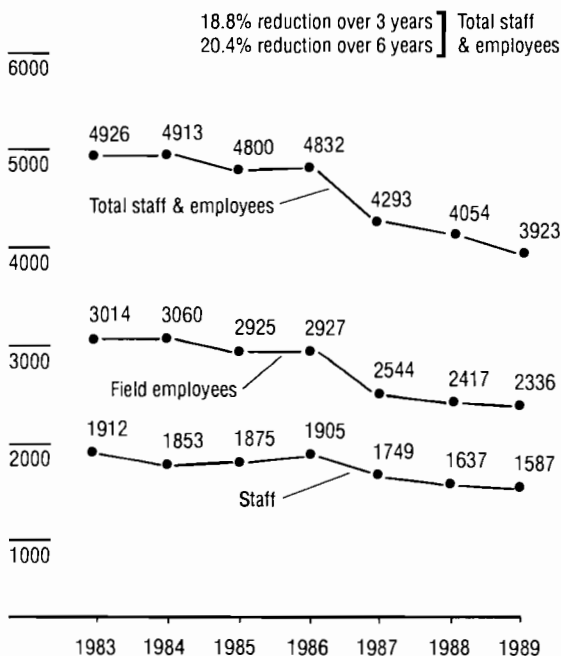


Figure 3.
RCA staffing levels at end of June each year.

BRIDGE MANAGEMENT

■ Bridge Inspection Procedures Expert System (BIPES)

A knowledge-based expert system is being developed for bridge inspections and appraisals in which bridge condition information can be gathered, rated and stored in a consistent manner. The initial work of developing a prototype of BIPES as a pilot study, is well advanced.

The implementation of BIPES is expected to:

- allow interactive field collection and updating of data for bridge attribute and conditions to be fed into the Road Management Information System (RMIS). This data forms the basis for all the analysis, decisions and actions performed by the Bridge Management System (BMS);
- produce high-quality bridge data which can identify any major discrepancies between new and previous data and so help reduce errors;
- provide expert advice to officers in the field. This advice would include guidance of a general nature on the problems and would help with possible immediate remedies;
- train officers to perform bridge inspections, and to maximise benefits from the available bridge expertise within the RCA.

■ Bridge Management System

Bridge Branch has recently started developing a Bridge Management System to help determine the most efficient and cost-effective strategies for managing Victoria's road bridges and culverts.

This system will be an adjunct to the Road Information System (RIS), the RCA's central database, which stores a wide variety of information describing the physical and operating characteristics of the road network, such as traffic composition, road geometry, accident data, administrative boundaries, pavement details and bridge and culvert details.

The very simple BMS proposed for the first stage will return significant benefits immediately, and as enhancements are added it will ensure that funds for bridge maintenance, rehabilitation and replacement are used to best advantage.

TRAFFIC SURVEYS

Traffic information is vital to the Road Construction Authority's role in managing the Victorian road network. Accurate information is essential for planning and design of the RCA's programs and for evaluating its performance in providing road systems to meet the State's social, environmental and economic needs. A number of initiatives were undertaken in the past year to increase the quantity, quality and availability of traffic information.

The State Traffic Estimation Program (STEP) is nearing completion. STEP collects and analyses data from new automatic electronic traffic recording machines. These identify and classify the type of vehicle from length or axle configuration, and the number of each type of vehicle is recorded. Vehicle speed can also be logged. The installation of STEP will be completed next financial year and will benefit the Roads Corporation data banks with its decreased costs of collection and dissemination.

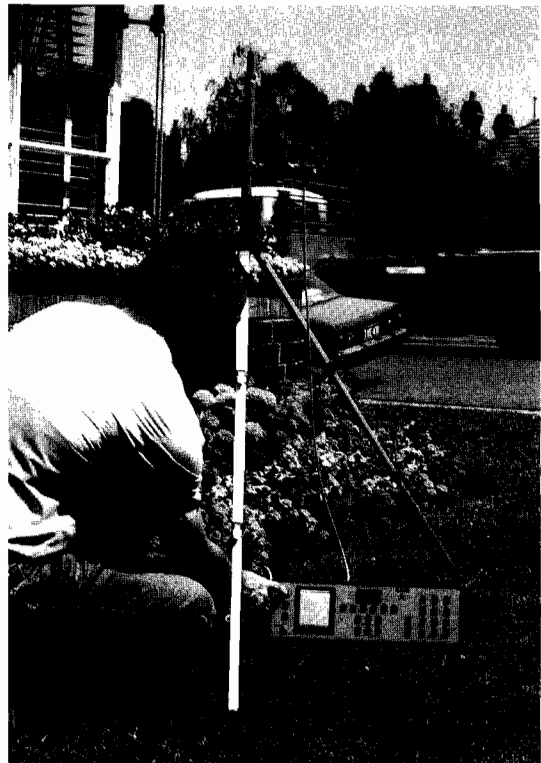


A STEP permanent traffic recording station. The hourly volumes of cars, trucks, and semitrailers are recorded for transmission to head office over the telephone system. About \$130,000 a year is saved with this system.

As part of STEP, a telemetry system has been developed which can retrieve data by telephone from permanent automatic traffic counters, which is considerably cheaper than collecting the data from the counters manually.

CULWAY is a relatively low cost system developed by the Australian Road Research Board. It automatically records the speeds, axle configurations and axle weights of heavy vehicles. Additional CULWAY units were installed this year bringing the number to 8, and a system of regular reporting was initiated. CULWAY data is used for developing enforcement strategies, bridge design, pavement design and in monitoring freight movement.

In addition to these improvements in handling traffic information, the RCA Traffic Surveys Section has been monitoring the effect on traffic flows around the metropolitan area of the opening of the West Gate Freeway Extension and the South Eastern Arterial Link.



Traffic noise levels being tested on suburban streets.

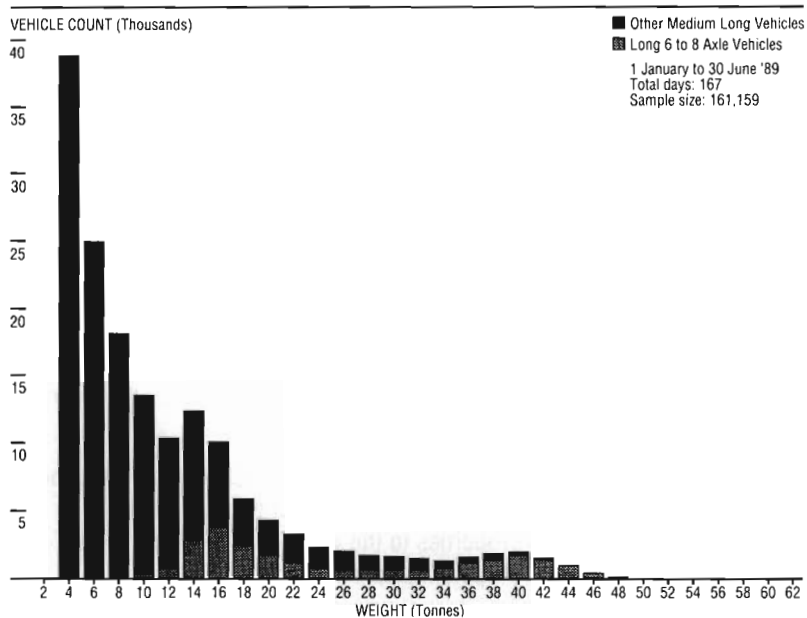


Figure 4.
CULWAY recording of
traffic information.
Stud Road (South bound).
Vehicle gross weight
(trucks and busses).

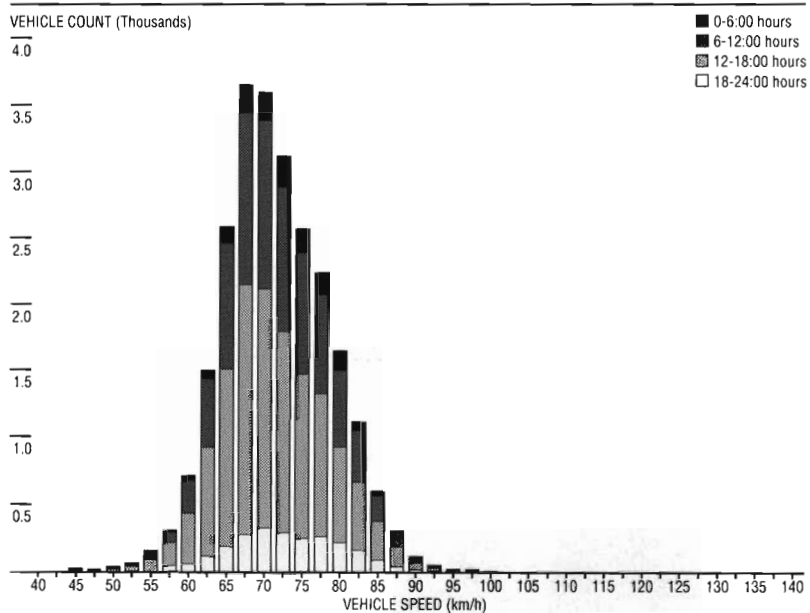


Figure 5.
CULWAY recording of
traffic information.
Stud Road (South bound).
Speed of long vehicles
with 6 to 8 axles.

PROPERTY MANAGEMENT

Some effective changes have been made to improve the efficiency of the management of the diverse list of properties managed by the RCA.

1200 properties are held by the RCA, of which 600 are residential. The provision of emergency maintenance has in the past been contentious, often needing property inspectors to be called out after hours and then requiring approval to carry out work.

This problem has been relieved by delegating approval to the rental estate agents to organise emergency maintenance up to \$500. This has given a saving in the first full year of \$45,000.

The sale and lease of large non-residential properties has traditionally been handled by the managing agent based on REIV scale of fees. Tenders are now called for cases valued over \$250,000, which has saved \$30,000 this year.

The Property Acquisition Section purchases parcels of land for road deviations and many are valued at less than \$2,000. Valuations were obtained on all properties (at a cost of around \$1,000 each) but properties in this category are now negotiated on fair market value provided by municipal valuers free of charge - saving the RCA \$30,000 a year.

The number of valuations has been reduced from two to one on properties valued at less than \$100,000 (as these cases are generally uncomplicated, and the owners also obtain a valuation) which has saved \$70,000 this year.

■ Property Disposal

The RCA has pursued an active policy of disposal of surplus properties, and during the year properties to the value of \$18.4M were sold. Property sales included residential and commercial properties, stock items and improvements on land and separate areas of unimproved land.



The Minister for Transport, Mr Jim Kennan, with one of the community displays showing alternatives for the Western Ring Road at Ardeer (see right).

Planning to meet Customer Needs

The RCA has continued to undertake a range of community consultations to better identify the needs of roadusers.

In country Victoria, the VICROADS 2000 study involved meetings in 12 regional centres attended by representatives of a wide range of community groups. These forums established how the existing road system is serving the public and what is needed to improve the service.

The VICROADS 2000 Study will provide a strategic framework for the development and management of Victoria's rural road network to the year 2000.

Specific areas targeted were: regional economic development, road safety, road freight, tourism development, conservation and the environment, needs of farmers and industry, social issues and traffic in towns.

In metropolitan Melbourne, the NATROV report identified the key arterial routes of national economic importance, including the Western Bypass link to provide north-south access to the docks and a bypass of the city centre. Local community needs in the Western Bypass corridor have been studied at a number of public meetings. Consultation has given community participation in the planning process which will ensure that all potential benefits and costs (economic, social and environmental) are seen and understood.

A planning investigation to prepare an Environmental Effects Statement for the Sunshine - Keilor section of the Western Ring Road began in October 1988. A number of specialist investigations (some by consultants) are being done to gain information on existing and future traffic, noise, air quality, landscape, archaeology, flora and fauna and sociology.

Consultation is integral with the study. A mailing list has been prepared of more than 3,000, after 28,000 brochures were distributed to all property owners and occupiers in the area. Team members have met with many groups and individuals and public displays of all options were shown, similar to that pictured on the opposite page.

The major issues are the severance of Ardeer by the existing reservation, the need to minimise impact of the Derrimut Grasslands, and whether or not an interchange should be provided with the Calder Highway. Following evaluations, the Minister for Transport announced that the reservation through Ardeer would be dropped in favour of an alternative to the west. This was strongly supported by the community. The remaining issues will be resolved through the environmental process.

Another example of this consultative process was the approach taken by the RCA for the South Eastern Arterial Project.

A working party was convened of the local councils and relevant state agencies. Regular meetings were held during the design and construction stages so that the community could participate through all stages of the work.

Public displays were used, information bulletins were issued, meetings were held with groups and individuals and materials were continuously displayed at the project office.

These RCA consultation programs will keep the organisation in touch with its customers and enable it to respond to the changing needs of the community.

■ Delivery of Plant Services in Regions

The Plant Branch consists of 340 people in 11 business and management services groups throughout the State operating for hire some 5500 plant items valued at over \$100 million, together with innovative, electrical, mechanical, radio and sign facilities and specialist activities.

Over the past 3 years, the Plant Branch has moved from a \$2m loss to a positive contribution in excess of \$2m.

There will be continual development in plant service, fleet and network to provide the base level of RCA operations and for other customers. It is anticipated that within 4 years the plant fleet will consist of about 4000 up-to-date special and general plant items which will be managed and maintained by a flexible, multi-skilled team of about 270 people through a co-ordinated statewide network of hire and servicing centres.

■ Electrical Services

Electrical services are provided to Government Departments, municipalities, and contractors involving street lighting, sign lighting, domestic and industrial installations, switchboards, weighbridges, control systems and industrial electronics. The services also cover control electronic security systems, telemetry, radio and aspects of computing hardware.

■ Roadside Conservation

Road reserves serve many needs. They supply access, conserve flora and fauna, provide visual amenity, influence fire management and road safety and are used as service corridors. Because road reserves are often narrow, not all of the needs of the community can be met.

Conservation and environment issues arise from these competing needs.

The RCA in its continuing role of preserving the intrinsic value of native vegetation on roadsides has now undertaken to fund jointly the Roadsides Conservation Committee (RCC) with the Department of Conservation, Forests and Lands.

The grants will enable the Committee to undertake studies which will provide valuable information in the preparation of Roadside Management Plans to give a framework for the care and maintenance of roadside vegetation.

A substantial study has been undertaken by the RCC in the Wimmera-Mallee Region with a view to providing an environmental inventory of roadsides and to improve assessment techniques.

An inventory of roadside vegetation is an essential step in the development of Roadside Management Plans and the Central Highlands Region of the RCA has also undertaken such a study with the assistance of the Victorian School of Forestry and Land Management.

The East Gippsland Region, too, has begun a pilot Roadside Management Plan with the preparation of roadside management objectives and the drafting of appropriate maintenance tasks for the road reserves between Sale and Bairnsdale.

Experience from these pilot exercises, both of which involve the local community, will give direction to the RCA in preparing further Plans.

The RCA is also working with the RCC in developing environmental markers. These are signs for RCA and municipal roads to designate areas containing rare or endangered native plants. The signs will assist roadside workers to carry out their work while protecting the environmental values of an area.



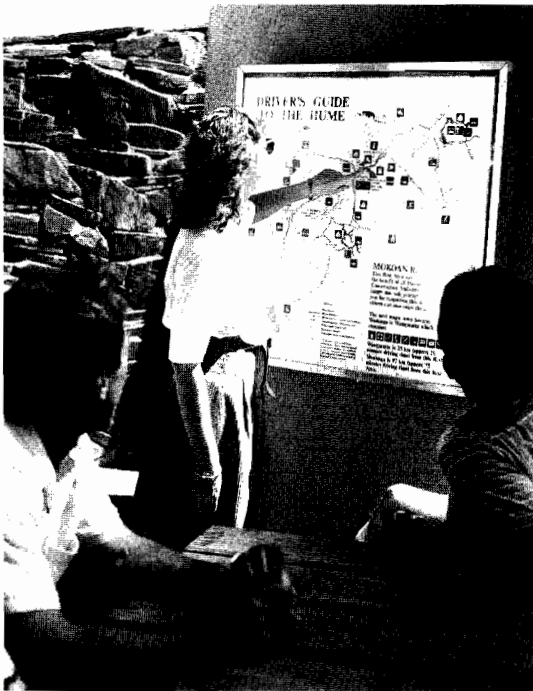
*Landscape Section
preparing proposals
for road corridor
developments.*

SUPPORTING TOURIST DEVELOPMENT IN VICTORIA

A number of notable improvements in tourist signing have taken place during the year.

A new tourist signing policy has been adopted in which a number of restrictions relating to advance signing and required times of opening have been lifted. In addition, with the exception of signs on rural freeways, the proprietors of commercial establishments for which signing is provided will be required to accept more responsibility for providing and maintaining their signs.

Long distance advance tourist information signing has been developed such as the sign (shown below) on the Hume Freeway near Winton which provides several minutes of advance notice to motorists, and has substantially increased the business of the tourist facilities in Glenrowan.

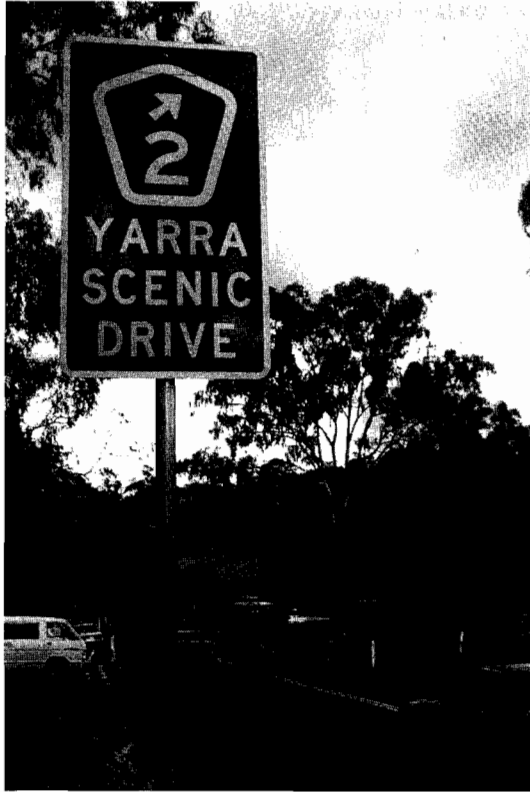


Two tourist route signing projects have been completed during the year. The first was the Major Mitchell Trail, designed and implemented on behalf of the Department of Conservation Forests and Lands. The trail follows, as near as practicable, the exploration route taken by Major Thomas Mitchell in the 1830's and is designed to be followed by means of a map and trail booklet published by the Department of Conservation Forests and Lands. Signing is provided at points selected to assist tourists to follow the trail from the map and to direct them to off-trail features visited by Major Mitchell.

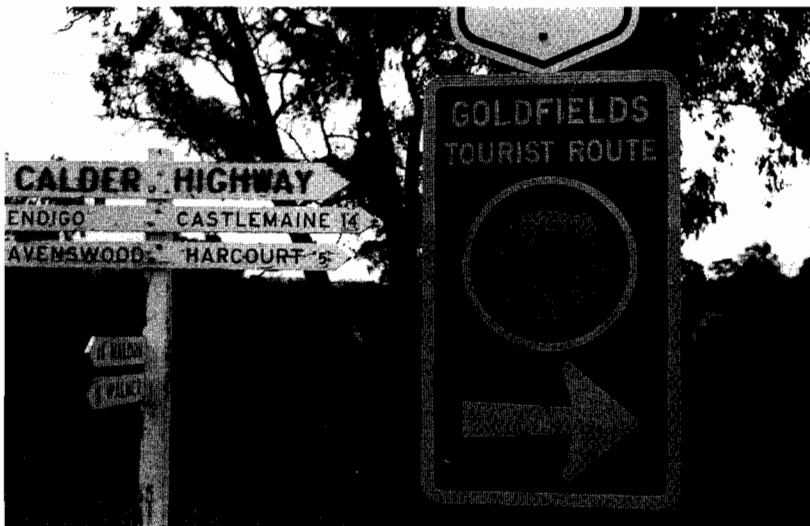
The second project was the Yarra Scenic Drive, designed and implemented on behalf of the Ministry for Planning and Environment. This comprises a fully signposted route following the Yarra River from Williamstown to Warrandyte. A typical route marker is shown opposite.

A similar project, the Goldfields Tourist Route, encompassing a circuit in the Ballarat-Bendigo-Stawell triangle, is in an advanced planning stage and will be installed in the next few months.

*Rest Stop on Hume
Highway.*



The RCA has underway a number of programs to improve signs for tourism promotion and to assist tourists.



IMPROVING ROAD SAFETY

Single vehicle accidents in which vehicles leave the road, account for more than one-third of the fatal or casualty accidents in rural Victoria and almost one-fifth of those in the State. Of these accidents, collisions with trees, poles and bridge abutments are particularly severe and result in about one-quarter of road fatalities each year.

Accidents of these types are of considerable concern to the RCA - various work programs have been modified and new techniques introduced during the year to help improve road safety.

■ Anthony's Cutting Median Barrier

The Western Highway at Anthony's Cutting is a four-lane highway previously divided by a kerbed median which could easily be crossed by vehicles. A concrete median of the New Jersey type has now been installed to prevent head-on collisions.

■ "Ripple" linemarking

In March 1989 the RCA purchased a thermoplastic linemarking machine which had been imported from Denmark by Zaganite Industries. This machine can lay all the normal patterns of lines as well as a "ripple" line which gives a tactile and audible response to alert drivers when they drive outside the traffic lanes as may occur in wet or foggy conditions.

The ripple lines will also be installed at locations where fatigue-related 'run off the road' accidents are of concern.

A trial installation has been in operation on the Maroondah Highway at Coldstream for 18 months, and in May 1989 the edgelines and the centreline on a 20 km section of the Princes Highway East between Stratford and Bairnsdale were marked with the ripple lines.

NUMBER OF FATALITIES



Source: Road Traffic Authority

Figure 6.
Number of persons killed
in road accidents.
(Victoria 1960-1988)

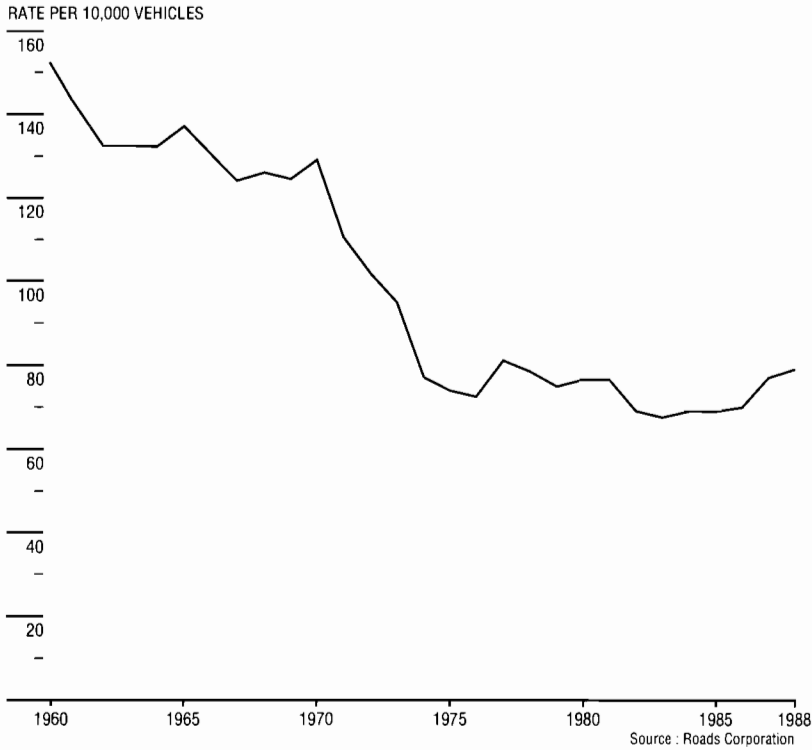


Figure 7.
Number of casualty accidents in relation to the number of registered vehicles. (Victoria 1960-1988)

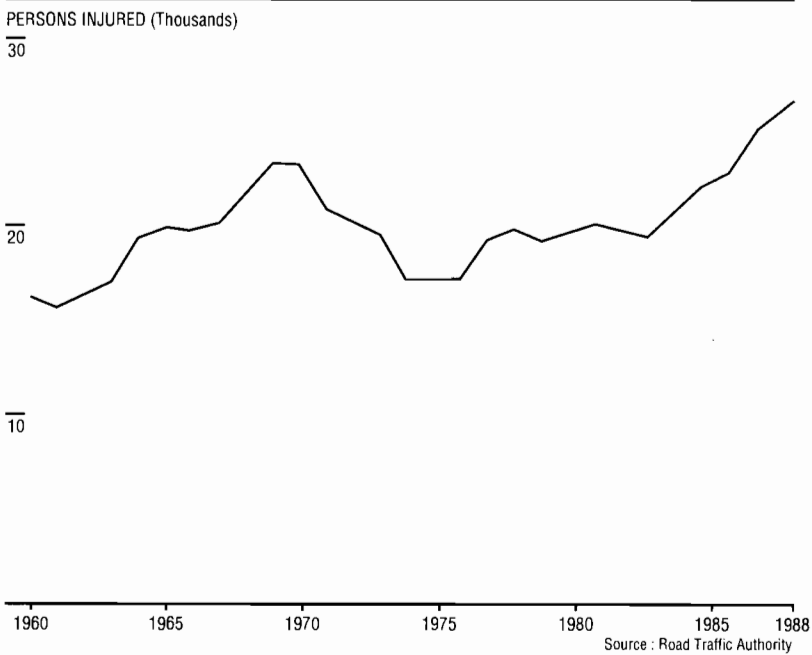


Figure 8.
Number of persons injured in road accidents. (Victoria 1960-1988)

■ Emergency telephones

The RCA provides a free emergency telephone service to assist drivers whose vehicles have been immobilised on the major traffic routes. This service is being regularly extended with some 26 telephones in use on the Western Freeway between Leigh Creek and Bacchus Marsh. These phones dial automatically to the RCA's Traffic Control and Emergency Centre where experienced operators provide assistance.

■ Ice Detection and Warning Systems

Four ice detection and warning systems have been installed between Gisborne and Woodend in the Black Forest section of the Calder Highway. This system was developed in Finland to detect ice on the road surface and to activate warning lights and signs.

■ Roadside Safety on New Projects

In the interests of roadside safety, considerable effort is made to create a 'clear zone' adjacent to the traffic lanes on major projects. This zone extends about 10 metres from the nearest traffic lane on high speed roads. All objects which cannot be located outside this zone are provided with guard fence protection or crash cushions or are made frangible.

During 1988/89 many frangible sign posts and lighting poles, and considerable lengths of guard fencing and concrete barrier have been installed, as well as 12 crash cushions of the 'GREAT' type which are suitable for the treatment of narrow rigid objects. Examples can be seen at the ends of the concrete median barrier installed on the South Eastern Arterial and on the Western Highway near Djerriwarrah Creek.

■ Incident Management on Freeways and Urban Arterials

With the increased traffic volumes on the major urban road network, accidents can cause long delays. Incident management is being used to reduce these delays on the urban freeway system.

For the South Eastern Arterial, Tullamarine and West Gate Freeways current proposals to reduce problems caused by accidents include:

- Communication procedures to enable emergency services to gain quick access to disabled vehicles,
- Strategically-located sections of median barriers which can be opened in emergencies,
- Television surveillance,
- Variable signs displaying messages such as "Part Arterial Closed" and "Arterial Closed - Take This Exit."



The demands on the road network increase each year with more vehicles using the roads and travelling further, as shown by these graphs.

This creates a demand for higher levels of road management and road safety services.

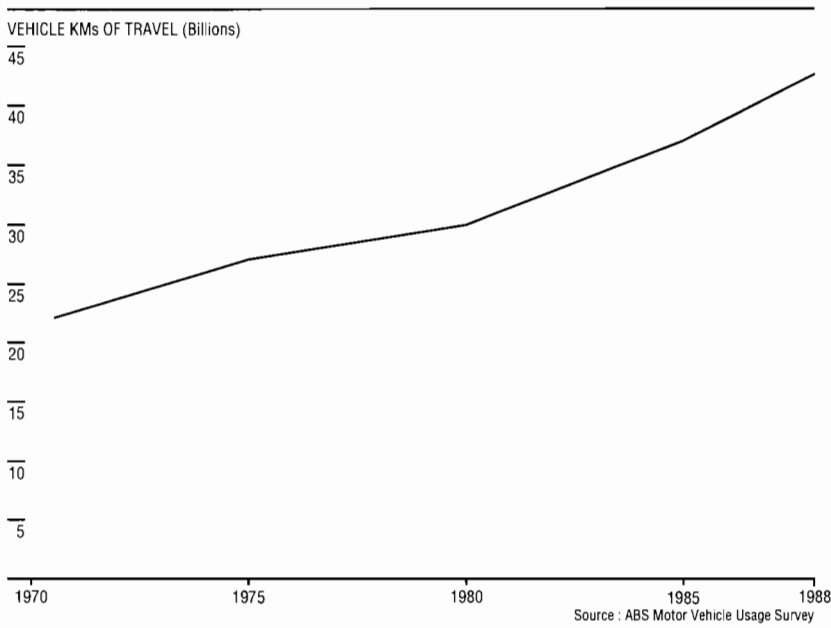


Figure 9.
Increase in total kilometres travelled by all types of vehicles annually. (Victoria 1971-1988)

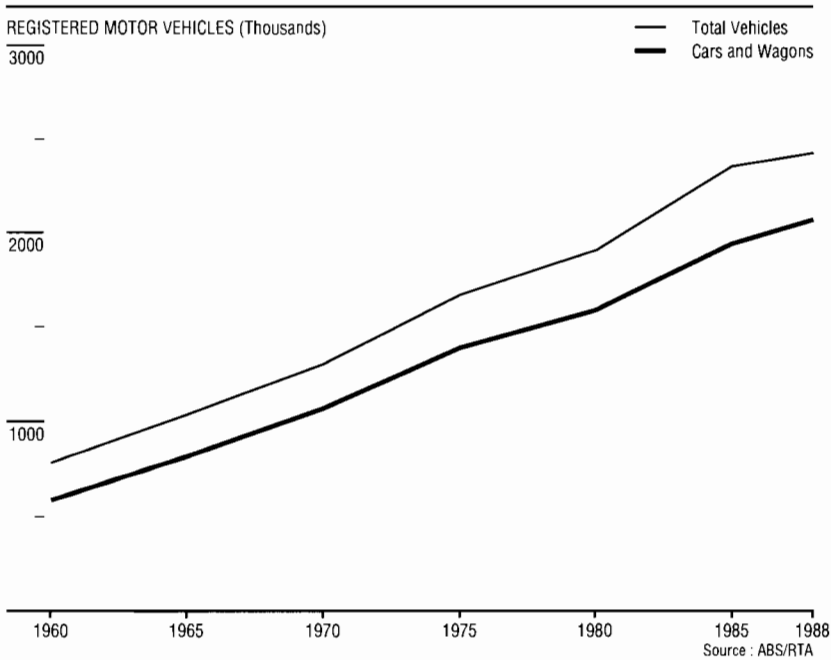


Figure 10.
The number of registered motor vehicles in Victoria continues to rise each year.

Improving Productivity

The November 1988 RCA Corporate Plan 'Future Directions' focused on the need for efficiency and effectiveness in the organisation's work.

It laid out many targets for specific initiatives, many aimed at corporate change and at improving productivity, and these were substantially met during the year.

All of the RCA services were arranged to be delivered through managed business areas.

Business area managers were delegated authority to run their new businesses and were made accountable for costs through the budgeting process for corporate as well as operational services. This caused staff to focus on the costs of their activities, which has created considerable local productivity improvements.

An Innovations Award program, initiated in 1987, continued to recognise the efforts of staff in improving productivity. 63 entries were received this year and 8 commendations were made to projects ranging from new computer programs to a method of calibrating nuclear gauges.

Productivity increases are being made through closer cooperation with Local Government, in order to maximise RCA output by increasing use of plant and equipment and improving operational efficiency.

An example is the initiative being taken by the East Gippsland Region to make arrangements with the Shire of Orbost where an RCA patrol at Bonang and a Shire patrol at Bendoc will combine resources for resheeting, drainage and obtaining pavement materials. In addition, there will be a review of operational boundaries.

■ Plant Fleet

Recapitalisation of the motor vehicle and plant fleet has resulted in cost reductions and productivity improvements. \$100,000 has been saved this year in maintenance of motor vehicles, while the plant fleet maintenance costs have been reduced by some \$300,000 per annum.

Increased plant utilisation through external work (municipalities, other departments and contractors) has helped lower these maintenance costs.

■ Dynamic Testing of Piles

A significant increase in productivity has flowed on from the RCA's use of dynamic testing methods to verify the adequacy of deep bored and rock socketed piles supporting the West Gate Freeway through South Melbourne. This was the first application in Australia of the technique for testing this type of pile.

The effort invested in developing equipment and training personnel is now bringing increased dividends to the RCA on a larger number of projects. The Geotechnical Group has found that the Pile Driving Analyzer (PDA) is cost-effective even on routine works where a smaller number of high capacity piles can be used instead of the lower capacity piles used formerly. The Group has cooperated closely with bridge designers and construction to ensure that opportunities for more economic pile foundations are fully explored. It has developed its technical capacity with the method in quickly diagnosing pile problems during construction, allowing decisions on remedial measures to be made without delay.

■ Roadmarking Paint

A \$20,000 research agreement with the Chemical Engineering faculty at Melbourne University has led to more appropriate testing of roadmarking paint against a tightened specification - contract savings in the order of \$150,000 per annum have been negotiated.

■ Steel Bending Workshop

An assessment by the RCA's Senior Ergonomics Officer has led to the automation of the production of square spiral RC pile ligatures in continuous lengths using 6 mm dia bar.

The machine which became operational in September 1988 was manufactured by Plant Branch based on a performance specification prepared by Bridge Branch. Savings in the order of half a man per week have been realised.

■ Bitumen Road Tankers

Large bitumen road tankers and site storage tankers were designed and manufactured to provide additional pay load. The tankers have an extremely thin skin to obtain maximum carrying capacity, within legal limits.

■ Pedestrian Linemarker

A small linemarker, ideal for car parks and other small linemarking jobs, was designed and made for operations unsuited to the larger machines.

■ Automated Concrete Batching Plant

A completely automated concrete batching plant is presently being installed in the precast workshop. The computer operated system feeds raw materials via a conveyor belt directly into the batching mixer.

Loading time for the mixer will be reduced by 40%, and requires only one operator compared to the present system which requires two people.

■ Roller Compacted Concrete

For heavily trafficked Victorian urban roads, a new road construction process called Roller Compacted Concrete (RCC) has the potential for substantial savings in initial construction costs compared with other types of bound pavements.

Roller Compacted Concrete is a Portland cement concrete pavement that is placed using construction procedures normally associated with asphalt, rather than the slipformed or formed construction techniques traditionally used for concrete pavement.

To investigate the suitability of RCC for Victorian roads, the RCA conducted a trial at Wells Road Aspendale which indicated that satisfactory ride could be achieved by placing the RCC in two layers. However it was difficult to bond these layers together and this may lead to premature cracking of the pavement. This is the first application world-wide of RCC for high speed roads. The RCA will build on the experience at Wells Road for the next trial at Brew Road Pakenham.



Roller compacted concrete trial at Aspendale.

PRODUCTIVITY WITH COMPUTERS

Trends of recent years, which have given significant improvements to productivity and accuracy through the use of more sophisticated computing systems, have been further enhanced this year with some extremely impressive results.

■ Geotechnical Investigations

A significant advance has been achieved over the last year by the Geotechnical Group in developing an integrated system for processing seismic refraction data in the field.

The system revolves around a rugged lap-top computer incorporating a disk drive unit. Time-distance data is put in directly from the computer keyboard in the field and may be viewed on a high resolution display at any time, either in tabular or graphical time-distance plot form.

Data from both single and multi channel seismographs involving up to four seismic layers can be analysed using the time intercept or reciprocal methods.

To complete the system, a plotting program interfaced to AutoCAD produces final seismic layer profiles at any desired scale, with seismic layer velocities and lateral velocity boundaries readily displayed.

These developments have greatly simplified seismic data processing and significantly reduced the turnaround time for what had been a most laborious process.

■ Rowlock

Right of Way Group is successfully developing and implementing the ROWLOCK (Right of Way Letters of Commitment) system in Head Office and in five rural Regions.

ROWLOCK uses an 'inhouse' developed software package to prepare replies to property enquiries, subdivision proposals and planning permit and other applications from standard clauses and an addressee register.

Benefits of the system include faster answers to enquiries, inclusion of effective audit trails, and a greatly enhanced retrieval capability. The system can operate independently in the Regions with the ability to devolve a complex function with a reduced requirement for Head Office involvement.

■ Equipment Resource Management System

The Equipment Resource Management System (EQRMS) has been further developed to include plant inventory, equipment hiring and utilisation. The system includes a full financial management section with modules for direct billing, total cost and revenue analysis, recapitalisation, depreciation, and detail attribution of costs.

The EQRMS system is available throughout the State on the RCA computer network to all internal customers. This service will be extended to other customers such as government departments and municipalities.

Direct billing through the system has replaced some 540,000 reports each year under the old Plant Working Return system, resulting in substantial savings which accrue to plant users.

■ Computer Based Survey Equipment

The Survey and Mapping Functional Review last year concluded that there would be productivity improvements as a result of wider use of computer-based survey equipment.

A preferred system consisting of a 'Total Station' and an electronic data recorder has been implemented. A total station is a survey instrument that measures and electronically records field survey observations. The information may also be transferred to an appropriate data recorder for processing. The total station selected, represents the best performance available for use within the RCA's areas of operation, as well as being moderately priced.

To maintain flexibility and to offer features not present in commercial survey data recorders, special software was developed which uses a touch screen rather than the conventional buttons or keys. This software allows a "user friendliness," convenience and flexibility not previously available.

Information is then transferred directly to computer facilities eliminating the need for keyboard entry and multiple handling of data.

Benefits are now being obtained from the state-wide use of this equipment.

■ **Computerised Coded Plant Inspection System**

A computerised coded inspection system has been developed to electronically record plant condition data during inspection of plant, motor vehicles and equipment.

The Plant Inspector is guided through a program sequence to enter information by bar codes or key entry into a hand-held data recorder. The information can then be transferred to a master computer in the Plant Branch from any location throughout the State, by use of the telephone system. This system gives a quicker, accurate and more consistent method of inspection reporting than existing manual systems. The system is currently being investigated and implemented by several other state road authorities.

■ **Interactive Computer Aided Design and Drafting System (CADD)**

The first stage of the introduction of the next generation of computer aided design and drafting into Technical Resources Division is expected to be completed in early 1990.

An exhaustive study in 1987/88 identified the availability of systems with the potential to provide reduced costs in road design, construction, and maintenance. In January 1989 Expressions of Interest were advertised. 73 sets of documents were issued and 22 submissions received. A shortlist of 6 companies was then selected to submit further proposals. A system is expected to be selected in late 1989.

■ **AutoCAD**

In preparation for the introduction of the CADD system, a low-cost computer-aided drafting package (AutoCAD) was purchased in 1984 to train staff in CAD practices and to encourage the adaption of manual techniques to new technology.

Since then, there has been increased use of AutoCAD for routine plan production bringing about some worthwhile economies.

As was to be expected, training and adaption of techniques initially added to the time required for some aspects of production but with increasing operator skill and adjustments to drafting practices, savings have been and will continue to be made.

As an example, on a recent project the time taken to prepare base plans was reduced by about 80% by using AutoCAD. This represents, over a full design project, an increase of productivity of around 30% - 50% compared to manual methods, with the added advantage of guaranteed accuracy through the electronic transfer of data.

■ **Computer Aided Drafting (CAD) for Cadastral Surveys**

A CAD system has been introduced to assist in the production of all types of plans and documents associated with the RCA's cadastral survey requirements.

An integrated approach has been adopted for field work using existing hand-held calculators and computer data with a low-cost PC-based system.

In order to extend the capabilities of this package into cadastral surveys, an ancillary package has been developed which uses a tablet menu. Plans produced by this enhanced system are acceptable by the Victorian Land Titles Office.

The system is now fully operational with several CAD units in the Land Information and Survey Group and selected Regions, giving substantial productivity savings in many aspects of cadastral surveys.

■ **Electronic Data Transfer Between CADD Systems**

Bridge Design Group is using an interface program which allows the transfer of electronic drawings. This allows survey and road design drawings to be used as a base for bridge plans, resulting in considerable time savings and improved accuracy. The completed bridge plans can then be transferred back to other groups.

■ Computerised Payroll

A simple computerised payroll system has been developed to relieve monotonous repetitive clerical work. The system is based on dBase III and provides both input to CBA and the pay advice slip. The average payroll preparation time has been reduced from two days to three hours.

■ Increased Legal Services Files

A computer software package, designed by Mahlab Services Pty Ltd, was installed in the Legal Services Section to increase the number of files the section could complete for the Property Services Branch.

■ Microfilm System

All RCA cadastral survey records and associated Parish and Township plans have been microfilmed and copies distributed throughout the RCA regions. The system developed is part of an overall records management plan and has significantly improved access to the information as well as providing security and a reduction in costs. The cost savings alone have already more than paid for the purchase price of the equipment.

An RCA innovations award was made in 1988 for this work.

HUMAN RESOURCES

During the year the RCA finalised negotiations with the Victorian Trades Hall Council for a Technological Change Agreement which provides consultative procedures with RCA unions on significant changes. This agreement will facilitate the introduction of new technology and therefore enhance our ability to increase productivity. Inherent with moves toward increased productivity has been improvements within our staff training programs.

Following the opening of the West Gate Training and Conference Centre in April 1988, this financial year saw its first complete year of operation. It has excellent audio visual, catering and parking facilities and consists of 3 main training rooms, 4 conference rooms, 2 meeting rooms, and a computer training room.

95 personal development and management courses were conducted, with 1250 participants undertaking 2386 person training days.

63 unscheduled courses, of 1350 person days, were also held to reduce the number of people on waiting lists and to meet the needs of particular sections.

74 computer training courses (557 person days) were held. The occupancy of this room has been around 90% during the year.

In addition, 121 people attended the RCA residential Management Programs.

Places were made available at the West Gate Training Centre for the RTA, local government and ARRB. Whilst the purpose of the centre has been to meet our own training needs, efforts have been made to increase its use by hiring to other organisations. During the year 65 room days were let for about \$17,000.

By acquiring additional skills, people become more flexible in their outlook, more ambitious in their careers and ultimately are more productive. To this end, a major review of clerical/keyboard/administrative streams has been completed to remove restrictions on keyboard operators and clerical assistants to enable them to improve their skills.

Occupational health and safety

The health and safety of staff is a line management responsibility. A Health and Safety unit provides back-up by a team which comprises safety professionals, ergonomist, occupational hygienist, occupational health sisters, safety trainer, Workcare administrators, welfare counsellor and industrial chaplains.

The Health and Safety Unit has undertaken a multi-faceted approach to its work in the RCA by tackling issues such as:

- use of common sense
- training in supervisory skills
- use of correct equipment
- training in correct technique
- issue of appropriate instructions
- fostering discussion
- safety audits
- monitoring accident occurrence
- setting targets for accident reduction
- health and fitness education
- fitness programs
- health and fitness monitoring
- welfare counselling
- rehabilitation
- promotion of safety representatives and committees.

During the year a number of additional activities were implemented:

- safety audits
- industrial chaplaincy - Interchurch Trade and Industry Mission
- fitness programs
- health education eg AIDS, hypertension
- health monitoring eg blood pressure, cholesterol
- improved presentation of accident statistics
- back care training program
- manual handling program
- better Workcare claim handling procedures.

Notwithstanding the efforts of both line management and the Unit, the level of time lost through accidents, work-related illness and general sickness has remained at almost the same level as last year. This is nearly 6% of the salary bill (3% for each). This is of concern, so a study is being made to improve our knowledge of accident causes and where prevention can be concentrated.

The table shows the number of accident related injuries in the RCA over the past five years.

1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
1572	1514	1521	1440	1234	1119

PERFORMANCE INDICATORS

The Transport Act provides for the Minister for Transport to make a determination of the quantitative targets to be attained by the Authority in a financial year. The targets, together with actual results are set out below:

Category/Indicator	1988/89 targets	1988/89 actual
Financial	\$ mil	\$ mil
Total Operations Expenditure	301.0	298.8
Total Capital Expenditure	230.3	230.3
Asset Preservation Expenditure	216.1	218.9
Operational and Safety		
Improvements	91.4	80.9
Major Network Developments	179.5	173.3
Corporate Services	44.3	45.3
Special Needs Projects	—	10.7
Road Network Upgrading		
Freeways and State Highways - Surface Retreatment	9.8%	12.3%
Freeways and State Highways - Pavement Rehabilitation	1.5%	1.6%
New Structures Commenced Under RCA Supervision	57	68
Additional Lane Kilometres Opened to Traffic	230	244
Employees		
Total Employment (full time equivalent-year average)	3,950	3,984
Hours Lost Through Sickness/ Million Worked Hours	27,500	22,500
Lost Time Injuries/Million Worked Hours (disabled injury frequency rates)	55	64.5
Hours Lost Through Industrial Disputes/Million Worked Hours	100	587

OVERSEAS MARKETING

RCA consulting capabilities are marketed abroad through the Overseas Projects Corporation of Victoria Ltd.

Projects which involved RCA staff during the year were:

■ Fiji

The Fiji Road Upgrade Project is a World Bank funded project in which 8 RCA engineers, 1 soils scientist and an accountant are providing institutional support to the Public Works Department of Fiji

■ Fiji

An Asian Development Bank project, called the Road Maintenance Sector Project, is staffed from RCA by 3 engineers, 3 road maintenance supervisors and 2 mechanical plant supervisors.

■ Indonesia

One RCA bridge maintenance engineer is assisting in the Australian International Development Assistance Bureau project to design and implement a bridge management system for the Directorate General of Highways in Indonesia.

Improving Accountability

The delivery of services through managed business areas has been intensified to provide a focus on accountability.

During the year the RCA was divided into discrete areas that could be run along business lines. Cost data on how these businesses use their resources to deliver services to the road program was collected.

This data, along with the cost of services provided to the business areas from the corporate area, e.g rental, computers, administrative services, training, capital charges, etc., have been assembled by each business area to produce Business Area Plans and Budgets for the year 1989/90. The Business Area Plans are formulated on the three year forward look program which defines the demand for services.

Detailed plans for service delivery, total costs, charges required to recover costs, research and development, and resources required make up the plans, which form the bid for each business areas funding in 1989/90.

The business planning process has allowed the costs of individual services to be determined along business lines. Business areas are now required to market those services to client businesses within the RCA, who in turn are empowered to choose alternative suppliers if appropriate. Business areas supplying services are expected to engage consultants for part of their work to balance resources and provide a buffer against peak workload demand. This allows the business area to measure its costs against the private sector

Some areas have been delivering selected services to the private sector and other government bodies, where a demand exists, and this provides a further test of the pricing structure in the market place.

The RCA has initiated a design and construct contract on the Western Ring Road, Broadmeadows, and contractor-tested quality assurance on two earthworks contracts. These trials will assess the cost effectiveness of these processes and place greater accountability for quality onto the contractor.

All of these initiatives are focussing business area managers' attention on value for money and customer service. Initiatives are now being taken to develop quality management systems that can measure the value for money being delivered to the customer through the new road program structures, and to measure effectiveness and service accountability in the delivery of these services.

In its management of the road system, the RCA gives first priority to preservation of the existing asset. This work consists of:

- Routine maintenance - street cleaning, line marking, sign cleaning, maintenance of roadsides, medians and drains, and minor patching of roads.
- Periodic maintenance - resealing, asphalt and gravel resurfacing and painting of bridges.
- Rehabilitation - major patching, pavement resheeting or reconstruction, bridge and culvert repairs and drainage reformation.

To ensure that appropriate funds are provided and that road maintenance is done with optimum efficiency, three systems have been developed to provide the required information. These are:

- Road condition survey. Over the past decade the RCA has closely monitored details of rutting, roughness, cracking, and texture loss so that an accurate profile of the road system can be maintained to provide a data base for pavement management.
- Pavement management system. This provides a systematic and objective method to determine the most cost effective treatments for road maintenance.
- Maintenance activity recording system. This uses computer records of the activities carried out each day by RCA routine maintenance workers. Through the aggregation of this information a profile of the type and location of the work done is prepared on a progressive monthly basis. The system identifies problem areas and simplifies the costing of work.

■ Contract administration

During the past year, a number of changes have been introduced to improve the performance of RCA administration of contracts.

A revised format of contract documents has been used to better define tender conditions and contract provisions - which should lead to less contract misunderstandings and disputes.

More detailed tender evaluation processes have been introduced with an emphasis on the assessment of the real final cost.

A prequalification has been used to classify contractors on their technical expertise, financial capacity and overall performance, and is required for roadwork contracts over \$500,000 and bridgeworks over \$250,000. It will protect the RCA and contractors against over commitment.

To provide comprehensive and quicker access to contract information a detailed computerised data base on contractors' performance is being used to consolidate all contract records previously held by manual systems in the various RCA sections.

A better understanding of the needs of contractors is being achieved through regular meetings with industry groups such as the Australian Federation of Construction Contractors and Australian Earthmovers and Road Contractors Federation. These discussions have given many significant changes in contract documentation to the benefit of the RCA and contractors.

■ Risk management

Legal Services Section is developing Risk Management as part of its business area plan in line with the government directive that these procedures be installed in Government departments and statutory bodies as a matter of priority.

Legal Services has also produced an information newsletter to assist managers and staff answer queries related to legal matters. This is of considerable assistance to staff in areas outside head office.

■ Finance services

The introduction of Business Area Planning and Business Area Management has meant that the Financial Services Branch has had to develop its accounting systems to provide greater information to business area managers as well as Divisional and Corporate Management Groups, and this was a major achievement.

As the RCA has been seen as a leader in this field, there has been considerable interest in these developments from other road authorities.

■ Financial systems

Computerised Accounting Package - All existing installations are being upgraded to the latest version of CBA (Commercial Business Application) to provide CBA facilities to all Business Areas within the RCA. Enhancements to the accounting package include the introduction of a payroll module for wages staff and an accounts receivable module to replace the outdated Sundry Debtors System.

With the formation of the new Roads Corporation from 1 July 1989, a High Priority Systems Project Team has been established to specify the functional requirements of a fully integrated financial system to meet the needs of the new organisation.

■ Financial quality control

To ensure the security, control, auditability and accuracy of financial information, a Financial Control Group of an accountant and two assistants has been formed.

■ Audit services

Audit Services works to ensure all material and high risk areas within the organisation are subject to review. Planning is long term (4 year) and short term (1 year).

Internal audit provides the RCA with an independent, objective and confidential review of key operations, to improve accountability and the effectiveness of its operations.

■ Project management

In July 1988 the RCA published a revised version of its Manual for Estimating and Costing Direct Labour Roadworks. This is a major improvement on the previous edition as the focus is now on the effective and efficient management of resources and the accountability required to complete jobs on time and within budget.

Two key reporting documents of Works Program and Resources Schedule have been added to the system to complement the Construction Estimate and Construction Works Cost Sheet. Efficiency and results are now monitored by comparing actual resources and progress against estimates.

■ Financial training

Significant steps were taken in training non-accountants in financial and management accounting techniques with two standard courses at the Westgate Training Centre.

With the challenge to be efficient, effective and flexible it was the aim of the courses to ensure that staff understand the purpose of the accounting system and are able to readily use financial information. 150 staff from a broad range of RCA business areas took part.

■ Road Price Index

As part of its normal costing procedures, the Road Construction Authority carries out regular surveys of the prices of major components of road construction and maintenance expenditure. The items surveyed include asphalt, bitumen, aggregate, culverts, pipes, steel, cement, fuel, land acquisition and labour. On the basis of the information collected, price indices are maintained for each of the major expenditure components, together with a "Composite Direct Works and Salaries" (CDW&S) Index. This composite index provides a weighted representation of current overall prices for road construction and maintenance work.

For the period 1981 to 1985, the RCA's Composite Direct Works and Salaries Index increased at a higher rate than the Consumer Price Index, due mainly to the effects of increases in the prices of bituminous materials and fuels. This trend has reversed in the last few years as a result of petroleum prices becoming more stable.

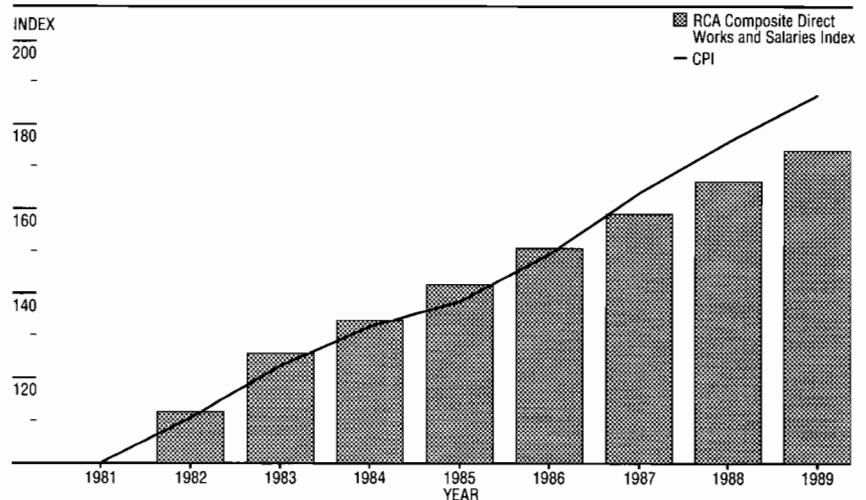


Figure 11.
RCA Road Price Index.

PLANT BRANCH REVIEW

A Functional Review has been completed and the Branch is currently finalising staffing arrangements within the new organisational structure.

Business Plans have been developed within the framework of RCA objectives and operational requirements for the Plant Branch which operates as a commercial self-funded plant service provider to the RCA and other customers in the public interest.

Strategies and performance indicators have been developed for each of the Plant Branch business units to achieve the goals and targets set out in the Business Plan.

All Plant Branch income is generated from plant hire and payment for services through direct billing and debits to RCA and external customers. All operational and capital costs incurred by the Plant Branch throughout the RCA are attributed to the branch through direct charges, on-cost, overhead charges and debits. The net contribution from branch operations is credited to RCA Corporate Services as payment for legal, library, management, computing and other services, and shared overheads and as a nett contribution from branch operations.

Throughout the year, development of computerised management systems has continued in the areas of file tracking systems, sign production, plant condition monitoring and payroll system.

The enhanced computer system now has a full financial management section including direct billing, depreciation and detailed attribution of costs.

Unnecessary or inappropriate work practices have been reduced through improved delegations which have saved reporting and negotiation costs through the simpler process of direct accountability.

Increased plant utilisation and reduced operating costs have enabled plant hire rates at last adjustment to be held at an average increase of less than 3% for a quarter of the items in the plant fleet, and has reduced rates for some graders and rollers. In addition, the increased plant utilisation will generate an estimated \$1,200,000 additional income for the financial year.

Significant cost reductions and efficiency improvements have been achieved throughout the Plant Branch for the period of the report. These cost savings and efficiencies have largely accrued to Branch clients.

Technical Achievements

The RCA has a sound history in delivering technical services of a very high quality, by encouraging innovative approaches to solving problems and in adapting many standard approaches in its work within Victoria, and in the process creates new products and techniques which are then available to other Australian Road Authorities and overseas.

Many of the techniques and products improved during the year are in the process of being marketed to generate a return on the investment of RCA funds and expertise which has gone into their production.

■ Street Lighting

A successful one day seminar on street lighting was organised by the RCA in November 1988 to discuss mutual issues on lighting with all electricity supply authorities operating in metropolitan Melbourne. A total of 9 speakers delivered papers and the seminar has resulted in a significant improvement in communication between the RCA and power authorities. It is planned to hold another seminar late in 1989.

During the year approximately 30 new street lighting schemes were approved by the Street Lighting Committee involving more than 1000 luminaries and 350 frangible poles.

To date, in excess of 1300 frangible lighting poles have been installed or have been committed for installation on State Highways and Main Roads throughout Victoria. These are an important contribution to roadside safety.

■ Administrative Map Series

A map series consisting of 18 standard maps at 1:250,000 scale, supported by enlargements at 1:25,000 scale of major rural towns and cities are currently being prepared with a planned completion date of late 1989. The 15 standard sheets now completed provide coverage of Victoria except for a central belt from Ararat through Melbourne to North West Gippsland.

The series consists of high quality multi-coloured maps of the Victorian road network, together with major features of importance to the RCA, Government Departments, Statutory Authorities, Municipalities and road users generally.

These maps are highly valued by all users with demand coming from all parts of the community. Information derived from this series and other RCA thematic mapping has been utilized by other non-commercial organizations in the tourism, emergency services and legislative fields.

■ Noise barriers

On the South Eastern Arterial, noise attenuation barriers have been constructed where noise levels from the Arterial road equalled or exceeded 68 dB(A) L10 (18 hour). Timber barriers were used to the west of Burke Road, with the others being constructed of newly-formulated glass fibre reinforced cement which absorbs and disperses noise. Patents have been taken out on the glass-cement barriers as they are considerably cheaper and more effective than equivalent overseas products.

This system was highly commended by an RCA Innovation Award.

The RCA has monitored noise since the opening of the arterial road. A committee was formed with representatives of community groups, councils, government agencies and an acoustic consultant to review noise measures and to recommend ways to overcome traffic noise problems.

■ Concrete Pavements Technical Bulletin

An interim Technical Bulletin titled 'Guidelines for the design, construction and maintenance of concrete pavements' has been produced.

The Bulletin defines the types of concrete pavement used, the functions of base and sub-base, properties required of the materials involved, thickness, reinforcement design, construction and rehabilitation techniques.

With the increasing use of concrete pavements in Victoria, this bulletin provides timely advice on aspects necessary to construct and maintain sound concrete roads.

■ Mechanical Plant and Equipment

Purchase or manufacture of plant under the Plant Capital Program amounting to over \$12 million this year has been completed on time, with the exception of power graders due to contractual delays.

Deliveries have included new bitumen sprayers, trucks with snowblades, trucks and patrol front end loaders. In addition, updating of the passenger motor vehicle fleet is almost completed and the branch is now updating its four-wheel drive and derivative type vehicles.

Research and development in the Plant Branch for the past year has included improvements in occupational health and safety, operational and production improvements in a range of existing plant and equipment, together with an ongoing investment in aggregate loaders, linemarking paint testing and the current project being carried out with the Accident Research Centre of Monash University of white line detection on road surfaces.

■ Open Bowl Heater

A new 6000 litre open bowl bitumen heater was developed and manufactured to replace the 1940 design open bowl heaters used for road patrol maintenance work. The 6000 litre unit can be easily transported on low loaders and uses LP gas to heat the bitumen.

The new open bowl heater is safe and complies to regulations for handling hazardous bulk materials.

■ Sequential Flashing Chevron Signs

A modular design sequential flashing chevron sign was developed to replace older, heavier and high maintenance flashing signs. The modular designed signs can be fitted to a variety of plant and equipment. They provide improved visibility to the travelling public and enhance road safety for construction and maintenance gangs. Electronic control systems for the signs were entirely developed and built within the Plant Branch and have been marketed to several municipalities and councils for fitment to their own signs and equipment.



Open bowl heater.

■ Linemarkers

Production of the medium self-propelled linemarker continued throughout the year. Improvements and modifications based on views of customers within the RCA and other state road authorities have been incorporated into current production units. The degree of sophistication and efficiency of the units is not available anywhere else in the world. The medium linemarker has been marketed into all states of Australia.

■ Radio Communications

In accordance with strategic plans to service all major roads in Victoria with two-way communications and telephone access, three more links have been commissioned to cover the central area of Northern Region, Central Highlands and the Great Ocean Road and Barwon Region.

■ Occupational Health and Safety Equipment

During the period of the report, a wide range of attachments, devices and implements have been developed to enhance the occupational health and safety of RCA employees: these include a paper pick-up unit for removal of soiled paper from BS sealing operations, and attachments to improve trailer fitting out for maintenance patrol gangs.

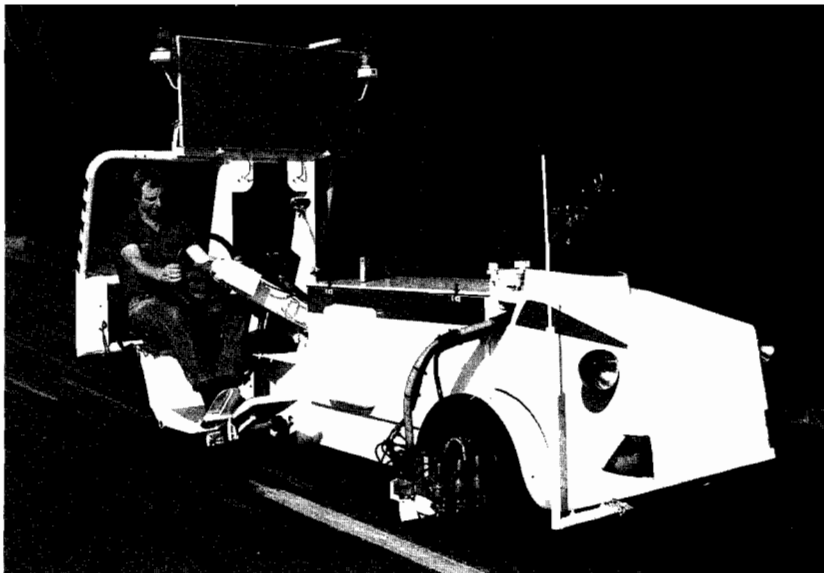
Other areas include an automatic fail safe braking device for the West Gate Bridge maintenance gantry which provides an important safety enhancement of the whole bridge maintenance operations

■ Height Control for towbars on trailed plant items

A positive adjustable height control on the "A" frame towing bar for trailed plant items has been developed to accurately control the positioning of the "A" frame. This mechanism enables a much safer one-person hook-up operation to the towing vehicle.

■ Emergency Median Barriers

Development of a boom gate designed to replace sections within existing Armco guard rails was completed and several of these boom gates are being installed in the centre median of the South Eastern Arterial and Tullamarine Freeway. The boom gate allows emergency crossing through the centre median guard railing from one carriageway to the other. Research is also being carried out to provide a moveable concrete six metre section in Jersey wall barriers used in centre medians.



*Medium self-propelled
line-marker.*

■ Precast Bridge Units

A range of new prestressed concrete 'T' slabs has been developed as a replacement for reinforced concrete 'I' beams and 'U' slabs, and prestressed concrete 'I' beams, 'U' slabs and planks, for bridge spans from 8 to 19 metres.

The 'T' slabs offer a number of significant advantages in comparison with other beams:

- They cost less
- Construction is easier, faster and safer
- The beam width can be varied to suit any bridge width by adjusting the top flange up to a maximum of 1500 mm
- They give an improved appearance to bridges.

A testing program for 'T' slabs has been initiated with the University of Melbourne. From this we hope to prove the present designs and to develop a computer model to enable quick checking of design parameters for any 'T' slab bridge geometry and loading. Further refinements in the deck overlay and slab prestressing should be possible, with commensurate savings. It is expected that test results will be available at the end of 1989.

Another innovation that the RCA has developed is the use of a new precast prestressed concrete beam, termed the 'bulb T' beam, which has been found to be economical for spans 26 m to 40 m. The design is based on the top and bottom sections of the beam remaining constant in shape with an extendible web to allow variation in the overall height of the beam.

The wide top flange has the advantage that it reduces the deck formwork, provides a wider work area, and provides greater lateral stiffeners than the more conventional beams used in the past. Bridges at Havelock Street and Springhurst Interchange on the Hume Freeway, Brodribb River and Toorloo Arm on the Princes Highway and at the Midland Highway interchange on the Princes Freeway, Morwell, incorporate the use of these beams.



PASE (Pavement Strength Evaluator) a machine developed by the RCA Plant Branch and Materials Asphalt Branch to measure the structural response of roads to a standard loaded axle which determines if the road pavement needs strengthening. The electronic and data acquisition systems used in this machine are expected to be up to twice as productive as previous systems.

State of the Road System

Bituminous surfacing is an important part of maintenance of the road system and surfacing of newly constructed and reconstructed pavements.

This year retreatments amounted to 2010 km or 8.5% of the sealed length of the declared road system; restoration of surfacing on reconstructed pavements amounted to 476 km, or 2.0% of the sealed length; and surfacing of new pavements amounted to 193 km, thereby increasing the sealed length of the declared road system.

The RCA's 13 bituminous surfacing units completed 3786 km of sprayed seal surfacing on the declared road network at a cost of \$29.3 million. A further 1027 km of sprayed seal work, at a cost of \$7.7 million was completed by the RCA's bituminous surfacing units on unclassified roads for municipalities and other authorities. 722 km of sprayed seal work was completed on declared roads by contractors and municipalities at a cost of \$3.1 million and 231,364 tonnes of hot mix asphalt supplied and placed by contractor at a cost of \$13.4 million.

The length of the principal types of work completed on the various road categories is shown in the following table:

■ Bituminous Surfacing Work Completed (Principal types of work)

Road Category and Type of Work	Year		
	86/87	87/88	88/89
Freeways	(km)	(km)	(km)
Extensions to sealed system	57	20	135
Reconstruction of lengths of previously sealed pavements	9	22	28
Retreatment	133	121	192
Highways			
Extensions	4	7	1
Reconstruction	87	104	81
Retreatment	485	735	736
Main Roads			
Extensions	16	6	56
Reconstruction	199	235	361
Treatment	731	920	965
Tourist and Forest Roads			
Extensions	5	-	1
Reconstructions	5	22	6
Retreatment	101	91	117
Totals			
Extensions	82	33	193
Reconstruction	300	383	476
Retreatment	1,450	1,868	2,010
Total	1,832	2,284	2,679

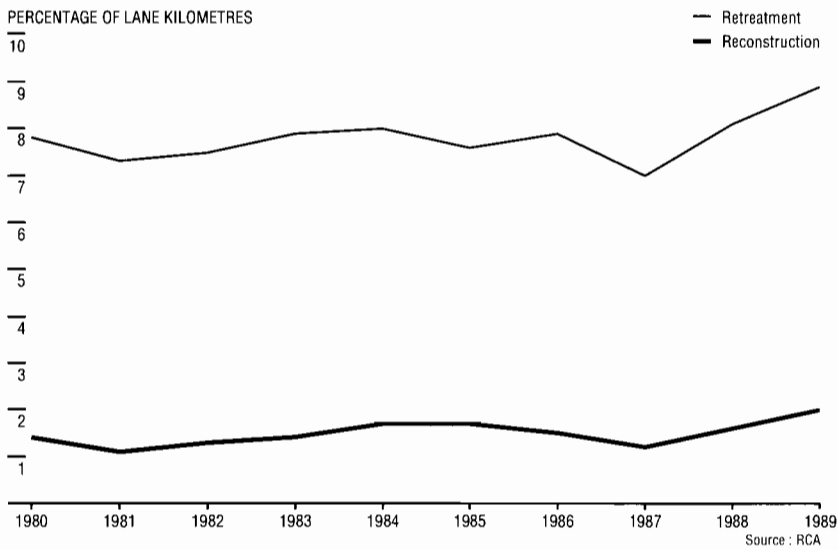


Figure 12.
 Percentage of the declared road system repaired by the RCA each year. (Victoria 1980-88)

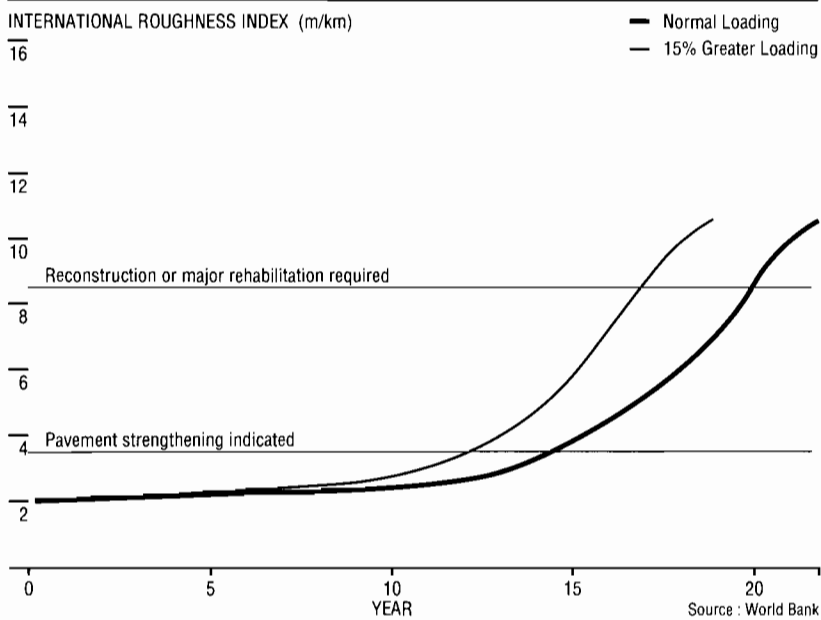


Figure 13.
 Deterioration of paved roads over time. This study by the World Bank shows the rapid deterioration of paved roads if they are not maintained after 12 years, and how this is shortened if the pavement is overloaded.

■ **Direct and municipal bridgework designed in 1988/89.**

The listed works are new structures and major enhancements to existing structures. The amounts listed refer to jobs on which design was completed in 1988/89. The total cost of jobs have been included whether or not site work has commenced.

□ **DIRECT WORKS**

Region	Number of Structures	\$
Barwon	1	2,550,000
Central Gippsland	4	3,339,000
Central Highlands	5	3,000,000
Dandenong	3	685,000
East Gippsland	2	2,030,000
Metropolitan	11	3,895,000
North-Eastern	6	2,272,000
Northern	1	224,000
South-Western	1	170,000
Wimmera Mallee	1	480,000
Sub Totals	35	\$18,645,000
Projects		
SE Arterial	6	690,000
Benalla	2	3,300,000
Hume	3	2,068,000
Broadmeadows	5	6,470,000
Sub Total	16	\$12,528,000
Total	51	\$31,173,000

□ **MUNICIPAL WORKS**

Region	Number of Structures	\$
Barwon	3	691,041
Central Gippsland	2	460,000
Central Highlands	2	480,000
Dandenong	3	1,205,427
East Gippsland	2	442,000
Metropolitan	1	530,000
North-Eastern	5	1,345,000
Northern	8	2,141,098
South-Western	4	614,240
Wimmera Mallee	1	325,000
Total	31	\$8,233,806

REAL ROAD FREIGHT RATES

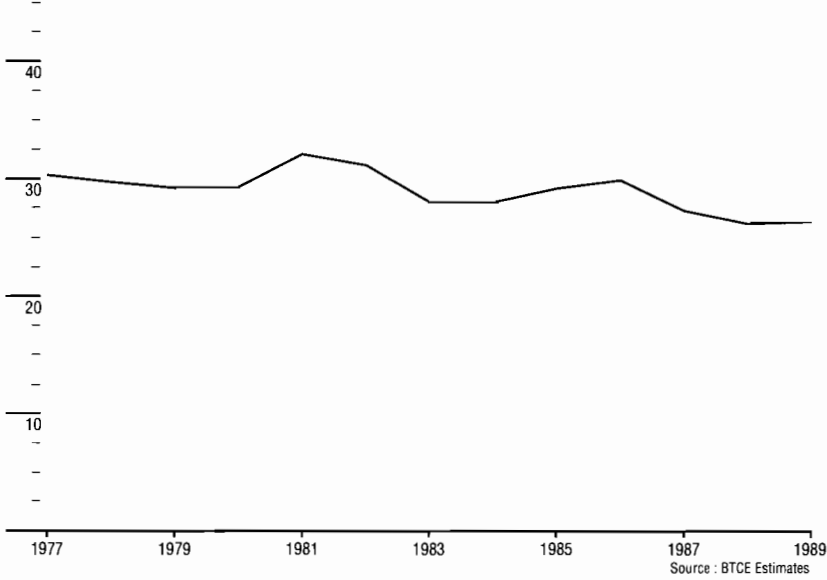


Figure 14.
*Road freight prices.
Reduction in cost of road
freight, which has been
assisted by improvements
to the road systems.*

NEW WORKS IN THE ROADS SYSTEM

Road improvement works are carried out to maintain and improve the road system which is a vital component in the economic development of the State, to enable fast and efficient movement of goods and the safe transport of people.

The following projects were either in progress or completed in the year ending 30 June 1989.

■ South Eastern Arterial Road Link

The 6.7 km four-lane divided roadway linking the South Eastern and Mulgrave Freeways was opened to traffic in December 1988.

This project was commenced in March 1984 and will be completed in late 1989 at a total estimated cost of \$152 million.

The new link will reduce travel times and accidents in the South Eastern Corridor and help improve conditions on local streets and arterials.

■ Punt Road Widening

The widening of Punt Road between Swan Street and Bridge Road, including upgrading of the major intersections, commenced in December 1988, with scheduled completion late in 1990 at an estimated total cost of \$25 million.

■ Greensborough Bypass

The first section between Diamond Creek and Grimshaw Street was opened to traffic on 3 March 1988. Work has proceeded on the dual carriageway section between Grimshaw Street and Yallambie Road, Watsonia, which is anticipated to be opened to traffic in August 1989.

The major purpose of the bypass is to reduce congestion in the shopping area of Main Street, Greensborough, by reducing through traffic. Total cost is \$32 million.

■ Princes Highway East Duplication - Caulfield

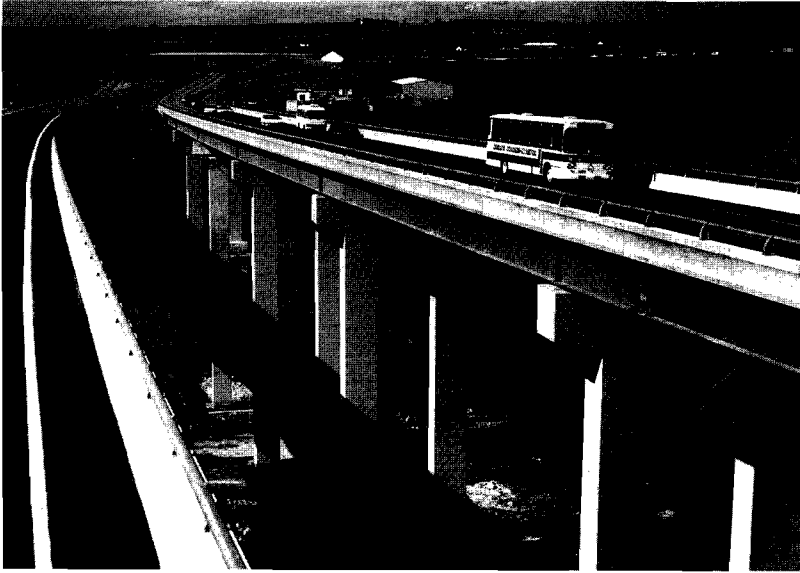
The duplication of Princes Highway East between Hawthorn Road and Tooronga Road is scheduled for completion in early 1990 at an estimated \$16.5 million. Works include lowering and realigning the road beneath the railway overpass and upgrading the highway to two 3-lane divided carriageways. The pavement is jointed unreinforced concrete.

■ Bell Street - Banksia Street Link

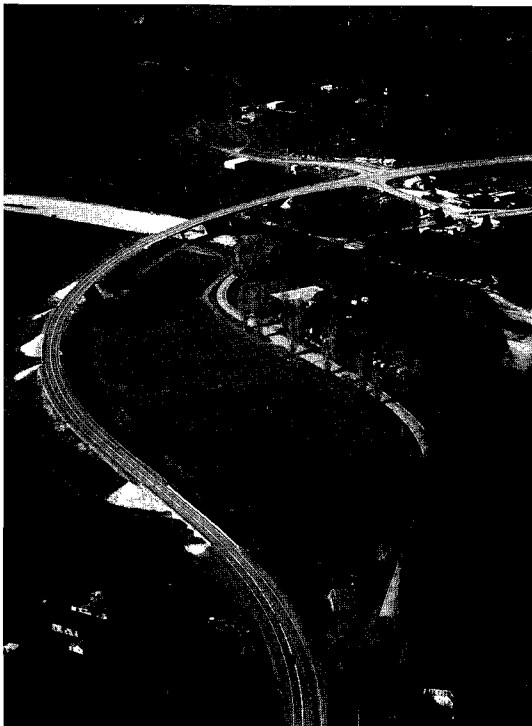
Construction of the direct link between Bell Street and Banksia Street commenced in December 1988 and is scheduled to be completed in late 1991 at an estimated total cost of \$29 million. It will relieve traffic congestion and improve safety in the Burgundy Street Shopping Centre.



The South Eastern Arterial, Burke Road to Warrigal Road.



The Gisborne Bypass on the Calder Freeway showing the bridge over Jackson's Creek.



The Genoa River Crossing by the Princes Highway in East Gippsland.

■ Gisborne Bypass

Extending 6 km from McGregor's Road to Mt Macedon Road, east of Gisborne, this \$25 million bypass was opened on 17 March 1989. It has removed much of the through traffic from the city, thus providing a safer commercial centre for shoppers and pedestrians and improved conditions for local traffic.

■ Genoa River Crossing

Work to replace the existing timber bridge with four concrete bridges on a flood-free alignment across the Genoa River floodplain began in 1984. The \$7 million project is scheduled to finish in July 1989.

■ Princes Highway East Duplication - Tynong

Duplication of the highway between Nar Nar Goon and the Bunyip River, including upgrading of sections of the existing highway, was started in early 1984. It was completed in June 1989 at a total cost of \$33 million and now gives a continuous duplicated highway from Melbourne to Bunyip River as part of the upgrade of the Princes Highway to Traralgon.

■ South Gippsland Highway Duplication

The 35 km duplication between Cranbourne and Bass Highway has been in progress since 1983. 21 km have now been opened to traffic, with the remaining sections expected to be finished in 1991. The duplicating of this heavily trafficked route will eliminate a section of the two-lane two-way roadway with a poor safety record, and improve the level of service on this major tourist link to South Gippsland and the Phillip Island area. Total cost is estimated at \$27 million.

■ Mornington Peninsula Freeway - Dromana to Mt Martha

This duplicate freeway was opened on 16 May 1989, taking southbound traffic over the freeway via the realigned Nepean Highway and on to the freeway. The 3.5 km of freeway and 1.1 km of highway realignment was completed at a cost of \$5 million and gives a safer roadway due to the separation of the two-way traffic. The full potential of the works will be realised with the completion of the freeway to Moorooduc Road.

■ Morwell Bypass - Stage 1

The first stage of the Morwell Bypass, from the Morwell River to the Midland Highway, is 6.4 km in length and will cost \$30 million. Work started on this section in early 1985; it will be opened to traffic in April 1990. The bypass will reduce travel time and will remove through traffic from the commercial centre.

■ Ballarat Bypass

This extends 26 km between Woodmans Hill and Burrumbeet. Construction has started on a two-lane two-way road with provision for a duplicate carriageway from Woodmans Hill to Gillies Street at a later date. The bypass will:

- remove a lot of heavy traffic from the Ballarat central business district
- reduce travel times and road user costs
- improve suburban traffic management
- and remove traffic from the hazardous Avenue of Honour section west of Ballarat.

Completion is anticipated in 1993/94 at an estimated cost of \$69 million.

■ Barwon River Crossing

This forms part of the La Trobe Terrace Project which provides an alternative bypass of the central business district of Geelong. Works began on the crossing in May 1983 with bridgeworks starting in April 1987. Completion is scheduled for June 1990 at a total cost of \$26 million.

■ Hume Freeway - Bowser to Springhurst

Work started on this 12 km duplication of the existing highway in March 1987. It will increase safety, reduce travel times and reduce problems with flooding. Completion is expected in July 1989 at an estimated \$15 million.

■ Euroa Bypass - Hume Freeway

This 8 km bypass is from Western Interchange to Cemetery Lane. The first major contract was let in May 1989, and the project is due for completion in July 1991 at an estimated \$39 million.

■ Hume Freeway - Euroa to Balmattum

This 8 km section of mainly duplication extends from Cemetery Lane to north of Balmattum Boundary Road. Works are well advanced with completion expected in mid 1990 at an estimated \$16 million. This will eliminate a section of the highway with a serious accident history.

■ Wangaratta Bypass - Hume Freeway

This 19 km bypass will be the last section of the Hume Freeway to be constructed, providing a duplicate carriageway through to the NSW border. It extends from the Fifteen Mile Creek south of Wangaratta to Bells Lane north of the city and is due to be completed in 1995 at \$76 million.

■ Springhurst to Chiltern - Hume Freeway

The 5.5 km section from Adams Road to Horns Road is well advanced and is due to be opened in March 1990 for \$7 million. The 2.8 km section from north of Springhurst to Adams Road will start in November 1989 and should be opened in March 1990 at a cost of \$6 million.

■ Hume Freeway - Barnawartha

The 3.3 km divided carriageway from Cemetery Lane to Mt Lady Franklin will have its main length opened in December 1989 and be finished in April 1990 for \$8 million.

■ Glenrowan Bypass - Hume Freeway

Construction of this 12.5km bypass, from Chivers Road, Glenrowan West, to south of Wangaratta, began in late 1985 and has been completed at a cost of \$31.5 million. Removal of the through traffic including the high percentage of heavy vehicles, will improve the quality of life for Glenrowan residents and tourists.

■ Western Highway - Dimboola Bypass

The 5.6 km two lane two way bypass was opened in May 1989. It carries traffic to the north of Dimboola and eliminates the last remaining level crossing of the Melbourne-Adelaide railway by the Western Highway.

■ Western Ring Road Broadmeadows Section

Work commenced on the first stage of this 8.5 km project with the construction of earthworks for the Tullamarine Freeway interchange and service relocation. The project will link the Tullamarine Freeway with the Hume Highway crossing Moonee Ponds Creek and passing underneath Pascoe Vale Road and the adjacent standard gauge and broad gauge rail tracks.

■ Other Projects Under Construction

- Princes Highway East: Bridge over the Brodribb River
- Pyrenees Highway: Bridge over Loddon River at Newstead
- Princes Freeway West: Forsythe Road Interchange
- West Gate Freeway: Ramps at Todd Road
- Duplication of Bell Street in Merri Creek Area.

■ Direct Works For Municipalities

Road Duplications, Lane Additions and improvements in the Metropolitan Area progressed on:

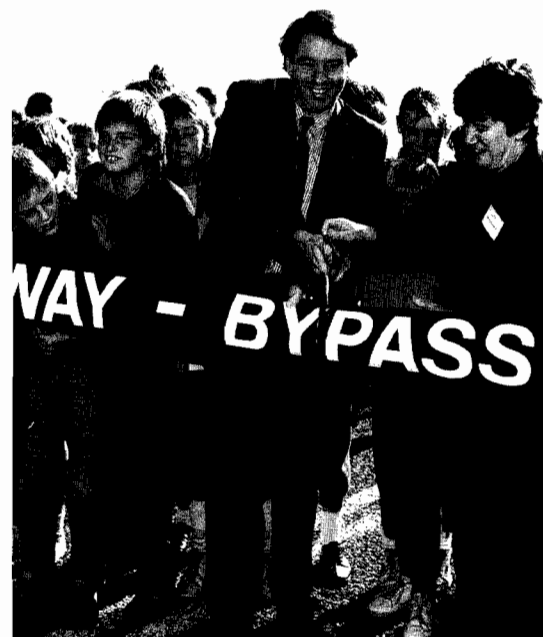
- Dorset Road
- Doncaster Road (Northerly)
- Ferntree Gully Road
- Stud Road
- Boronia Road
- Boundary/Wells Road
- Warrigal Road
- Footscray Road
- Wantirna-Sassafras Road
- Heidelberg-Eltham Road

Roadworks were undertaken at the following district centres:

- Frankston
- Waverley
- Moonee Ponds
- Dandenong

Major bridgeworks in rural municipalities included:

- Shire of Goulburn - Chinamans Bridge (Heathcote-Nagambie Road)
- Shire of Heytesbury and Warrnambool - Curdies River (Timboon-Curdievale Road)



Transport Minister Mr Jim Kennan and Senator Olive Zakharov opening the Dimboola Bypass on the Western Highway

ROAD CLASSIFICATIONS

The management of the road system involves a number of initiatives which are either part of general maintenance or special measures to improve safety or amenity such as the Roadside Hazard Management Program or the Metropolitan Direction Signing Scheme.

The road system itself is divided into classified and unclassified roads, according to the terms of the Transport Act 1983. Classified roads are the responsibility of the Road Construction Authority and they are divided into State highways, freeways, tourists' roads, forest roads, and main roads. All roads not included in the above are unclassified and are the responsibility of Local Government.

■ State Highways

Principal arteries that provide interstate connection and links between larger centres in the State. Some are part of the National route system, with uniform numbering throughout Australia.

RCA accepts full cost of construction and maintenance needed for through traffic. At 30 June 1989, Victoria had 7052 km of State Highways.

■ Freeways

Usually with dual carriageways and no direct access from properties or from side roads. Most crossings by overpass or underpass. Traffic enters and leaves by ramps.

RCA accepts full cost of construction and maintenance. At 30 June 1989, Victoria had 516 km of freeways.

■ Tourists' Roads

Provide access to places of special interest to tourists, both in summer and winter.

RCA accepts full costs of works needed for through traffic, usually done by municipalities under direct supervision of RCA staff. At 30 June 1989, Victoria had 845 km of tourists' roads.

■ Forest Roads

In or near State forests or in timbered, mountainous or undeveloped areas.

RCA accepts the full cost of works needed for through traffic, with about half the work undertaken by municipal councils. At 30 June 1989, Victoria had 1003 km of forest roads.

■ Main Roads

Link major centres, plus roads within areas of industry, commerce or settlement. Usually built and maintained by municipal councils to the satisfaction of and with financial help from the RCA.

In some cases, at the request of the council and with the approval of the Minister, works are done under the direct supervision of RCA staff. At 30 June 1989, Victoria had 14,821 km of main roads.

■ Unclassified Roads

Roads not declared or proclaimed under the Transport Act 1983. These roads are the responsibility of municipal councils.

However, the RCA helps finance construction and maintenance works, generally in accord with priorities allotted by councils. Municipal contributions, determined at the time of the RCA allocation, are based on many factors including the nature, extent and location of the work and the financial position of each council.

■ Statewide Review of Road Classifications

The transport function of many roads in Victoria has changed over time. Roads which once performed important functions no longer do so and other roads, once unimportant, now carry substantial traffic.

A Review of Road Classifications is being undertaken in conjunction and close co-operation with local Government.

The review will bring the differing federal and State road classification systems into line, to recognise the current function of roads and to provide appropriate funding support for their management.

LENGTHS OF ROAD NETWORK IN VICTORIA

■ Lengths of State Highways

declared at 30 June 1989

Highways	Length
Bass	60.6
Bellarine	32.3
Bonang	115.2
Borong	125.6
Burwood	20.4
Calder Alternative	20.1
Calder*	541.5
Cann Valley	44.0
Eastern*	1.3
Glenelg	285.5
Goulburn Valley	237.6
Greensborough ByPass	3.0
Hamilton	231.0
Henty	338.2
Hume*	99.3
Kiewa Valley	78.7
Loddon Valley	124.1
Maroondah	184.4
Maroondah Link	4.6
Mcivor	44.3
Melba	65.2
Midland*	498.4
Midland Link	8.9
Murry Valley	732.1
Nepean	90.5
Northern	162.1
Omeo	281.1
Ouyen	130.8
Ovens	76.0
Princes (East)*	474.0
Princes (West)*	400.8
Pyreness	148.3
Robinvale	17.5
South Eastern Arterial	6.7
South Gippsland	254.1
State	48.6
Sturt	113.8
Sunraysia	340.0
Warburton	35.0
Western*	354.1
Wimmera	223.2
Total	7052.0

*does not include length of Freeways

■ Lengths of Freeways

declared at 30 June 1989

Freeways	Length
Calder	19.3
Eastern	11.0
Frankstone	6.1
Hume	210.8
Midland	9.7
Mornington Peninsula	21.9
Mulgrave	19.9
Princes (East)	44.5
Princes (West)	51.5
South Eastern	6.8
South Gippsland	9.3
Tullamarine	21.7
West Gate	9.7
Western	74.1
Total	516.0

■ Lengths of Tourists' Roads

declared at 30 June 1989

Tourists' Roads	Length
Acheron Way	35.5
Alpine	82.5
Arthurs Seat	8.9
Bogong High Plains	67.6
Cameron Drive	4.5
Donna Buang	34.2
Gipsy Point	2.6
Grampians	69.6
Great Ocean	210.2
Lake Mountain	10.6
Mallocoota	22.9
Marysville-Woods Point	18.9
Mount Abrupt	24.7
Mount Baw Baw	33.9
Mount Buffalo	38.8
Mount Buller	25.6
Mount Dandenong	21.9
Mount Victory	30.5
Otway Lighthouse	13.4
Phillip Island	24.1
Silverband	8.4
Sydenham Inlet	21.7
Wartook	3.3
Wilson's Promontory	30.7
Total	845.0

■ **Lengths of Forest Roads**
declared at 30 June 1989

Forest Roads	Length
Bairnsdale-Dargo	20.9
Bealiba-Moliagul	9.4
Beech Forest-Mount Sabine	12.4
Benambra-Corryong	75.0
Benambra-Limestone	13.8
Bendoc-Orbost	19.0
Brookville	15.4
Bruthen-Buchan	36.8
Bullumwaal-Tabberabbera	27.5
Carrajung-Woodside	17.9
Dargo	73.4
Deans Marsh-Lorne	22.4
Drummond-Vaughan	20.3
Epsom-Fosterville	20.5
Forrest-Apollo Bay	19.6
Greendale-Trentham	24.2
Heyfield-Jamieson	145.8
Inglewood-Rheola	17.4
Kimbolton	10.9
Lavers Hill-Cobden	44.7
Meredith-Steiglitz-Maude	20.8
Murrungower	20.7
Portland-Nelson	38.6
Red Knob	7.2
Tatong-Tolmie	36.3
Timbarra	19.5
Walhalla	110.2
Warburton-Woods Point	102.3
Total	1003.0

SNOW CLEARING

The number of snow days, and the costs, excluding the clearing of carpark for the Alpine Resorts Commission, are shown below.

■ **Snowfall details and clearing costs**

Road	Resort	Snow Days		\$ Cost	
		1987	1988	1987	1988
Alpine	Mt. Hotham	27	29	529,101	530,241
Mt. Buffalo	Mt. Buffalo	19	15	150,242	121,498
Mt. Buller	Mt. Buller	24	26	199,638	145,730
Bogong High Plains	Falls Creek	24	20	178,736	147,962
Omeo Highway	Mt. Wills	5	5	3,500	2,155
Lake Mountain	Lake Mountain	14	4	12,500	5,252
Mt. Donna Buang	Mt. Donna Buang	7	3	3,300	1,573

The Road Construction Authority received funds during 1988/89 from State and Federal sources. Details of funds and the expenditure of those funds (in cash items) are shown in the pie charts.

■ Funds from State Sources

State funds are received primarily by an appropriation from the current account and, to a lesser extent from revenues collected directly by the RCA.

■ Funds from Federal Sources

The Federal Government provided road funds totalling \$243.8 million to Victoria under the provisions of the Australian Bicentennial Road Development Trust Fund Act 1982, the Australian Land Transport (Financial Assistance) Act 1985, and the Australian Centennial Roads Development Act 1988.

The RCA received its share of Federal Road Funds by an appropriation from the Works and Services Account.

Federal Road Funds are also provided to the Road Traffic Authority for works under the Traffic Facilities Program and an amount of \$9.0 million was made available to the Metropolitan Transit Authority for works on Urban Public Transport Projects which are designed to relieve traffic pressures on Urban Arterial Roads.

■ Program Budgeting

Parliamentary appropriations of funds are made for programs rather than for the general operations of individual departments and authorities. Programs are service-oriented. They contribute to State and Federal Government policies and initiatives such as economic development, the metropolitan policy, tourism, regional industry policies and social justice. These policies translate to assistance for freight, public transport and cyclists, road safety, environmental improvements and development projects.

The bar charts present expenditure by the Road Construction Authority in the current and previous financial years for each of the programs for which the RCA is responsible.

The sub-programs of asset preservation, operational and safety improvements and major network development (covering projects costing over \$2 million on rural arterial and local roads and over \$10 million on urban arterial and national roads) enable improved management of Victoria's \$30 billion road asset. Special components in each of the sub-programs address specific road needs, relieve operational or safety problems or contribute to other government initiatives.

■ Municipal Allocations

During the 1988/89 financial year the RCA allocated \$172 million to Victoria's 210 municipal councils and French Island for the maintenance, construction, reconstruction and improvements of main and unclassified roads.

Municipal works contribute significantly to the continued upgrading and maintenance of Victoria's road system. Councils form an important resource base as much of the work on arterial roads is carried out by them.

These works were funded from both Federal and State sources and the allocations were in accordance with the government's goals and objectives which are to:

- support freight, commerce and tourism to assist the State Economic Strategy;
- support the government's Metropolitan Policy 'Shaping Melbourne's Future';
- improve road safety
- protect and enhance the environment.

The municipal allocation for main and unclassified roads include the following special allocations:

- (a) \$3.389 million for works which were required to assist in the implementation of or provide relief from the impact of Government policies, e.g. grain movements, rail line closures etc.;
- (b) \$0.387 million for the construction and improvement of road access to tourist resorts or areas of a tourist nature;
- (c) \$0.396 million for works on roads in or giving access to national parks;

(d) \$0.980 million to assist municipal councils in the improvement of street lighting;

(e) \$49,000 to assist municipal councils in the improvement and protection of roads adjacent to state forests and to facilitate the extraction of forest produce.

(f) \$768,000 under the Natural Disaster Relief Scheme. These funds were provided by the State Government for emergency and restoration works on roads damaged by floods.

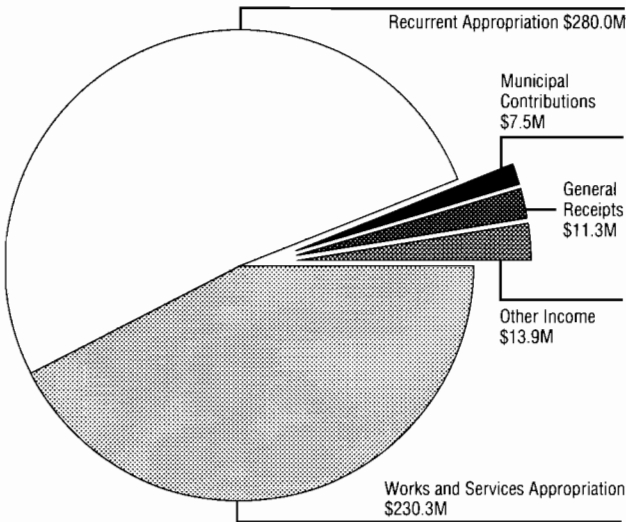


Figure 15.
RCA revenue 1988/89.

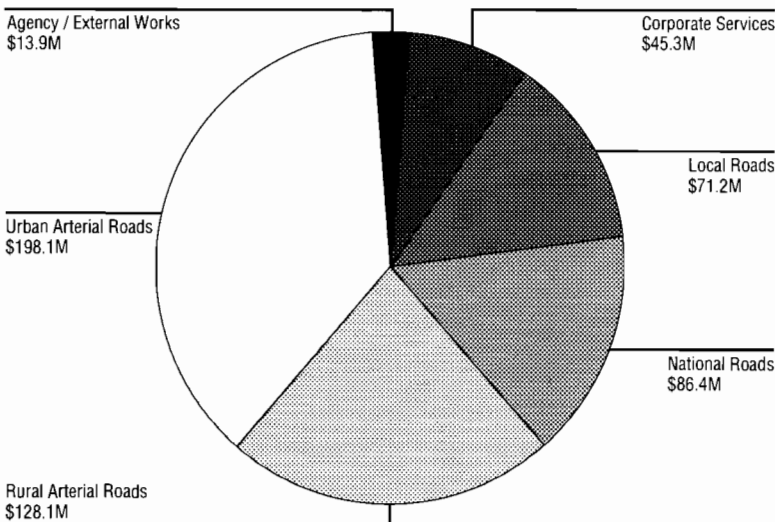


Figure 16.
RCA expenditure 1988/89.

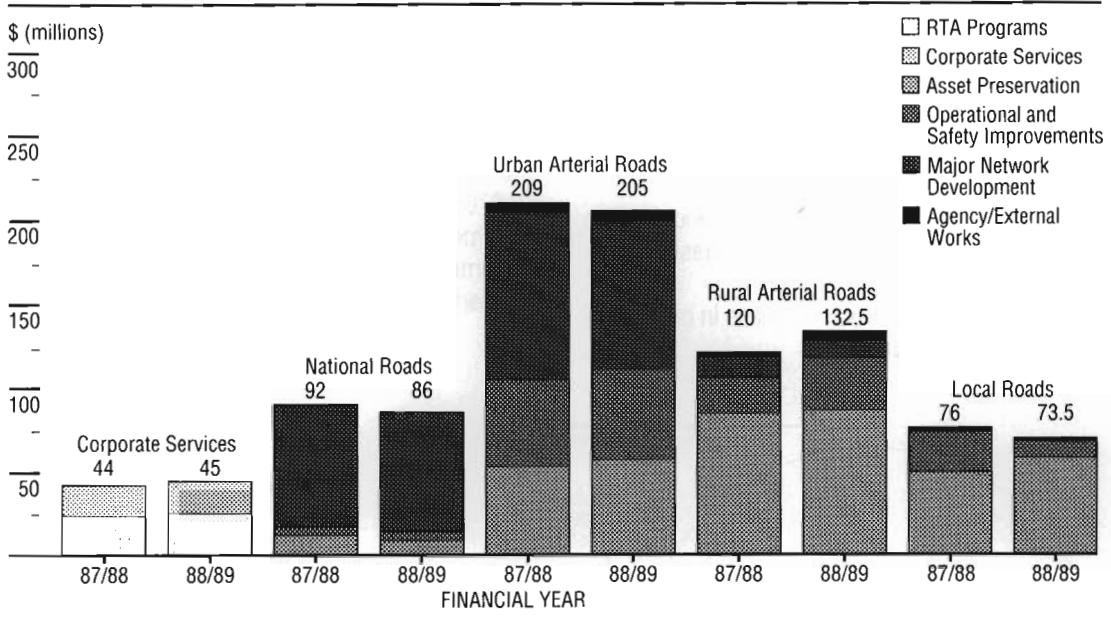


Figure 17.
RCA expenditure in a program budgeting format (on a cash accounting basis).

Financial Statements

■ Road Construction Authority Revenue and Expense Statement

For the year ended 30 June 1989

Items	Notes	1989	1988
		\$000	\$000
Revenue			
Recurrent Appropriations		280,000	278,400
Works and Services Appropriations	4.1	187,168	211,244
Operating Contributions	4.2	8,899	8,903
Other Income	4.3	45,643	37,434
Total Revenue		521,710	535,981
Less Operating Expenses			
Road Expenditure	5.1	430,007	412,638
Management and Operating Expenditure	5.2	142,774	135,996
Special Payments	5.3	25,555	24,526
Finance Expenses		6	35
Abnormal Items	5.4	12,294	(21,939)
Total Operating Expenses		610,636	551,256
Deficit for the year		(88,926)	(15,275)
Accumulated Deficit at beginning of year	6.2	(482,232)	(466,957)
Accumulated Deficit at end of year		(571,158)	(482,232)

The accompanying notes form part of these financial statements.

■ Road Construction Authority Balance Sheet

As at 30 June 1989

Items	Notes	1989	1988
		\$000	\$000
Equity			
Contributed Capital		611,222	406,293
Asset Revaluation Reserve	6.1	426,698	36,577
Accumulated Deficit	6.2	(571,158)	(482,232)
Total Equity		466,762	(39,362)
Current Liabilities			
Bank Overdraft		24,648	28,895
Creditors and Other Accruals		66,167	46,643
Liabilities - Property	7.1	14,671	8,017
Provisions for Employee Entitlements	7.2	24,966	24,290
Other Provisions	7.3	282	159
Total Current Liabilities		130,734	108,004
Non-Current Liabilities			
Liabilities-Property	7.1	90	
Provisions for Employee Entitlements	7.2	328,192	287,209
Other Provisions	7.3	723	579
Total Non-current Liabilities		329,005	287,788
Total Equity and Liabilities		926,501	356,430
Current Assets			
Cash in Hand and Deposits	8.1	24,578	28,993
Debtors and Prepayments	8.2	10,480	11,255
Inventories	8.3	21,356	21,242
Repayable Advances - Municipalities	8.4	109	112
Property Loans	8.5	68	71
Total Current Assets		56,591	61,673
Non-Current Assets			
Repayable Advances - Municipalities	8.4	888	997
Property Loans	8.5	301	470
Land and Improvements in Service	8.6	54,829	42,709
Land and Buildings Acquired for Roadworks	8.7	765,946	208,111
Leaseholds	8.8	176	192
Fixed Assets	8.9	47,770	42,278
Total Non-current Assets		869,910	294,757
Total Assets		926,501	356,430

The accompanying notes form part of these financial statements.

■ **Road Construction Authority Consolidated Statement of Changes in Equity**

For the year ended 30 June 1989

	Notes	Contributed Capital	Asset Revaluation Reserve	Accumulated Deficit	1989 Total	1988 Total
		\$000	\$000	\$000	\$000	\$000
Balance at beginning of year		406,293	36,577	(482,232)	(39,362)	(38,660)
Deficit for the year				(88,926)	(88,926)	(15,275)
Capital Funding	4.1	43,132			43,132	25,501
Sale of Fixed Assets						
Proceeds paid to Consolidated Fund	2.11	(16,538)			(16,538)	(13,996)
Properties from MMBW	2.3	178,335			178,335	
Asset Revaluation	6.1		390,121		390,121	3,068
Balance at end of year		611,222	426,698	(571,158)	466,762	(39,362)

The accompanying notes form part of these financial statements.

■ **Road Construction Authority Statement of Sources and Applications of Funds**

For year ended 30 June 1989

	1989		1988	
	\$000	\$000	\$000	\$000
Sources of Funds				
<i>Funds from Operations</i>				
Inflows of funds from operations				
Recurrent Appropriations	280,000		278,400	
Works and Services Appropriation	187,168		211,244	
Operating Contributions	8,899		8,903	
Other Income	24,372	500,439	16,642	515,189
Proceeds from Sale of Non-Current Assets		21,271		20,792
		521,710		535,981
Outflows of funds from operations		525,555		502,011
Net Funds from Operations (1)		(3,845)		33,970
Contributed Equity				
Contributed Capital (Notes 2.12, 4.1)	43,132		25,501	
Less Proceeds from Sale of Fixed Assets paid to Consolidated Fund	16,538	26,594	13,996	11,505
Reduction in Assets				
<i>Current Assets</i>				
Cash in Hand and Deposits	4,415		1,274	
Debtors and Prepayments	775		(4,632)	
Property Loans	3		53	
Repayable Advances-Municipalities	3	5,196	(2)	(3,307)
<i>Non-Current Assets</i>				
Repayable Advances - Municipalities	109		113	
Property Loans	169		(135)	
Book Value of Non-Current Assets Sold	14,500	14,778	13,326	13,304
Increase in Liabilities				
<i>Current Liabilities</i>				
Liabilities - Property	6,654		(2,938)	
Creditors and Other Accruals	19,524	26,178	8,222	5,284
<i>Non-Current Liabilities</i>				
Liabilities-Property		90		
Total Sources of Funds		68,991		60,756

The accompanying notes form part of these financial statements.

■ **Road Construction Authority Statement of Sources and Applications of Funds**

For year ended 30 June 1989 (continued)

	1989		1988	
	\$000	\$000	\$000	\$000
Applications of Funds				
<i>Increase in Assets</i>				
Current Assets				
Inventories		114		(4,591)
Purchases of Non-Current Assets				
Fixed Assets	20,638		14,255	
Land and Improvements in Service	1,701		2,896	
Land and Buildings Acquired for Roadworks	20,793	43,132	19,646	36,797
<i>Decrease in Liabilities</i>				
Current Liabilities				
Bank Overdraft	4,247		1,279	
Leased Equipment Liability	-		495	
Quarry Restoration	-	4,247	5	1,779
Payment of Employee Entitlements		21,498		26,771
Total Applications of Funds		68,991		60,756
Note (1)				
Reconciliation of net funds from operations with net deficit for the year is as follows:-				
Deficit for year		(88,926)		(15,275)
Add:				
Depreciation	10,753		8,856	
Amortisation	16		335	
Employee Benefits	63,155		28,406	
Other Provisions	267		171	
Fixed Assets written off	7,362		-	
Land and Buildings Incorporated into Roadworks	9,661		9,589	
Land and Buildings Acquired for Roadworks - Prior period adjustment (Note 5.4)	(6,133)	85,081	1,888	49,245
Net Funds from Operations		(3,845)		33,970

The accompanying notes form part of these financial statements.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS

For the financial year ended 30 June 1989
ROAD CONSTRUCTION AUTHORITY

■ 1. FORM & CONTENTS OF FINANCIAL STATEMENTS

The Financial Statements of the Road Construction Authority have been prepared in accordance with the Transport Act 1983 and comply, in all material respects, with the Annual Reporting Act 1983 and the Annual Reporting (Contributed Income Sector) Regulations 1988 and Australian Accounting Standards where applicable.

The Authority has rounded off amounts in these statements to the nearest one thousand dollars. Comparative figures have been adjusted to conform with changes in presentation in 1989.

■ 2. STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

□ 2.1 GENERAL

These Financial Statements have been drawn up on an accrual basis in accordance with the historical cost convention except where otherwise stated.

□ 2.2 ROADS AND BRIDGES

(a) Expenditure on roads and bridges, except for property acquisition, is expensed in the year in which it is incurred.

A project team has been formed to develop an appropriate method of capitalising such expenditure in 1989/90.

(b) Expenditure on the acquisition of land and buildings required for roadworks is capitalised until such time as formal possession of the properties takes place for the purpose of commencing construction of the roadway.

□ 2.3 LAND AND BUILDINGS ACQUIRED FOR ROADWORKS

(a) Property Liabilities and Commitments

In circumstances where:

- land and buildings are the subject of compulsory acquisition,
- final settlement has not been achieved at balance date, and
- the Authority has taken possession of the land and buildings for the purpose of commencement of roadworks,

the acquisition is recognised as an expense of the year and included as a liability based on a full independent valuation which includes acquisition costs (refer Note 7.1). Where formal possession has not occurred at balance date appropriate commitments have been disclosed in Note 9(ii)(a).

(b) Land and Buildings not incorporated into roadworks

Properties have been included in the Balance Sheet at 30 June 1989 values. It is the RCA's policy to revalue all its properties every three years. A complete kerbside revaluation was carried out in 1988/89. For properties with an estimated value in excess of \$200,000 valuations are performed by independent valuers. For properties with an estimated value less than \$200,000 valuations are undertaken by experienced RCA staff.

At any point in time, the Authority carries in its Financial Statements a large number of properties acquired from owners affected by planning scheme reservations. Bearing in mind the long holding periods, revisions to planning reservations and limited funding, the majority of these properties are unlikely to be incorporated into roadworks in the near future and therefore the Authority considers that the Financial Statements should reflect the current kerbside value of these properties.

(c) Residual Land – Isolated Fragments

Following the completion of roadworks, the Authority retains many small and isolated fragments of land representing residual property adjoining the road reservations.

The fragments, although not part of the road reservation, have no apparent market value and have not been included as assets in the Financial Statements of the Authority.

If at some future date an adjoining property owner should desire to purchase any such fragment of land, the revenue from the sale of the property will be brought to account at that time.

(d) MMBW Properties

The properties received free of charge from the MMBW on 30 June 1989 are shown in the Balance Sheet at current valuation based on kerbside valuations by independent valuers, with a corresponding increase in equity.

□ 2.4 LAND AND IMPROVEMENTS IN SERVICE

In accordance with RCA policy to revalue all of its properties every three years, land and improvements in service have been revalued at 30 June 1989 on the basis of kerbside valuations by independent valuers.

□ 2.5 FIXED ASSETS VALUATION

To achieve consistent final accounts in 1988/89 for the two authorities which formed the Roads Corporation from 1 July 1989, the Authority reviewed its policies in regard to fixed assets recording and identification. As a result of inadequacies in existing fixed assets records, the Authority has assigned deemed values to the plant and motor vehicles confirmed in a physical stocktake conducted during 1988/89. These deemed values were based on the estimated written down historical cost as assessed by technically experienced internal staff as at 30 June 1989.

Other fixed assets, that is equipment, identified during the physical stocktake are valued at historical cost. In accordance with normal accounting practice other fixed assets acquired at a value less than \$1,000 per item have been expensed. The effect of this change of policy in 1988/89 was \$935,000.

□ 2.6 DEPRECIATION

(a) With the exception of land, depreciation is provided on all fixed assets used in day to day operations so as to write off the cost of these assets over their useful lives. Plant is depreciated using the straight line method. All other assets are depreciated using the diminishing balance method. A full year's depreciation is charged against the value of assets except for current year additions, improvements and disposals where depreciation commences or ceases in the month in which the asset is purchased or sold.

For all fixed asset classes the accumulated depreciation prior to revaluation has been credited to the asset account to establish the increment on revaluation which has been credited to the Asset Revaluation Reserve.

(b) Depreciation is not charged on buildings on land acquired for roadworks due to the nature of the assets. Refer Note 2.3(b). This policy will be addressed in 1989/90.

2.7 INVENTORIES

(a) Inventories of stores and precast materials held in depots have been valued at average cost.

(b) Stockpiles of construction and maintenance materials "on site" with a value in excess of \$2,000 have been taken into account at cost.

2.8 DOUBTFUL DEBTS

The provision for doubtful debts is based on the examination and assessment of each individual debt.

2.9 PROVISIONS FOR EMPLOYEE ENTITLEMENTS

The Authority has recognised and brought to account employee entitlements accruing from annual leave, long service leave and superannuation as follows:

(a) The liability for accrued annual leave has been calculated using the actual leave outstanding for each employee at 30 June 1989 and pay rates applicable at that date (including leave loadings).

(b) The provision for long service leave has been calculated for employees with a continuous length of service in excess of four years. This is a change of policy from last financial year when the liability was recognised for employees with a continuous length of service in excess of five years. The change in policy which increased the provision by \$369,000 in 1988/89, resulted from adoption of a policy consistent between the two authorities that precede the Roads Corporation.

The provision has been valued using the calculated entitlements for each employee at 30 June 1989 and pay rates applicable at that date. The amount estimated to be payable in the next 12 months is shown as a current liability.

(c) Road Construction Authority employees contribute to one of the following schemes; the State Superannuation Scheme, the State Employees Retirement Benefits (SERB) Scheme, the Transport Superannuation Scheme, the Melbourne and Metropolitan Board of Works (MMBW) Superannuation Scheme, the National Mutual Life (NML) Superannuation Scheme or the Colonial Mutual Life (CML) Superannuation Scheme.

In so far as the Transport, SERB, MMBW, NML and CML Schemes are concerned the Authority meets its liabilities under each scheme by making progressive payments to each scheme in accordance with agreed contribution rates.

For the State Superannuation Scheme, the Authority contributes to the cost of entitlements paid on the retirement, death or incapacity of the contributor. The Authority maintains a provision for the estimated employer portion of future superannuation entitlements payable to contributors. This provision has been based on an independent actuarial assessment provided by William M. Mercer, Campbell Cook and Knight Pty Ltd. The amount estimated to be payable in the next 12 months is shown

as a current liability.

(b) The provision for Workers' Compensation covers the estimated liability under the old Workers' Compensation Act for injuries that occurred prior to the introduction of WorkCare. The provision is assessed by the State Insurance Office on the basis of claims outstanding at 30 June 1989.

2.10 OTHER PROVISIONS

Other provisions covering quarry restoration and precast formwork are calculated on the basis of costs applicable at 30 June 1989.

2.11 DISPOSAL OF SURPLUS ASSETS

In accordance with Section 66(4)(b) of the Transport Act 1983 the net proceeds arising from the disposal of certain assets of the Authority are paid into the Consolidated Fund.

2.12 CONTRIBUTED CAPITAL

Contributed Capital comprises the book value of all loans centralised in accordance with Transport (Amendment) Act 1986, plus the proportion of Works and Services Appropriations from the State Government used to acquire fixed assets less the net proceeds from the sale of assets paid into the Consolidated Fund.

2.13 REVENUE RECOGNITION

Revenue in respect of services or works provided by the Authority is recognised at the point of service delivery.

3. EVENTS SUBSEQUENT TO BALANCE DATE

With the enactment of the Transport (Amendment) Act 1989 the Road Construction Authority and the Road Traffic Authority were abolished and the Roads Corporation became the successor in law of those Authorities as from 1 July 1989.

4. REVENUE

4.1 WORKS AND SERVICES APPROPRIATIONS

	1989	1988
	\$000	\$000
Works and Services Appropriation	230,300	236,745
Less Transfer to Contributed Capital	43,132	25,501

Works and Services Appropriation deemed to be revenue of the Authority 187,168 211,244

In 1988 the net increase in fixed assets was shown as a transfer to contributed capital. Refer Note 2.12.

4.2 OPERATING CONTRIBUTIONS

This item represents contributions from Federal and State Government bodies for work on projects and programs of a special nature to be carried out on their behalf by the Road Construction Authority and its Agents. Expenditure on such works during 1988/89 is described under Note 5.1(g).

□ 4.3 OTHER INCOME

	1989	1988
	\$000	\$000
Rental Income	5,060	4,441
Municipal Contributions	7,358	7,198
Interest	2,452	1,814
Property Enquiry Fees	1,211	1,080
Proceeds from Sale of Non-Current Assets*	21,271	20,792
Income-External Works	5,647	1,083
Other	2,644	1,026

Total Other Income **45,643** **37,434**

*After taking into account the book value of non-current assets sold (Note 5.2), the profit on sale was \$6,771,000 (1988 – \$7,466,000).

■ 5. EXPENDITURE

□ 5.1 ROAD EXPENDITURE

	1989	1988
	\$000	\$000
(a) Main Roads		
Construction & Reconstruction	62,267	55,122
Maintenance	38,855	35,691
(b) State Highways		
Construction & Reconstruction	82,095	79,199
Maintenance	49,910	41,626
(c) Freeways		
Construction & Reconstruction	97,878	101,647
Maintenance	15,142	11,929
(d) Tourists' Roads		
Construction & Reconstruction	2,435	3,169
Maintenance	6,110	5,453
(e) Forest Roads		
Construction & Reconstruction	1,407	1,424
Maintenance	2,490	2,350
(f) Unclassified Roads		
Construction & Reconstruction	47,915	59,226
Maintenance	12,460	10,797
	418,964	407,633

*Note: This includes amounts paid/payable to the Metropolitan Transit Authority (now part of the Public Transport Corporation) for reconstruction of roadways associated with the reconstruction and relaying of tram tracks.

(g) Works Performed for Other Authorities

	1989	1988
	\$000	\$000
Road Traffic Authority -		
Traffic Facilities Program	7,515	7,633
Other Authorities	1,179	889
Total Works Performed for Other Authorities	8,694	8,522

(h) Other

	1989	1988
External Works	5,094	1,306
Murray River Bridges and Punts	653	474
Traffic Line Marking	6,797	4,410
Under/(Over) Absorption on Operations	(10,195)	(9,707)
	2,349	(3,517)

Total Road Expenditure **430,007** **412,638**

□ 5.2 MANAGEMENT AND OPERATING EXPENDITURE

	1989	1988
	\$000	\$000
Planning and Research	933	490
Management and Operating		
Salaries and Associated Costs	91,618	93,516
Administrative Overheads	17,210	13,537
Technical Services Overheads	3,452	4,472
Property Maintenance	2,692	1,798
Depreciation		
- Improvements in Service	1,578	1,603
- Plant and Motor Vehicles	4,341	3,787
- Equipment	4,833	2,163
Amortisation		
- Leased Equipment (computer)	-	319
- Leaseholds	16	16
Bad Debts	9	13
Doubtful Debts	24	58
Book Value of Non-Current		
Assets Sold	14,500	13,326
Audit Fees	151	54
Other	1,417	844

Total Management and Operating Expenditure **142,774** **135,996**

□ 5.3 SPECIAL PAYMENTS

	1989	1988
	\$000	\$000
Road Traffic Authority (1)	25,112	24,075
Ministry of Transport (2)	443	451
Total Special Payments	25,555	24,526

(1) Payment represents a contribution towards the cost of administration of the Road Traffic Authority and reimbursement of administration fees associated with the issue of Mass Limit Increase Permits by the Road Traffic Authority.

(2) Payment represents a contribution towards the costs of administration of the Ministry of Transport.

□ 5.4 ABNORMAL ITEMS

	1989	1988
	\$000	\$000
(i) Recognising the inadequacies of fixed asset records, a complete physical stocktake was undertaken during 1988/89. The stocktake confirmed that the value of fixed assets was previously overstated and has been reduced to reflect assets on hand at 30 June 1989.	6,427	-
(ii) Liability under superseded Workers' Compensation Legislation for injuries that occurred prior to the introduction of WorkCare Legislation. This liability should have been shown in previous years.	-	3,436
(iii) Depreciation adjustment for reassessment of useful life of various assets.	-	1,302
(iv) Creation of Provision for the Transport Superannuation Scheme Liability.	-	1,035
(v) Adjustments to Properties Acquired for Roadworks for events occurring in prior financial years.	(6,133)	1,888
(vi) Superannuation adjustments as detailed below*:		
- Change in actuarial valuation basis of total superannuation liability	7,000	-
- Increase in superannuation liability due to introduction of new scheme	5,000	9,000
- Change in the method of valuation of total superannuation liability	-	(40,000)
- Experience of the fund between full valuations undertaken in 1984 and 1988, and inappropriate classification of some data.	-	1,400
Total abnormal items	12,294	(21,939)

* The current valuation of the superannuation liability at 30/6/89 identified \$5.0 million which was caused by the effect of the introduction of a new scheme in 1988. In addition the basis of the valuation has been changed in view of future economic predictions, and this has resulted in an increase in the assessed liability of \$7.0 million.

As a result of advice provided by the actuary in explanation of the increase in charges occurring in 1988/89, he was requested to advise whether the calculation of the 1987/88 liability contained items of a similar nature. Information subsequently provided by the actuary revealed that the 1987/88 increase in liability included a number of abnormal items.

Accordingly, it has been considered proper to include these items as comparative figures for 1987/88, after obtaining the Auditor-General's agreement.

They show a reduction of \$40.0 million as the result of a change in the method of valuation by the use of US standards which are commonly used world-wide, an increase of \$9.0 million allowing for the effect of the introduction of the new scheme, and an increase of \$1.4 million relating to the superannuation experience of members of the fund between the full valuations undertaken in 1984 and 1988, and appropriate classification of some data.

■ 6. EQUITY

□ 6.1 ASSET REVALUATION RESERVE

During 1985/86 all land and buildings acquired for roadworks which were purchased prior to 1 July 1985 were revalued (refer Note 2.3(b)). Since 1985/86 some properties have been partially sold or incorporated into roadworks and in these cases the residual land has been revalued when the residual value was unrealistic.

During 1988/89 land and buildings acquired for roadworks, land and improvements in service and some fixed assets held by the Authority at 30 June 1989 were revalued in accordance with Notes 2.3(b), 2.4 and 2.5.

	1989	1988
	\$000	\$000
Balance as at 1 July	36,577	33,509
Movements for the year:		
- Land and buildings acquired for roadwork	373,904	3,068
- Land and improvements in service	12,559	-
- Fixed Assets	3,658	390,121
Balance as at 30 June	426,698	36,577

□ 6.2 ACCUMULATED DEFICIT

Major items contributing to the accumulated deficit include:

- unfunded items such as provisions for employee entitlements and depreciation; and
- road expenditure financed from Capital (equity) sources offset by assets financed from the Authority's income (works and services appropriation).

■ 7. LIABILITIES

□ 7.1 LIABILITIES-PROPERTY

This amount represents the estimated value of land and buildings required for road purposes (and includes acquisition costs) where a Notice of Acquisition has been formally served on the property owner and the Authority has taken formal possession although final settlement had not been achieved at 30 June. (Refer Note 2.3(a)).

Amounts have been based on valuation data prepared by external valuers.

	1989	1988
	\$000	\$000
Current-not later than one year	14,671	8,017
Non-Current-later than one year and not later than two years	90	-
	14,761	8,017

□ 7.2 PROVISIONS FOR EMPLOYEE ENTITLEMENTS

	Current	1989 Non Current	Total	Current	1988 Non Current	Total
	\$000	\$000	\$000	\$000	\$000	\$000
Superannuation	11,100	300,900	312,000	10,000	262,000	272,000
Annual Leave & Leave Loading	7,906	-	7,906	7,284	-	7,284
Long Service Leave +Transport	2,910	26,192	29,102	3,429	22,990	26,419
Superannuation Fund	550	1,100	1,650	141	2,219	2,360
Workers' Compensation	2,500		2,500	3,436	-	3,436
Total Provisions for Employee Entitlements as at 30 June	24,966	328,192	353,158	24,290	287,209	311,499

* In order to become fully funded, it was agreed that the initial liability for the Transport Superannuation Fund, will be paid in instalments over a four year period.

□ 7.3 OTHER PROVISIONS

This item represents amounts provided for precast formwork and future site works, including access roads, and environmental restoration works at the Quarries and Pits operated by the Authority following completion of quarrying operations.

	1989	1988
	\$000	\$000
Current	282	159
Non-Current	723	579
Total Other Provisions as at 30 June	1,005	738

■ 8. ASSETS

	1989	1988
	\$000	\$000

□ 8.1 CASH IN HAND AND DEPOSITS

Cash in Hand	78	43
Short Term Deposit – Victorian Development Fund	24,500	28,950
Total Cash in Hand and Deposits	24,578	28,993

□ 8.2 DEBTORS AND PREPAYMENTS

Debtors	9,915	8,873
Less Provision for Doubtful Debts	193	169
	9,722	8,704
Prepayments	758	2,551
Total Debtors and Prepayments	10,480	11,255

□ 8.3 INVENTORIES

Stores and Precast Materials held in depots	8,764	6,091
Construction/Maintenance Materials held “on site”	12,592	15,151
Total Inventories	21,356	21,242

□ 8.4 REPAYABLE ADVANCES – MUNICIPALITIES

This item represents the value of principal outstanding for loans made to municipalities for specified permanent works carried out during the period 1950 to 1965. These loans are repayable over periods up to 35 years in equal annual instalments as defined in clause 8, Schedule 5 of the Transport Act 1983.

Current-not later than one year	109	112
Non-Current-later than one year and not later than two years	888	997
Total Repayable Advances - Municipalities	997	1,109

□ 8.5 PROPERTY LOANS

Represents outstanding principal due under terms contracts relating to the sale of land and associated improvements.

Current-not later than one year	68	71
Non-Current-later than one year and not later than two years	301	470
Total Property Loans	369	541

□ 8.6 LAND AND IMPROVEMENTS IN SERVICE

This item refers to those assets which are in service (e.g. Offices and Laboratories, Regional Residential Properties, Storage Sites, Depots and Patrol Garages). It is not practical for the valuations to be split, in dollar terms, between those conducted by independent valuers and experienced Authority staff.

	1989	1988
	\$000	\$000
Land		
At Cost	-	757
At Valuation	33,361	10,626
Improvements		
At Cost	-	8,663
At Valuation	21,468	29,023
Total Land and Improvements	54,829	49,069
Less Accumulated Depreciation		
At Cost	-	1,004
At Valuation	-	5,356
Total Written Down Value at 30 June	54,829	42,709

□ 8.7 LAND AND BUILDINGS ACQUIRED FOR ROADWORKS

At 30 June 1989 the Authority owned properties which are required for future roadworks, situated in a planning scheme for future roadworks, surplus to requirements and awaiting final survey after roadworks, or land-locked awaiting plans of consolidation and restoration of access before being sold. Refer to note 2.3.

Where possible, these properties are rented or leased until required for roadworks or sold after being deemed surplus to requirements.

All land and buildings acquired for roadworks are at valuation. It is not practical for the valuations to be split, in dollar terms, between those conducted by independent valuers and experienced Authority staff.

During the course of the valuation process, the Authority identified a number of properties not incorporated into roadworks at 30 June 1989 which were recorded at nil value in the property register. These properties with a valuation of \$7,745,000 have been included in the Balance Sheet.

□ 8.8 LEASEHOLDS

In the course of acquiring properties for future roadworks the Authority purchased a leasehold building which is secured until the year 2000. The capitalised lease value is amortised over the lease period commencing 1986/87. The Property is let providing income to offset the amortisation charges until such time as it is required for roadworks.

Leaseholds	224	224
Less Accumulated Amortisation	48	32
Unamortised Value as at 30 June	176	192

□ 8.9 FIXED ASSETS

	1989	1988
	\$000	\$000
Plant and Motor Vehicles		
– At Cost	-	54,913
– At Authority Valuation	38,455	-
	38,455	54,913
Less Accumulated Depreciation	-	26,644
Total Plant and Motor Vehicles	38,455	28,269
Equipment		
– At Cost	8,535	13,177
– At Authority Valuation	5,577	10,359
	14,112	23,536
Less Accumulated Depreciation	4,797	9,527
Total equipment	9,315	14,009
Total Fixed Assets	47,770	42,278

■ 9. OTHER MATTERS

(i) Contingent Liabilities – Legal

The Road Construction Authority has examined current legal records to provide an estimate of possible material payments resulting from various legal actions. The estimate of such contingent liabilities as at 30 June 1989 was \$2.0 million (1988 - \$6.535 million).

(ii) Commitments

(a) Forward Contracts

The outstanding liability on Capital expenditure contracts as at 30 June is:

	1989	1988
	\$000	\$000
Road, Bridge and Ancillary Works	67,482	74,728
Land Acquisition - formal possession not taken as at 30 June (refer notes 2.3(a) and 7.1)	31,998	16,587
Total value of Forward Contracts as at 30 June	99,480	91,315

(b) Operating Leases

(i) The amount of rental expense under operating leases included in the determination of the 1988/89 deficit amounted to \$3.745 million (1987/88 - \$3.091 million)

(ii) For non-cancellable leases with a lease term in excess of one year, lease commitments aggregated as at 30 June are as follows:

- not later than one year	3,423	2,983
- later than one year and not later than two years	2,678	2,896
- later than two years and not later than five years	2,904	4,932
- later than five years	4,008	4,669
	13,013	15,480

Total Commitments 112,493 106,795

ROAD CONSTRUCTION AUTHORITY

STATUTORY STATEMENT BY CHIEF EXECUTIVE OFFICER AND PRINCIPAL ACCOUNTING OFFICER

In our opinion –

(a) the accompanying financial statements of the Road Construction Authority present fairly the financial transactions of the Authority for the year ended 30 June 1989 and the financial position of the Authority as at that date,

(b) the financial statements of the Authority have been prepared in accordance with the Transport Act 1983 and comply, in all material respects, with the Annual Reporting Act 1983 and the Annual Reporting (Contributed Income Sector) Regulations 1988, and

(c) at the date of signing these statements we are not aware of any circumstances which would render any particulars included in these financial statements to be misleading or inaccurate.

Ian F X Stoney

Chief Executive Officer

Terry Carrigg

Principal Accounting Officer

Dated at Melbourne on 6th November, 1989

AUDITOR-GENERAL'S REPORT

The accompanying financial statements comprising revenue and expense statement, balance sheet, consolidated statement of changes in equity, statement of sources and applications of funds and notes to the financial statements of the Road Construction Authority have been audited as required by the *Transport Act* 1983 and in accordance with Australian Auditing Standards.

As indicated in note 2.3(b) to the financial statements land and buildings acquired for roadworks have been revalued by \$374 million. As these properties have been acquired for future road construction and are not expected to realise their revalued amount through continued use, it is my opinion that these assets should have been valued at the lower of cost or net realisable value. Accordingly, land and buildings acquired for roadworks and the asset revaluation reserve have both been overstated by \$374 million.

In my opinion, except for the effect of the matter referred to above, the financial statements present fairly the state of the affairs of the Road Construction Authority as at 30 June 1989 and the results of its operation for the year ended on that date in accordance with Australian Accounting Standards.

C A Baragwanath
Auditor-General

Melbourne, 14 November 1989

FUNCTIONS AND OBJECTIVES

The Road Construction Authority was set up by the Transport Act 1983. Its functions are:

- To maintain, upgrade, vary and extend the State's declared road network.
- In conjunction with municipalities, to assist in the maintenance, upgrading and construction of other roads.
- Subject to agreement with the Road Traffic Authority to purchase, design, construct, erect, install, maintain and operate traffic signals and other traffic facilities for traffic management and control.
- To determine load limits and advisory speed limits for any road, bridge or culvert and to determine maximum speed limits for travel on those under construction or repair.
- To provide and maintain roadside reserves adjacent to any road for the use or employment of persons using these roads.
- To establish guidelines and requirements for the issue of vehicle mass and dimensions permits.
- To compete on the open market for road construction and other projects.
- To investigate and to promote and to undertake research into any matter related to the performance of its functions, powers or duties.

Objectives required by The Act, of the Road Construction Authority in exercising its functions, are to:

- Make use of available transport resources in ways that are most beneficial to the community and with due regard to the enhancement of the environment.
- Improve the State's principal road network to facilitate the efficient vehicular movement of persons or goods.
- Operate efficiently and effectively within government policy and other parameters determined by the Victorian Transport Directorate.
- Improve productivity
- Establish and maintain a satisfying work environment which ensures the broadest range of consultation beginning at the contemplative stage.
- Maintain an effective decentralised organisation and delegate decision making to appropriate levels in the Authority.
- Maintain harmonious relations between management, staff and employee organisations through the processes of effective consultation and participation in decision making.
- Develop and train all personnel to enhance their work skills to carry out their duties and responsibilities effectively and efficiently, and to interact with the public in a helpful and courteous manner.
- Maintain a high level of motivation, performance, teamwork and safe working practices and develop a sense of commitment to the organisation, with employment conditions in keeping with community standards.
- Facilitate accountability at all levels within the Authority by maintaining suitable information and reporting systems.
- Effectively manage its assets, including real estate, to protect future options, and provide for the planning, design, construction and management of new infrastructure and facilities as required.
- Minimise interference to the community arising from construction, and maintain activities of the Authority.
- Provide mechanisms and full information to enable effective and timely participation by the community in decision making about roadworks.

RCA OFFICES

RCA Head Office

60 Denmark St., Kew, 3101.
Tel: (03) 861 5321
24hr emergency(03) 860 2684

Central Depot

Coleman Pde, Glen Waverley, 3150.
Tel: (03) 235 3333

Regions

East Gippsland Region

John Wilson, Regional Manager
72 Nicholson St, Bairnsdale, 3875.
Tel:(051) 52 3344

Central Highlands Region

David Anderson, Regional Manager
1315 Sturt St, Ballarat, 3350.
Tel:(053) 32 7361

North Eastern Region

Bruce Cochrane, Regional Manager
50 Clarke St., Benalla, 3672.
Tel:(057) 62 2288

Northern Region

John Coles, Regional Manager
57 Queen St., Bendigo, 3550.
Tel:(054) 43 9133

Dandenong Region

Stan Hodgson, Regional Manager
360 Maroondah Hwy, Nunawading, 3131.
Tel:(03) 878 0555

Barwon Region

Colin Kosky, Regional Manager
63 McKillop St., Geelong, 3220.
Tel:(052) 21 4744

Wimmera Mallee Region

John Waddell, Regional Manager
138 Firebrace St., Horsham, 3400.
Tel:(053) 82 0121

Metropolitan Region

Howard Ellis, Regional Manager
700 High St., East Kew, 3102.
Tel:(03) 860 3211

Central Gippsland Region

Norman Butler, Regional Manager
120 Kay St., Traralgon, 3844.
Tel:(051) 74 3311

South Western Region

Bruce Phillips, Regional Manager
29 Jamieson St., Warrnambool, 3280.
Tel:(056) 62 3955

Project Offices

Greensborough Bypass

Peter Evans, Project Manager
48 Sellars St., Greensborough, 3088.
Tel:(03) 435 4366

Hume Freeway

Bill Peyton, Project Manager
Kilfeera Rd., Benalla
PO Box 414, Benalla, 3672.

Broadmeadows Project

Ken Mathers, Project Manager
144 Melrose Drive, Tullamarine, 3043.
Tel:(03) 338 4055

Eastern Projects

Graham Gilpin, Project Manager
463 Waverley Rd, Chadstone, 3148.
Tel:(03) 211 7111

Ballarat Bypass

Neil Brogden, Project Manager
Creswick Rd, Ballarat, 3350.
Tel:(053) 381744

Bell Banksia Project

Trevor Boyd, Project Manager
433 Upper Heidelberg Rd,
Heidelberg, 3084.
Tel:(03) 459 6311

PUBLIC SOURCES OF INFORMATION

Various publications (as shown below) were available at 30 June 1989 from:

Corporate Affairs Section

Road Construction Authority
60 Denmark Street
KEW 3101

ROADS Project Leaflets

Wells Road - Boundary Road Duplication

Western Bypass Proposed Road Link Between
Tullamarine Freeway and Footscray Road

Why You'll Soon Stop Seeing Red About Punt
Road

Western Ring Road, Tullamarine to Laverton North
A Bypass for Dimboola

Bell-Banksia Link, Heidelberg, Information Bulletin

Metropolitan Ring Road, Broadmeadows Project -
Sharps Road to Mahoneys Road

Dandenong Road (PHE Duplication) Bulletins 1 & 2

Springvale Bypass Bulletin No. 1

Lilydale Town Centre Bypass

Calder Freeway, Bypass of Gisborne

Hume Highway, Baddaginnie to Bowser

Hume Highway, Springhurst to Wodonga

Hume Highway, Euroa Section

Mornington Peninsula Freeway Extensions,
Dromana to Frankston

Princes Highway, Bypass of Morwell

Princes Highway, Genoa River Crossing

South Eastern-Mulgrave Arterial Road Link

West Gate Freeway - New Shape for South
Melbourne's Skyline

Bypass of Ballarat

General Publications

Bridges

Great Ocean Road: A Brief History

Guide to the Reduction of Traffic Noise

Heavy Duty Flexible Pavements

Hume 31, A Freeway from Melbourne to Wodonga

Motoring Bulletin (weekly)

Noise Barriers

Roadmarking Today

Roads

Roads (Victoria)

Snow Driving

Summer Driving

History of the Hume Highway

Paving the Way - Roads in Victoria 1913-1988

SID (Socket Inspection Device)

Driver's Guide to Victoria

National Association of State Road Authorities Pamphlets

Cost of Roads

Film and Video tape Catalogue

History and Challenge of Road Transport

The Landscaping of Roads 1982

NAASRA Publications 1988

Road Signs and Markings

Roads and Computers

Roads and Energy

Roads and Public Utilities (revised)

Roads and Vehicle Limits

Roads for Recreation and Tourism

Roads, Bicycles and Bikeways (now finished)

Toll Roads and Bridges

Roads and Pedestrian Safety

Bush Track to Highway -
200 Years of Australian Roads

Roads Construction and Maintenance