

VICTORIA

Report

of the

**MELBOURNE UNDERGROUND
RAIL LOOP AUTHORITY**

for the

Year ended 30 June 1980

Ordered by the Legislative Assembly to be printed

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The Honourable Robert Maclellan, M.L.A.
Minister of Transport,
570 Bourke Street,
Melbourne 3000.

15th October, 1980

Dear Minister,

Pursuant to the provisions of the Melbourne Underground Rail Loop Act, 1970, the Authority submits the following report on its operations for the year ended 30th June, 1980 together with statements of its financial transactions for that year and of its financial position as at 30th June, 1980 which to the best of the knowledge and belief of the Members are certified correct.

It is advised that a commencement date for loop operations is yet to be set by the Victorian Railways Board.

Yours sincerely,

R. B. Roscoe, Chairman

I. F. Beaurepaire, Deputy Chairman

K. A. Allen, Member

G. F. W. Brown, Member

W. H. B. Daddo, Member

W. C. S. Ellis, Member

J. A. Hancock, Member*

Kenneth H. Vial, Member

*Absent overseas.

Members

R. B. ROSCOE, Chairman

I. F. BEAUREPAIRE, C.M.G., Deputy Chairman

K. A. ALLEN

G. F. W. BROWN, C.M.G.

W. H. B. DADDO

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General Manager and Director of Engineering

F. G. Watson, B. A., F.I.E.Aust., F.A.I.M., M.I.E.T., M-S.A.E.-A.

Secretary and Assistant General Manager—Administration

W. L. R. Daniels, F.C.I.S., F.A.S.A.

Consultants—Engineering

John Connell-Mott, Hay & Anderson, Hatch, Jacobs (Principal Consultants)

Railway Construction & Property Board

Victorian Railways Board

Sub-Consultants to the Principal Consultants

McIntyre Partnership

Perrott, Lyon, Mathieson Pty Ltd

Stephenson and Turner

Riley, Barden and Kirkhope

Rider Hunt and Partners

W T Partnership

Golder Associates Pty Ltd

Cameron & Middleton Pty Ltd

Consultants—Property

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Report of

Melbourne Underground Rail Loop Authority

For the year ended 30th June, 1980

Foreword

The presentation of this, the Authority's 10th report to Parliament foreshadows the imminent achievement of one of its major goals—the completion of Museum Station and two of the four loop tunnels.

In the decade since inauguration of the Authority the whole structure of community life has experienced far reaching changes—in some areas, of unprecedented magnitude—and the Authority did not escape the effect of such changes.

Notwithstanding the scale and detailed nature of the studies which preceded the Government's commitment to the Underground Loop project, no one could have foreseen the major shifts in economic and monetary conditions which the decade 1971/1980 was to produce—reflected in persisting inflation on a world wide scale, attendant high interest rates, rising labour costs and industrial instability—all combining to create complex problems in costing and funding of a project of this nature.

Changed community attitudes had their impact on the Authority's planning. The high premium now placed on social and environmental considerations in such matters as noise pollution, structural vibration, air cooling and ventilation led to many amendments and additions to the initial concept.

Not the least of the new concepts was in the field of electronic technology particularly as it now applies to signalling and communication systems.

The METROL joint venture with Victorian Railways became a major project in itself, necessitating the conversion of the control signalling organisation to computer controlled equipment, housed and equipped in the specially designed building in the Flinders Street yards.

That the Underground Loop project has reached a measurable point of achievement in less than ten years from commencement, results from the collective contributions of hundreds of people in both government and private sectors—the professional engineers, architects, technical advisers, site and contracting engineers, together with the workmen who were physically involved in the task of driving tunnels and constructing and equipping stations 30 metres and more below street level.

Throughout the period, while the business community laboured to accommodate itself to changed objectives expressed frequently in monetary terms, the Authority internally enjoyed an exceptional element of stability in personnel and administration. At the end of the 10th year it can claim seven of eight members as original appointees, while all but one of the senior Authority personnel initially engaged are still in the service of the Authority.

Opportunity is taken to record with appreciation the support of the Government, the various Ministries, the Victorian Railways Board, other statutory bodies, professional consultants, investors and financiers, the contractors and the workforce whose collective contributions have brought the long standing concept of the Melbourne Underground close to fruition.

It is fitting that the Authority received recognition by Her Majesty The Queen and His Royal Highness The Duke of Edinburgh during their recent visit to Melbourne by their making an inspection of the Underground at Museum Station, culminating in the conferring by Her Majesty of her name on the plaza above the eastern entrance to the Station. In due course the plaza will be integrated into the Museum Station area redevelopment.

Loop Operation

The loops scheduled to be ready for operation in 1980 concurrently with Museum Station are the Burnley and the Caulfield-Sandringham. However, trains on the Sandringham lines will not use the Loop until late 1982 when, consequent on the opening of the North Melbourne loop, there will be a reduction in the volume of traffic using the viaduct between Spencer and Flinders Streets Stations making it practicable to schedule the Sandringham line trains around the Loop. The Clifton Hill loop/City Circle and Parliament Station are planned to be available for operation by the end of 1981 and the North Melbourne loop and Flagstaff Station by the end of 1982.

Utilisation of completed sections of the Loop following certification of completion by the Authority and transfer to the Victorian Railways Board will be the sole responsibility of that Board.

1979-80 in Review

By the end of the year all tunnelling works, with the exception of a short box-section length for the North Melbourne Loop, were virtually complete with the emphasis being placed on the final equipping of tunnels for train operation and the installing of station finishes.

In the Burnley and Caulfield-Sandringham loops, track laying was completed and overhead traction wiring, signalling, lighting, communications and monitoring equipment, water and compressed air mains, and ventilation and pumping systems were installed.

In the Clifton Hill loop/City Circle and the North Melbourne loop the installation of services (as for the Burnley and Caulfield-Sandringham loops) was commenced and tracklaying commenced in the Clifton Hill loop/City Circle.

Work commenced on the final section of tunnel under Dudley Street just east of the railway bridge.

At Museum Station (the first of the underground stations to come into operation) satisfactory progress was made in the installation of escalators and lifts, booking hall facilities, architectural finishes, noise absorption devices and computer controlled passenger information visual display units on the concourse platforms.

Work continued on Parliament Station booking halls and on Flagstaff Station.

During the year the Melbourne Underground Rail Loop Act was amended to give the Authority the wider powers required for the redevelopment of its land no longer required for Loop construction purposes and adjacent land acquired for such redevelopment.

The Years Ahead

The near completion of two loops and Museum underground station represents very significant progress towards the accomplishment of the Authority's Loop construction program. Completion of the two further loops and underground stations involves completion of 290 contracts, including 59 yet to be awarded, and expenditure of approximately \$128 million (at June 1980 prices).

As Loop construction approaches culmination the Authority is simultaneously moving to the equally challenging and urgent community task of redeveloping what has been for some years a low activity area of the Central Business District.

With the benefit of the findings of numerous official studies carried out in recent years, the commercial potential of the downtown area adjacent to the new underground rail system at Museum Station must be regarded as outstanding by world standards.

The Authority is conscious of the importance to the future of the city that redevelopments of the area conform to the anticipated needs and trends of the present decade and is anxious to ensure that the best use is made of the potential of this vast site. To achieve this objective property consultants were commissioned to undertake an up-to-date market study of earlier proposals.

The consultants are confident in their belief that the project will greatly stimulate commercial activity and employment opportunities in the Central Business District and strengthen patronage of the metropolitan rail services.

The co-operation of Melbourne City Council and the Melbourne Chamber of Commerce will be material factors in assuring successful achievement of the Authority's redevelopment objectives.

Construction 1979/80

Details of the works undertaken during 1979/80 are as follows—

UNDERGROUND PORTION

Eastern Section—Flinders Street—Wellington Parade to Swanston Street via Spring and LaTrobe Streets.

Parliament Station construction

by John Holland (Constructions) Pty Ltd

- construction of the south booking hall under Spring Street.
- installation of floor slabs and ducts in platform concourses and escalator tunnels.
- commencement of light well and associated underground service structures in the south end of the station.

by Dillingham Australia Ltd

- installation of architectural finishes adjacent to the tracks in the Burnley and Caulfield-Sandringham platform tunnels.

Central Section—Swanston Street to William Street via LaTrobe Street

(a) Tunnel construction

by Codelfa Construction Pty Ltd and Cogefar Construction Pty Ltd, Joint Venture operating under the name of “C.M.T.—Construction of Metropolitan Tunnels”

- completion of the concrete lining of the Clifton Hill loop/City Circle tunnel from Flagstaff Station in an easterly direction to meet the section previously constructed by John Holland (Constructions) Pty Ltd.
- excavation and concrete lining of the cross-connecting passages at the Queen Street ventilator shaft.
- installation of tunnel invert and track bed in the Clifton Hill and North Melbourne loop tunnels between Flagstaff and Museum stations.

(b) Museum Station construction

by John Holland (Constructions) Pty Ltd and nominated sub-contractors Altone Pty Ltd; Fire Fighting Sprinkler Co. Ltd; Kilpatrick Green Pty Ltd

- construction of the east and north entrance booking halls and installation of architectural finishes and electrical and mechanical equipment in the booking halls and main station.

by Otis Elevators Pty Ltd

- installation of 18 escalators and three lifts in the main station area and the east and north booking halls.
- manufacture of three escalators for the west booking hall.

by Watts Construction Division Pty Ltd

- commencement of excavation and structural support for the west draught relief structure and west booking hall.

Western Section—West of William Street

(a) Flagstaff Station

by Dillingham Australia Ltd

- installation of architectural finishes adjacent to the tracks in the Burnley and Caulfield-Sandringham platform tunnels.

by Otis Elevators Pty Ltd

- commencement of manufacture of escalators and lifts for the station and booking hall.

OVERPASS STRUCTURE FOR ELEVATED TRACKS BETWEEN FLINDERS STREET AND SPENCER STREET STATIONS, NECESSITATED BY LOOP OPERATION

by Victorian Railways Board

- completion of trackwork and signalling re-arrangements in the junction areas at each end of the overpass to provide for loop operations.
- further trackwork and signalling re-arrangements to the existing viaduct in preparation for loop operations.

APPROACHES FROM SURFACE TRACKS TO UNDERSTREET TUNNELS

by Victorian Railways Board

- (a) between Flinders Street and Richmond Stations
- continued re-arrangement of trackwork and signalling providing the final surface connections to the Burnley and Caulfield—Sandringham loops.
 - closure of roof deck sections left open for access purposes in the Burnley loop and partial closure in the Caulfield-Sandringham loop.
 - further construction of box tunnel sections for completion of the Sandringham approach ramp to the Caulfield-Sandringham tunnel between the Y junction and Richmond Station.
- (b) Flinders Street East Yard
- continued construction of the box section and ramp for the North Melbourne loop in the Flinders Street Yard.
 - commencement of replacement of Burnley stabling sidings.
- (c) Flinders Street West Yard
- completion of the re-arrangement of trackwork and overhead power traction lines together with re-signalling of the lines leading from the Flinders Street Station passenger platforms west of Elizabeth Street toward the viaduct, to suit underground operations.
 - fitting out of the new signal relay room west of the existing "A" signal box.
- (d) between North Melbourne Station and Dudley Street
- completion of the box tunnel for the North Melbourne loop from the Y junction at North Melbourne to the boundary of railway property at Railway Place.
- (e) between Spencer Street and Adderley Street
- completion of Caulfield-Sandringham ramp in the Spencer Street Yard.
 - completion of the re-arrangement of surface trackwork, overhead power lines and signalling in the Spencer Street yard to provide the connections to the underground system.

by Watts Construction Division Pty Ltd

- commencement of the final closure of the access opening in the box tunnel of the Caulfield-Sandringham loop in Flinders Street East Yards.
- commencement of the closure of the access opening in the Caulfield-Sandringham loop box tunnel at Adderley Street.

by various government instrumentalities

- commencement of various service relocations beneath Dudley Street.

SERVICES IN TUNNELS AND APPROACHES

by Eglo Engineering Pty Ltd

- continued installation of fire mains, compressed air pipework and support bracket for tunnel services in the Clifton Hill loop/City Circle and North Melbourne loop tunnels.
- continued installation of permanent de-watering pumps in various locations.

by John Holland (Constructions) Pty Ltd

- completion of concrete track bed in the Caulfield-Sandringham loop tunnel.

by Victorian Railways Board

- completion of concrete track bed in the Caulfield-Sandringham loop approach tunnels.
- completion of rail installation in the Burnley and Caulfield-Sandringham loop tunnels.
- commencement of installation of overhead traction system in the Burnley, Caulfield-Sandringham and Clifton Hill loop/City Circle tunnels.
- completion of signalling installation in the Burnley and Caulfield-Sandringham loop tunnels.

by Humes Ltd

- manufacture of precast concrete double sleepers for track in the Clifton Hill loop/City Circle and North Melbourne loop tunnels.

by Empire Rubber (Australia) Pty Ltd

- manufacture of rubber bearing pads and spacer blocks for concrete sleepers for track in the Clifton Hill loop/City Circle and North Melbourne loop tunnels.

by Pandrol Australia Pty Ltd

- completion of manufacture of rail fixing plates and clips for the Burnley and Caulfield-Sandringham loop tunnels.
- commencement of manufacture of rail fixing plates and clips for the Clifton Hill loop/City Circle and North Melbourne loop tunnels.

by C.M.T. — Construction of Metropolitan Tunnels

- completion of concrete sleeper installation in the Burnley and Caulfield-Sandringham loop tunnels.
- commencement of installation of concrete track bed in Clifton Hill loop/City Circle and North Melbourne loop tunnels.

by Matthew Hall Mechanical Services (Pty) Ltd

- installation of electrical services in the Burnley loop tunnel.
- commencement of installation of electrical services in the Caulfield-Sandringham loop tunnel.
- commencement of the installation of acoustic treatment in the Burnley and Caulfield-Sandringham loop tunnels.

by G.E.C. Australia Ltd

- installation of signalling in the Burnley and Caulfield-Sandringham loop tunnels and the equipping of associated relay rooms in the three underground stations.

ANCILLARY WORKS

by Watts Construction Division Pty Ltd

- commencement of the fan superstructure for the Caulfield-Sandringham loop at Jolimont.

by John Holland (Constructions) Pty Ltd

- completion of electrical sub stations at the south side of Wellington Parade and the south end of Adderley Street.
- completion of fan structures at the tops of Commonwealth Centre ventilation shaft, Adderley Street ventilation shafts, and Treasury Gardens ventilation shaft.

by A. J. Galvin Pty Ltd as nominated sub-contractor to C.M.T. — Construction of Metropolitan Tunnels

- construction of the Queen Street ventilation shaft surface structure and commencement of installation of architectural finishes.

by Vibropile (Vic) Pty Ltd

- completion of the underpinning of the foundations of Festival Hall at Dudley Street to enable future construction of a section of the North Melbourne loop tunnel.

by Nicholls Engineers and Construction Pty Ltd

- commencement of the diversion of a stormwater drain in Dudley Street to enable future construction of a section of the North Melbourne loop box tunnel.

by Leeds and Northrup Australia Pty Ltd

- manufacture of a computerised system for remote control and monitoring of tunnel and station equipment and commencement of installation of the remote field stations associated with this system.

by L. M. Ericsson Pty Ltd

- continuation of the design and manufacture of a Dual Computer Controlled Train Describer System to be operated from the Metropolitan Train Control Centre (METROL).

by Mitsui and Co. (Australia) Ltd

- manufacture and installation of standby generators for Museum Station and METROL.

by G.E.C. Australia Ltd

- manufacture of a system to display train information on visual display units and commencement of installation of these units at Museum Station, Spencer Street Station and Flinders Street/ Princes Bridge Station.

by Philips Electronic Systems (Vision and Sound)

- manufacture and commencement of installation of a closed circuit television and public address system in Museum Station and METROL.
- commencement of manufacture of a closed circuit television and public address system for Parliament and Flagstaff stations.

by Delairco Bartrol Pty Ltd

- commencement of manufacture of ticket vending machines for installation in Museum Station.

by Melco Australia Pty Ltd

- manufacture and installation of uninterruptible power supply systems at Museum Station, METROL, and Wellington Parade and Adderley Street electrical sub-stations.

by Eagle and Globe Steel Ltd

- manufacture of large diameter fans for tunnel ventilation at Treasury Gardens, Commonwealth Centre, Queen Street and Adderley Street.
- commencement of installation of large diameter fans for tunnel ventilation in the ventilation shafts at Treasury Gardens, Queen Street, Commonwealth Centre, Adderley Street and for the Caulfield loop tunnel at Jolimont.
- commencement of manufacture of the fan to be installed in the North Melbourne tunnel services complex at Adderley Street.

by Locus System Engineering

- commencement of manufacture and supply of "next train" displays and clocks.

by Spiroduct (Vic) Pty Ltd

- completion of manufacture and supply of acoustic pods and panels for the Burnley loop tunnel.
- commencement of manufacture and supply of acoustic pods for the Caulfield-Sandringham loop tunnel.

Construction Status at 30th June 1980

The Status of the work as at 30th June 1980 was as follows—

STRUCTURAL WORKS

Clifton Hill loop and City Circle; Burnley loop; Caulfield-Sandringham loop.

- all structural work for ramps, box section tunnels and circular tunnels, including the covers to access openings in box section tunnels in the Flinders Street yards—completed.

North Melbourne Loop

- ground support and excavation for ramp and box section tunnel connection from Flinders Street Station to circular tunnel at the railway boundary at Wellington Parade South—5% completed.
- circular tunnel from the railway boundary at Wellington Parade South to Dudley Street—completed.
- box section tunnels and ramps for the eastern and western branch connections with existing tracks at North Melbourne—completed.
- excavation for box section tunnel across Dudley Street—preliminary works commenced.

Parliament Station

- all loop platform tunnels and platforms—completed.
- lower and upper relay rooms, lower and upper platform cross-passages—structures completed.
- escalator declines, machine rooms and concourses at platform levels—structures completed.
- secondary structural work in the south escalator tunnels and platform concourses—completed.
- north and south draught relief shafts—excavated and 96% concrete lined.
- all major underground services diverted around the perimeter of south booking hall.
- excavation and concreting for the south booking hall under Spring Street—completed.
- light well and associated underground service structures adjacent to south booking hall—50% completed.
- installation of architectural finishes for platforms—commenced.
- architectural finishes adjacent to the tracks in Burnley and Caulfield platform tunnels—completed.
- manufacture of escalators and lifts—commenced.

Museum Station

- main station structure including east and north booking halls and east draught relief structure—completed.
- west draught relief shaft—excavation completed; concreting—5% completed.
- west booking hall structure—excavation completed.
- escalators and lifts in main station area, east and north booking halls—completed.
- architectural finishes and station services—90% completed.

Flagstaff Station

- main station structure including platform tunnels and concourses, escalator tunnels and draught relief shafts below ground—completed.
- architectural finishes adjacent to the tracks in Burnley and Caulfield platform tunnels—nearly completed.

Overpass Structure

- overpass structure for elevated tracks—completed.

SERVICES IN TUNNELS AND APPROACHES

- fire mains, compressed air mains and support brackets for tunnel services—completed in Burnley and Caulfield-Sandringham loop tunnels and approaches, and 95% completed in North Melbourne and Clifton Hill loop/City Circle tunnels.
- installation of permanent de-watering pumps at Jolimont, Treasury Gardens, Commonwealth Centre and Elizabeth Street—completed.
- installation of permanent de-watering pump in Spencer Street yards—95% completed.
- track system in Burnley and Caulfield-Sandringham loop tunnels and approaches completed.
- track bed in Clifton Hill loop City/Circle and North Melbourne loop tunnels—50% completed.
- manufacture of sleepers, rubber bearing pads and other components for rail installation in the Clifton Hill loop/City Circle and North Melbourne loop tunnels—70% completed.
- overhead traction system in Burnley loop tunnel and Caulfield-Sandringham loop tunnels and approaches—completed.
- electrical cabling completed in the Burnley loop tunnel and 95% completed in the Caulfield-Sandringham loop tunnel.
- installation of signalling and equipping of associated relay rooms completed for the Burnley loop; and for the Caulfield-Sandringham loop—98% completed.
- installation of acoustic pods and panels completed in the Burnley tunnel and in Caulfield-Sandringham tunnel—75% completed.
- commencement of testing of signalling equipment in the Burnley and Caulfield-Sandringham loop tunnels.

Ancillary Works

- emergency exit from Caulfield-Sandringham box tunnel located at the corner of Brunton Avenue and Jolimont Road—structure completed.
- new 'E' signal box—constructed, equipped and commissioned.
- Treasury Gardens ventilation shaft and cross passages and above ground structure—completed.
- ventilation shaft at Queen Street—completed; above ground structure—98% completed.
- ventilation shaft and above ground structure at Commonwealth Centre—completed.
- construction of fan superstructure on Burnley, Caulfield and Clifton Hill loop/City Circle box tunnels at Adderley Street—completed.
- new parcels subway access and new passenger access to platform 9/10 Spencer Street Station—completed.
- gantry crane loading area, Spencer Street—rearranged.
- new overhead structures provided to suit altered and additional trackwork for loop operations in Flinders Street West Yard—completed.
- new overhead structures provided to suit altered and additional trackwork for loop operations at Spencer Street—90% completed.
- building construction completed by Victorian Railways Board for METROL at Batman Avenue—partly financed by the Authority.
- Wellington Parade electrical sub-station—completed.
- Adderley Street electrical sub-station—completed.
- closure of access openings in Burnley and Caulfield-Sandringham box tunnels at Jolimont—completed.
- construction of fan superstructure on Caulfield-Sandringham box tunnel at Jolimont—95% completed.
- underpinning of Festival Hall—completed.

- installation of tunnel ventilation fans at Treasury Gardens; and at Adderley Street for the Burnley, Caulfield-Sandringham and Clifton Hill loops—completed.
- installation of tunnel ventilation fans at Commonwealth Centre, Queen Street and on the Caulfield-Sandringham box tunnel at Jolimont—80% completed.
- manufacture and installation of the control and monitoring system for tunnel and station equipment—50% completed.
- installation of standby generators at Museum Station and at METROL—completed.
- installation of uninterruptible power supply system for Museum Station, METROL and electrical sub-stations at Wellington Parade and Adderley Street—completed.
- manufacture and installation of closed circuit television and public address systems at Museum Station and METROL—50% completed.
- manufacture of closed circuit television and public address equipment for Parliament and Flagstaff Stations—commenced.
- installation of passenger information display monitors for Museum Station, Flinders Street Station, Spencer Street Station and control equipment for Museum Station—50% completed.
- train describer system—computer installation commenced.

Construction Program 1980/81

The work proposed during 1980/81 is as follows:

UNDERGROUND PORTION

Eastern Section

Parliament Station

- continue installation of architectural finishes on platforms, concourses, escalator tunnels and south booking hall.
- construct north booking hall structure and install architectural finishes.
- commence installation of electrical and mechanical services throughout the station.
- commence construction of special entrances to south booking hall on west side of Spring Street.
- commence installation of escalators and lifts.

Central Section

Museum Station

- commission all station systems ready for operation.
- complete west booking hall and west draught relief structure.
- commence installation of architectural finishes in west booking hall.

Western Section

Flagstaff Station

- commence construction of north and south booking halls.
- commence installation of architectural finishes, electrical and mechanical services throughout the station.
- commence installation of escalators and lifts.
- commence ground level structure for the west draught relief shaft.

Tunnel Structures

- underpin eastern end of Dudley Street railway bridge.
- continue relocation of services below Dudley Street.
- commence construction of box tunnel below and adjacent to Dudley Street to complete the North Melbourne loop tunnel.

APPROACHES FROM SURFACE TRACKS TO UNDERSTREET TUNNELS

- continue construction of the box section and ramp for the North Melbourne loop in Flinders Street East Yard.
- continue the replacement of Burnley stabling sidings in Flinders Street East Yard.
- fabricate rail overpass at Jolimont Road for Clifton Hill loop.
- commence final surface trackwork and overhead traction connections into ramps at Spencer Street, Flinders Street East Yard and Jolimont for the Clifton Hill loop/City Circle.
- continue re-arrangement of trackwork, overhead wiring and signalling for surface connections to Caulfield-Sandringham loop tunnel between Flinders Street and Richmond Stations.
- commence re-arrangement of trackwork, overhead wiring and signalling for the North Melbourne loop in the Flinders Street East Yard.
- commence installation of signalling at METROL relay room, Flinders Street East Yard.

SERVICES IN TUNNELS AND APPROACHES

- complete installation of track bed and rail in the Clifton Hill loop/City Circle and commence installation in the North Melbourne loop tunnel.
- continue installation of overhead traction system in Clifton Hill loop/City Circle tunnel and commence installation in the North Melbourne loop tunnel.
- continue installation of cabling for electrical services, signalling and communications in the Clifton Hill loop/City Circle tunnel and commence installation of electrical cabling in the North Melbourne loop tunnel.
- commence installation of acoustic pods and panels in the Clifton Hill loop/City Circle and the North Melbourne loop tunnel.
- commence installation of signals and equipping of associated relay rooms in the Clifton Hill loop/City Circle tunnel.
- complete installation of cables for overhead traction, power, lighting, signalling and control and monitoring in Caulfield-Sandringham loop.
- complete installation of signalling equipment in Caulfield-Sandringham loop.

Ancillary Works

- complete construction of fan superstructure and installation of fan in Caulfield-Sandringham box tunnel at Jolimont.
- commence manufacture of standby generators at Parliament and Flagstaff Stations.
- commence manufacture of uninterruptible power supply systems at Parliament and Flagstaff Stations.
- continue installation of control and monitoring system at various locations.
- continue installation of closed circuit television and public address systems at underground stations.
- continue installation of train describer system.
- commission and bring into operation the electrical, mechanical and control systems for the Burnley and Caulfield loops.

Safety

A safety program initiated by the Authority in 1975 and directed towards prevention of accidents in loop construction continued throughout the year. Both the frequency and severity of accidents have been kept under constant scrutiny and appraisal.

A feature of the overall program is the emphasis placed on identifying areas of risk and taking preventive action. There has not been a fatality for over four years.

The safety program involves the Authority, consultants and contractors and has its practical application at the contractor level. Regular conferences are held by committees of the Joint Safety Council, and the Council itself, under the Authority's chairmanship, meets in session on a quarterly basis.

Incentives are offered to ensure continuing safety consciousness including a quarterly award of a shield to the contractor with the best record, and personal prizes for supervisory staff involved.

Within the workforce, groups and individuals have been encouraged to produce their own safety posters—supplementing the official posters and other printed material prepared through the Council—and prizes are awarded.

Safety in performance of construction works necessarily involves maintaining a constant safety awareness in the workforce.

Industrial Relations

Strikes and other industrial action resulted in the loss of approximately 2.44% of total work time available, compared with 3.2% in the financial year 1978/79 and 3.3% in 1977/78.

Property Acquisition

No further acquisition of land was required during the year. However, further efforts made by the Authority to finalize two small compensation claims related to earlier acquisitions continued to be frustrated by the lack of interest shown by the parties involved. It is now hoped that these will be resolved in the new financial year following further approaches by the Authority.

Property Development

In May 1980 the Melbourne Underground Rail Loop (Land Development) Act was proclaimed giving the Authority the additional powers necessary to proceed with the planning, financing and construction of redevelopment proposals for land no longer required for Loop construction purposes.

The amending Act was of special significance as it included the power for a statutory authority to promote a Property Trust to facilitate the long term financing, with external funds, of the redevelopment of its land and to enter into arrangements with such Trust for management of the Trust by the Authority.

The Act gave the Authority power to negotiate with Melbourne City Council for the acquisition of the Council's land in the Museum Station Designated Area thus clearing the way for development of the area as a fully integrated complex in one ownership and relieving the Council of the burden of heavy development costs.

The amending Act also gave the Authority power to borrow up to \$100 million for the purpose of developing its land and/or promoting the Property Trust. The right to subscribe for units in the Trust was included in the new powers thus providing additional flexibility in the Authority's financial arrangements for development purposes.

Museum Station Area

In view of the time which had elapsed between the first negotiations for development of the area along lines proposed in 1976 and the passage of legislation giving the Authority the full powers needed to proceed, it was recognised that an up-to-date market study of the 1976/78 development proposals should be undertaken before resumption of detailed planning. Such a study—by the Authority's property consultants—has been completed since the end of the year under review.

Flagstaff Station Area

No firm proposals for redevelopment of this site were received during the year.

Information Services

With the approaching opening of the Loop, general interest in overall activity has taken on a new dimension, with the practicalities and individual advantages accruing from the project as central topics of interest.

In the education sector, from primary schools to tertiary institutes, enquiries and requests for information have also reached high levels. As an engineering project of considerable magnitude and complexity the underground works have been a source of study material for a wide range of disciplines.

The visit by Her Majesty The Queen and His Royal Highness The Duke of Edinburgh provided a further impetus for public involvement with the Loop and its potential benefits. It also made possible a welcome opportunity to open Museum Station for inspection by special interest groups of individuals, and representatives of organisations who have made significant contributions to the project, and workmen (with their families), many of whom have been involved with the project since its inception.

Included in the on-going information program of the Authority were:

- Lectures and talks to business, professional and student groups, service clubs and technical associations.
- Provision of displays featuring construction and progress, in selected locations including the office of the Victorian Agent General, London, the Hon. J. A. Rafferty, a former Minister of Transport.
- Assisting all sections of the media, including the Australian News Service and overseas publications, with general information for creating radio and television programs, news articles and technical material.
- Liaising with research and commercial organisations on matters relating to various aspects of the Loop.
- Production of information literature, colour photographic records, and material for production of an additional movie to supplement the successful films "Loop" and "Action Loop". The extensive use of photography, still and movie, for monitoring purposes has provided the Authority with a unique coverage of historical and reference material, over the life of the project.

Before the end of the year under review the Authority welcomed Mr. Alan S. Reiher, as the new Chairman of the Victorian Railways Board from 1 July 1980. Mr. Reiher's experience and first hand knowledge of underground railway operations will be of immense value to the Authority in the handing-over process from the construction to the operation of the Loop.

Distinguished visitors during the year included His Excellency the Governor of Victoria, Sir Henry Winneke; the Premier, Hon. R. J. Hamer; Deputy Premier and Treasurer, Hon. L. H. S. Thompson; Leader of the Opposition, Mr. F. N. Wilkes and Deputy Leader, Mr. R. C. Fordham; Leader of the National Party, Mr. Peter Ross-Edwards; former Ministers of Transport, the Hon. Vernon Wilcox and the Hon. Ray Meagher; and many overseas and interstate dignitaries.

Finance

The investment trends featured in the Authority's 1979 report remained prominent throughout the year. Investors' interest continued to centre on the on-going monetary policies of the Federal Government, the general course of which determines the expectations for both the economy and the investment market.

Money volume as measured by the M3 index continued to expand at a rate in excess of 12% p.a. and interest rates, partially reflecting the high levels reached in London and New York, moved strongly upward from January onward quickly bringing yields on Commonwealth Bonds in excess of 11% p.a. compared with the low point of 8.8% p.a. recorded in November 1978.

The delayed establishment of the tap system for Commonwealth Government issues necessitated the postponement of the Authority's planned final public issue for the year. The initial offering tap price for 1985—11.7% p.a. bonds on 30 April 1980, at a yield of 11.84% p.a., was reflected immediately in an increase in semi-government interest rates to 12.2%/12.3%—the highest for a statutory body ever to be offered. When the Authority's loan was finally opened, it filled quickly—closing ahead of the scheduled closing date.

Reflecting the current outlook of investors it is significant that although widely spread, 80% of subscriptions to the public loans raised in the year fell to the 4-year term. Absence of strong investment interest in long term maturities has major implications for the future.

Innovative measures to tap the now significant short term market continued to emerge, with leverage leasing rapidly gaining recognition and attracting further participation by the governmental sector.

The most significant action came through the entry of short dated promissory notes issued by progressive statutory bodies. These instruments, which gain their legal status from Part IV of the century old Bills of Exchange Act, follow much the same pattern as trading bank certificates of deposit.

As readily marketable paper, open to discount without rate indicator and carrying State responsibility, such notes provide maximum flexibility, with trustee and official market status. As such, they move freely through the market without post-sale contingent liability attaching to the dealers.

Their advent as prime paper was an outstanding evolutionary feature during the year, as was also the granting to the Authority on 6 May 1980 of power to finance the development of the Museum and the Flagstaff Station sites through a Property Trust.

A factor of considerable moment in the semi-government loan market has been the declining role of the savings banks, for long the major supporters of semi-government bodies. This change reflects the effects of price competition for personal deposits of the community coming from other, less restricted market elements. On the other hand, the recent identification of trading banks as prime and—in some instances—lead underwriters, has given welcome and appropriate support for the loan programmes of the State capital works.

Loans

Borrowings by the Authority in 1979/80 included \$62,995,900 by way of Inscribed Stock of which \$45,745,900 was raised in public issues and the remainder by private subscription. Of the loan allocation \$3,000,000 was to replace stock which matured during the year.

The Inscribed Stock applied for and that paid up during the year, and the amounts of Inscribed Stock outstanding as at 30th June 1980 at the various interest rates applicable thereto are shown in the following table.

Rate % P.A.	Applied for during 1979/80	Paid up during 1979/80	Outstanding at 30/6/80
	\$	\$	\$
12.6	95,500	95,500	95,500
12.3	1,850,600	1,390,530	1,390,530
12.2	22,399,400	22,242,370	22,242,370
11.2	500,000	500,000	500,000
11.1	89,500	89,500	89,500
11.0			13,511,880
10.9	715,200	715,200	8,015,200
10.8	13,130,800	13,130,800	18,580,800

Rate % P.A.	Applied for during 1979/80	Paid up during 1979/80	Outstanding at 30/6/80
	\$	\$	\$
10.7	15,715,000	15,865,000	32,589,202
10.6			20,661,000
10.5	245,200	245,200	33,992,582
10.4	8,254,700	8,254,700	25,641,000
10.35			612,000
10.3			24,900,263
10.1			1,000,000
9.9			578,675
9.85			5,501,750
9.8			100,000
9.7			1,350,000
9.6			3,500,000
9.5			2,281,500
9.4		60	5,522,000
9.3		1310	39,484,000
8.9			1,020,000
8.7			4,990,000
7.4			10,758,494
7.3			1,636,850
7.15			—
7.1			3,030,000
7.0			41,900
6.9			570,000
6.7			—
6.6			50,000
6.4			6,882,124
6.3			982,500
6.2			3,080,000
	<u>\$62,995,900</u>	<u>\$62,530,170</u>	<u>\$295,181,620</u>

Other borrowings of the Authority at the 30th June, 1980 included an advance from the State Government's Works and Services Account of \$1,956,516, short term advances under Section 20 of the Melbourne Underground Rail Loop Act, \$13,000,000 and advance subscriptions for Inscribed Stock, \$572,600.

The Inscribed Stock outstanding at the 30th June, 1980, matures as follows:

Year Ending	\$	Year Ending	\$
June 1981	19,233,988	Brought forward	285,380,633
2	9,529,111	June 1995	2,583,484
3	26,750,050	6	702,299
4	78,434,645	7	224,130
5	24,499,282	8	109,074
6	26,557,936	2005	250,000
7	13,473,175	7	250,000
8	27,804,458	8	150,000
9	17,569,424	11	100,000
1990	6,158,455	12	1,550,000
1	2,734,226	13	2,300,000
2	15,922,038	14	582,000
3	9,266,643	16	500,000
4	7,447,202	18	500,000
Carried forward	<u>\$285,380,633</u>		<u>\$295,181,620</u>

Temporary Financial Accommodation

The Authority continued to enjoy overdraft and substantial standby facilities with banks. No recourse to the overdraft standby arrangements was necessary during the year.

Investment of Unused Funds

The Treasurer of Victoria has authorised the Authority to invest in a wide range of securities, any moneys held by it, which are not part of any sinking fund provided by the Authority for the purpose of redeeming loans, and are not for the time being required for the purpose of its Act. However, within the range of authorised investments, the Authority has continued to invest temporarily funds which are not immediately required, mainly with subscribers to the Authority's loan issues or their affiliated "official market" companies.

Treasurer's Determination ("Loan Redemption Payments")

As required by the Act and in accordance with a Determination made by the Treasurer of Victoria, the Authority duly received the following contributions to loan redemptions and interest on loans.

From City of Melbourne	\$2,600,000
Melbourne & Metropolitan Board of Works	3,900,000
Victorian Railways Board	2,054,188
Consolidated Fund	18,547,992

Interest earned by the Authority is deducted from interest payable by it in the calculation of the "Loan Redemption Payments".

No amount was required to be paid in the year to the Authority for the purpose of defraying administrative expenses.

The amounts contributed by the City of Melbourne and the Melbourne and Metropolitan Board of Works to the Authority's "Loan Redemption Payments" represented 10% and 15% respectively of that part of the Treasurer's Determination which related to the construction of the Loop, namely \$26,000,000. The City of Melbourne and the Melbourne and Metropolitan Board of Works are not required to contribute to "Loan Redemption Payments" which relate to loans raised for redevelopment of land no longer required for the construction of the Loop or to finance the purchase of land to the south of the Museum Station site fronting Elizabeth Street, Little Lonsdale Street and St. Francis Street North acquired only for redevelopment. This part of the "Loan Redemption Payments" (\$1,102,180 for the year) is payable solely from the Consolidated Fund.

Proposed Borrowings for 1980/81

For 1980/81 the Authority has been authorised to borrow \$75,307,563 by way of issues of Inscribed Stock or Debentures, and as of 30th of September 1980 it has raised (or has applications for) \$41,980,900 of that amount. Of the year's allocation \$18,307,563 is required to replace maturing loans and \$57,000,000 is for new works. To accommodate the total proposed expenditure in 1980/81 resort will be had to further temporary accommodation or to deferred payment provisions in contracts.

Expenditure

The Authority's expenditure for the year on Loop works, other fixed assets and administrative and public loan expenses amounted to \$59,914,484. Total Expenditure to date for the same items is \$316,266,514.

Interest payable, less interest receivable, amounted to \$26,724,682 for the year and totals \$83,662,967 to the 30th June, 1980.

Proposed Expenditure 1980/81

The expenditure proposed by the Authority in 1980/81 on loop works and administrative expenses amounts to \$65.6 million. Interest and redemption payments for which loan allocation is not provided are expected to total an additional \$35.1 million.

Revised Construction Cost

The revised construction cost estimate of the basic plan for the construction of the Loop adopted by the Authority in 1972 (then estimated as \$117.23 million at last quarter 1971 prices) is \$273.7 million updated to June 1980 prices. This estimate and the earlier estimate exclude land acquisition, signalling and communications, and administrative and service costs including consultancy fees.

Within the provisions of the Melbourne Underground Rail Loop Act, as amended, various changes have been made progressively (as previously reported) to the scope of the project which was adopted in 1972.

The cost of these changes is currently estimated at \$153.12 million, and does not include the cost of land acquired specifically for redevelopment in terms of Section 30A of the Act.

On this basis the total estimate as updated to June 1980 prices is \$426.82 million.

Acknowledgements

The Authority acknowledges the support and assistance rendered during the year by the Minister of Transport, the Honourable Robert Maclellan, M.L.A., who visited the project on several occasions, and the Director and staff of the Ministry.

Thanks are also extended to the many Authorities and organizations directly or peripherally concerned with Loop operations particularly the Public Works Department, the Melbourne City Council, the Melbourne and Metropolitan Board of Works, the Victorian Railways Board, the Railway Construction and Property Board, the Treasury and the Department of the Premier.

The valued support of underwriters, financiers, the Stock Market and the investing public was of fundamental importance in enabling the construction program to proceed on schedule.

Special reference is made to the Media which, in story and picture, provided a continuing coverage of Loop progress, particularly the television sector which, by virtue of its unique nature, enabled millions of viewers throughout the world to see activity taking place underground and in areas otherwise completely hidden from public view, including an extensive national and international coverage of the Royal Visit.

The Authority also records warm appreciation for the support and the skilled and dedicated service rendered by its own staff members and its Consultants. As indicated at the outset of this Report the Authority has enjoyed a remarkable degree of stability throughout its period of activity, which has enabled the underground project to proceed with purpose and objectivity to the point of achievement now in sight.

Notes to and forming part of the Accounts for the year ended 30th June, 1980

The form of the Statement of Financial Position has been changed from that of previous years. The changes are—

1. The administrative and public loan expenses have been included in Loop Development Account.
2. The interest component in the contributions to "Loan Redemption Payments" has been deducted from the net interest paid to date.
3. The Contributions to Sinking Fund have been deducted from the Sinking Fund Reserve to show the Net Earnings on the Sinking Fund Investments.

The comparative figures as at 30th June 1979 have been similarly adjusted.

Year Ended 30th June, 1979 \$		Year Ended 30th June, 1980 \$
	<i>Note 1</i>	
	Fixed Assets are shown at cost. No provision is made for Depreciation.	
	<i>Note 2</i>	
	Loop Development Account includes advances to contractors on account of future works of \$2.98 million, administrative expenses of \$5.09 million and public loan expenses of \$1.62 million.	
	The administrative expenses for the year were as follows—	
416,674	Salaries and Allowances	404,303
366,788	Other Administrative Expenses	444,395
\$783,462		\$848,698
	No provision has been made for the value of work which may have been done by contractors but which had not been certified by the Authority's Consultants (as Engineer under the contracts) as at 30th June, 1980.	
	<i>Note 3</i>	
	Interest	
	The net expenditure for the year was as follows—	
21,253,409	Payable	27,343,305
645,245	Less Receivable	618,623
20,608,164		26,724,682
19,730,492	Less Recovered through contributions	25,314,904
\$877,672		\$1,409,778
	<i>Note 4</i>	
	Contributions applied for capital and loan reduction purposes were—	
523,709	For Contributions to Sinking Fund	821,600
854,715	For Loan Reductions	965,676
\$1,378,424		\$1,787,276
	<i>Note 5</i>	
	Sinking Fund	
523,709	Contribution	821,600
106,531	Interest Received	166,018
\$630,240		\$987,618

W. L. R. DANIELS,
Secretary.

Auditor-General's Report

The books and accounts of the Melbourne Underground Rail Loop Authority for the year ended 30th June, 1980, have been audited.

In my opinion the accounts are properly drawn up so as to exhibit a true and fair view of the financial position of the Authority as at 30th June, 1980, and the financial transactions of the Authority for the year ended on that date.

B. J. WALDRON,
Auditor-General.