



SOUTH WEST
METROPOLITAN RAILWAY

MASTER PLAN and APPENDICES
APRIL 2000



MASTER PLAN & APPENDICES REVISIONS

The following list notes the revisions made to the South West Metropolitan Railway Master Plan, Edition 1, March 1999 in this second edition. Some minor text additions have been made and are highlighted in red print.

Item	Amendment	Item	Amendment	Item	Amendment
1.	Document header added.	19.	p51 Para 5.4.6 added	37.	Figure 32 renumbered to Figure 39.
2.	Layout reformatted for additional figures.	20.	Figure 24 renumbered to Figure 26.	38.	Figure 33 renumbered to Figure 40.
3.	Pages renumbered for additional figures.	21.	Figure 27 added.	39.	Figure 34 renumbered to Figure 41.
4.	pi Revision sheet added.	22.	Figure 25 renumbered to Figure 28.	40.	Figure 35 renumbered to Figure 42.
5.	pii Blank page added.	23.	Figure 29 added.	41.	Figure 36 renumbered to Figure 43.
6.	pvi Edition print dates added and ISBN amended.	24.	Figure 30 added.	42.	Figure 37 renumbered to Figure 44.
7.	Figure 12A renumbered to Figure 13.	25.	Figure 31 added.	43.	Figure 38 renumbered to Figure 45.
8.	Figure 14 added.	26.	Figure 32 added.	44.	Figure 39 renumbered to Figure 46.
9.	Figure 13 renumbered to Figure 15.	27.	p67 Railway Works text added	45.	Figure 40 renumbered to Figure 47.
10.	Figure 14 renumbered to Figure 16.	28.	p67 Para. 8.1.2.4 1 st paragraph added	46.	Figure 41 renumbered to Figure 48.
11.	Figure 15 renumbered to Figure 17.	29.	p73/4 Ranford Rd, Spencer Rd, Victoria Park to Carlisle, and Kenwick Tunnel text added	47.	Figure 42 renumbered to Figure 49.
12.	Figure 16 renumbered to Figure 18.	30.	Figure 26 renumbered to Figure 33.	48.	Figure 43 renumbered to Figure 50.
13.	Figure 17/18 renumbered to Figure 19/20.	31.	Figure 27 renumbered to Figure 34.	49.	Figure 44 renumbered to Figure 51.
14.	Figure 19 renumbered to Figure 21	32.	Figure 28 renumbered to Figure 35.	50.	Figure 45 renumbered to Figure 52.
15.	Figure 20 renumbered to Figure 22.	33.	Figure 29 renumbered to Figure 36.	51.	p121 Para. 12.15 added
16.	Figure 21 renumbered to Figure 23.	34.	Figure 30 renumbered to Figure 37.	52.	Figure 53 added.
17.	Figure 22 renumbered to Figure 24.	35.	Figure 31 deleted and a new Figure 38 added.	53.	Master Plan Appendices incorporated.
18.	Figure 23 renumbered to Figure 25.	36.	p83 Thornlie Transit Station text ammended to reflect development of current concept plan.		

To: The Honourable Minister for Transport

**From: Dr. Chris Whitaker
Chairman of the Steering Committee**

Dear Minister

Draft Master Plan for the South West Metropolitan Railway

It is with great pleasure that I present this report on the South West Metropolitan Railway Master Plan for your consideration.

The Plan is a bold and visionary document that outlines an important and strategic public transport system for the South West Metropolitan Region and greater Perth Metropolitan Region that is part of a wider, fully integrated transport system for the entire Perth Metropolitan Region and beyond.

It is doubtful whether any other single project in Australia has the same potential to so significantly transform the total transport system of a major city. The Plan presents the opportunity to bring a state of the art, high speed, high quality urban rail service, to within ten minutes access time, either by bus, car feeder, walking or cycling, to what will be, within the next twenty years, over one quarter of the population of the Perth Metropolitan Region.

The proposed system will offer significant benefits to residents of the South West Metropolitan Region. It will open up the region to business development that will provide employment and investment opportunities for residents.

It will provide easy access to regional tourist attractions such as Penguin Island, Safety Bay, Mandurah and the numerous beach areas, thus encouraging more people from other metropolitan regions, as well as tourists, to make daytrips to the area.

To the commuter, the Plan offers an attractive and economical alternative to the private car thereby preserving and protecting air quality in the metropolitan region against degradation that is caused primarily by fuel emissions from private vehicles. By reducing the number of motor vehicles on the roads incidents of traffic accidents and congestion will also be reduced. Commuters will also save on motor vehicle maintenance costs and fuel when they choose the safer, cheaper public transport alternative.

To the seniors, mobility impaired, students, juveniles and those without other means of travel the system represents freedom to easily access the entire metropolitan region, a freedom that has previously not been possible.

Communities will also benefit from developments that will occur at and around the interchanges. One of the things that particularly impressed me during the course of the preparation of this Plan was the enthusiasm of local government in cities and towns along the new route which embraced the

concepts and in some cases, have already incorporated the proposed interchanges into their own planning processes

Specific areas like Rockingham will benefit from the latest in bus technology and System 21 services to complement rail access and make it the best served public transport area in the state.

The community benefits in terms of lifestyle enhancement, increased educational, employment and investment opportunities, tourism, air quality, road safety, mobility and travel choices clearly illustrate the wide-reaching scope of this Master Plan.

In conclusion, this Plan is the product of thorough professional research, analysis and community consultation which provides the basis for the environmental, operational and engineering solutions to make it all happen.

I would like to thank the Towns of Victoria Park and Kwinana and the Cities of Rockingham, Mandurah, Gosnells, Canning and Cockburn for their cooperation and enthusiastic responses during the course of this study.

Finally, on behalf of my colleagues on the Steering Committee, I pay special tribute to Peter Martinovich and his excellent team: their outstanding expertise was matched by their enormous commitment to the project and the rigour of their consultation with the community.

This Plan describes a project that would be good for the community and good for the State. It presents a Vision whose time has come.

Yours sincerely

Dr. Chris Whitaker

Chairman, Steering Committee

South West Metropolitan Railway Master Plan

SOUTH WEST METROPOLITAN RAILWAY
PERTH to JANDAKOT, ROCKINGHAM and MANDURAH

Master Plan & Appendices

April 2000

Prepared under the direction of
THE SOUTH WEST METROPOLITAN TRANSIT PLANNING STEERING COMMITTEE
for
THE GOVERNMENT OF WESTERN AUSTRALIA

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FOREWORD

This document is a Master Plan for the construction of the Perth - Jandakot - Rockingham - Mandurah Railway using the existing line via Kenwick.

The Master Plan has been prepared under the direction of the South West Metropolitan Transit Planning Steering Committee in discharging the directions of the Hon. Minister for Transport.

The Steering Committee comprises:

Chairman

Director General of Transport Dr. Chris Whitaker

Deputy Chairman

Chief Executive Officer, Mr Gary Prattley
Ministry for Planning

Committee Members

The Under Treasurer Mr John Langoulant

Commissioner of Main Roads WA Mr Ross Drabble

A/Commissioner of Railways Mr Wayne James

Chief Executive Officer,
Department of Environmental Protection Dr. Bryan Jenkins
Executive Director, Metropolitan Transport Mr Greg Martin
Project Manager Mr Peter Martinovich

Senior Policy Officer,
Minister for Transport's Office Mr Graeme Harman

West Australian Municipal Association Cr. Linton Reynolds

The Steering Committee was assisted by an inter-departmental Coordinating Committee consisting of:

Chairman

Executive Director, Metropolitan Transport Mr Greg Martin

Deputy Chairman

Director Strategic Planning, Ministry for Planning

Committee Members

A/Regional Manager, Metropolitan Region, Main Roads WA

Director, Transperth

Director, Public Transport Policy

Director, Metropolitan Strategy

Project Manager, South West Metropolitan Railway

Project Manager, Transit Planning

Project Manager, Communications

A full time planning group have prepared the plan in accordance with the Steering Committee's terms of reference.

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LEGEND

- Existing Rail Route —
- Proposed Rail Route —
- Reservation for Future Rail Route - - -
- SWMR Stations ●
- Future Stations ●



ROUTE OF SOUTH WEST METROPOLITAN RAIL LINE

Figure 1

EXECUTIVE OVERVIEW

The South West Metropolitan Railway Master Plan is part of the most comprehensive and integrated public transport proposal yet attempted in Perth. The Master Plan is underpinned by major studies which were undertaken to examine the land use and travel needs of the expanding south west metropolitan area, the infrastructure and operational requirements for the service, the environmental and social implications and the solutions to any adverse impacts, the costs and the funding options.

The South West Metropolitan Railway will bring to the south west metropolitan area, the transport convenience and mobility enjoyed by residents in the north western suburbs and along the remainder of the existing rapid transit system. Within twenty years this area will contain about one quarter of the population of the Perth region.

The new railway will extend from Perth to Mandurah over a route distance of 82 kilometres. **Figure 1** (opposite). It will provide a fast, regular, comfortable, safe and attractive electric passenger train service.

The principal features of the planned system are a rapid transit regional railway supported by buses and private cars. These will link local communities to strategically spaced and individually purpose designed transit stations. Extensive facilities will be provided at transit stations for pedestrians, cyclists, bus / rail transfers and parking for private cars.

The South West Metropolitan Railway will be integrated with existing urban rail and proposed bus transit services, which will permit an extensive choice of public transport journey options from the extremities of the Perth Metropolitan Region. This rapid transit system will provide a standard of travel comparable in transit time, convenience and cost with the private car. In doing so, it will contribute to the containment of investment in road infrastructure, and optimisation of its use. Combined with the existing urban rail system it will make a significant positive contribution to maintenance of an acceptable level of air quality in the Perth Metropolitan Region.

Future rapid transit extensions in the northern suburbs will mean that the south west metropolitan area, and the area to Yanchep and beyond will

eventually be linked by a fast inter-regional rail service, in excess of 120 kilometres long.

The anticipated patronage from the south west metropolitan area by the year 2006 is in excess of 30,000 passenger journeys per day. This is of the same order as presently on the Northern Suburbs line.

By any measure the South West Metropolitan Railway from Perth to Mandurah is a major project. It involves:

- 69 route kilometres of new railway;
- more than doubling the present electric railcar fleet with the introduction of faster, more modern trains;
- a significant increase in train services between Perth and Kenwick and associated measures to accommodate this;
- initially, ten new transit stations between Perth and Mandurah;
- links and coordination with a new rapid transit bus *Transitway* between Rockingham and Fremantle;
- a railcar depot in the Rockingham/Kwinana area;
- reservation for a future route through the Rockingham city centre;
- long overdue grade separation of selected, intensively used level crossings between Perth and Kenwick.

Provision is made for three alternative routes through the Rockingham City area. They are:

- a direct route to Mandurah along the eastern outskirts of Rockingham, supplemented by dedicated transit link buses operating between rail transit stations and the Rockingham City Centre;
- a route through the City with only the section through the central core below ground in tunnel;
- a comparable route to the foregoing but with a longer tunnel.

Typical rail journey time to Perth will be around 44 minutes from Rockingham and 60 minutes for limited express trains from Mandurah. These times are considered to be critical threshold limits which will ensure acceptance of the service by the public as an attractive alternative to the private car on relevant trips.

A realistic three stage program to implement the proposed railway service is as per the following timetable:

- commencement of services from Thomsons Lake to Perth within four years of inception;
- commencement of full services from Rockingham two years later;
- services to commence from Mandurah eighteen months after that.

The actual implementation program will be finally determined by such factors as:

- development of a cashflow which is consistent with other government obligations;
- a realistic program for the delivery of rollingstock;
- the need to establish and refine operational procedures for the new services and their integration with existing services.

The total infrastructure cost from Perth to Mandurah will be nearly \$630 million. The value of the railcars will be an additional \$312 million. Work is ongoing to determine the extent that the cost and risks associated with the infrastructure works can be shared with the private sector.

It is necessary that alterations required at Perth Station together with those works along the Armadale line to Kenwick must be undertaken as part of the first stage.

The Master Plan includes significant benefits for road users. Five intensively used railway level crossings between Perth Station and Thomsons Lake are to be eliminated with bridges. In carrying out these works, particularly for the section from Perth to Kenwick, this project can be seen as the catalyst to initiate works which are long overdue.

This plan is a major proposal for improving the long term fabric of public transport facilities in the Perth Metropolitan Region and is commended to the Government for adoption.

By commencing the project in the short term the railway can be built with minimum disruption. It will also help to establish better travel and development patterns, particularly in the newly emerging areas, which are oriented to more prudent use of resources and infrastructure, that are in sympathy with the natural environment. This is much harder to do once dependence on private car use has been established, because of the absence of a workable public transport alternative.

1. BACKGROUND TO THE MASTER PLAN

1.1 BACKGROUND

In December 1994, the route for the Perth to Mandurah Railway was included in the Metropolitan Region Scheme. The southern part of the route has been included in the forthcoming Peel Region Scheme.

In July 1995, Cabinet announced the extension of the existing rail system from Kenwick to Mandurah and confirmed its intention in principle to extend the urban rail system to Jandakot within 10 years.

In April 1997, Cabinet approved funding for the preparation of a Master Plan. In August 1997, Cabinet endorsed an alignment for the railway through the Rockingham City Centre.

Preparation of the Master Plan commenced in late 1997. Its objectives were:

- establish the final scope and feasibility of the railway service, including the development of concepts and planning, up to, but not including, detailed design;
- confirm the final route;
- confirm the patronage estimates, the number, location and detail of the transit stations required;
- examine how the railway will be operated and integrated with other transport services;
- identify and quantify rolling stock and infrastructure requirements;
- examine the impact on services and respond accordingly;
- ensure the railway conforms with environmental standards;
- develop a firm cost estimate for the project;
- examine the options for funding and implementation;
- prepare the basis for an Enabling Act.

The Master Plan is not only an engineering and accounting document but also presents a vision for the future development of the south west area of the Perth Metropolitan Region.

The Master Plan shows that public transport demand generated by land use is sufficient to warrant the very large investment in and resulting benefits of, an integrated transport system based on a rapid transit railway. The South West Metropolitan Railway will offer a viable alternative to private vehicle use on trips within the South West Metropolitan Area, to the Perth Central Area and to other major centres in the greater Metropolitan Region.

1.2 THE MASTER PLAN PROCESS

Preparation of the Master Plan was overseen by a Steering Committee which comprised: the Director General of Transport, the Chief of the Ministry for Planning, the Under Treasurer, the Commissioners of Westrail and Main Roads WA, the Chief Executive of the Environmental Protection Authority and a representative of the Local Government Municipal Association.

An important group in the structure of the master planning process was the Local Government Planning and Liaison Group. This consisted of the Mayor and Chief Executive Officer of the Town of Victoria Park, the Cities of Canning, Gosnells and Cockburn, the Town of Kwinana and the Cities of Rockingham and Mandurah. Through the facilitation of the members of this group, approval was largely reached on most of the important local issues in a process which involved members of the Master Plan team working with local state government representatives and officers. The one area where agreement could not be reached through this process was the route in the Rockingham area.