Final Report

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Prepared on behalf of the Western Australian Planning Commission

by

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Western Australian Planning Commission
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ES.1 OVERVIEW

The Fremantle-Rockingham Industrial Area Regional Strategy (FRIARS) has been prepared by the Western Australian Planning Commission (WAPC) to enable the Government to provide strategic land use planning directions for the Fremantle-Rockingham region for the next 20-25 years.

The Strategy is the culmination of an extensive investigation into the issues and redevelopment opportunities for the Fremantle-Rockingham region. It has addressed the key planning issues facing the region including:

- existing and potential land use conflicts between industrial and other land uses;
- the protection of the Kwinana Industrial Area (KIA) and preservation of opportunities for heavy industry and port facilities in the region;
- the future role of the Kwinana Environmental Protection Policy (EPP) buffer as a land use planning and environmental management tool;
- protection of environmentally significant features in the region, including Cockburn Sound;
- provision of employment opportunities;
- identification of land appropriate for general industrial development; and
- certainty for residents in the region by recommending a clear plan and time frame for redevelopment.

The Strategy offers recommendations on land use, infrastructure, social issues and environmental management. These recommendations include the development of approximately 800 hectares of general industrial land over the existing townsite of Wattleup and surrounding rural areas, as well as the extension of heavy industry over the Hope Valley area to create approximately an additional 100 hectares of this land use. The development of these uses is premised on the appropriate management of social and environmental impacts. The Strategy recommends an implementation program that will provide the local community and other stakeholders with certainty about planning objectives and the time frame. It will ensure that social impacts are sensitively managed.

ES.2 CONSULTATION

The consultation program commenced in 1997 with the release of a Discussion Paper for public comment. Consultation for the Draft Strategy has been extensive, setting a new standard for this kind of project. The MfP planned a program of local activities and strategies to ensure quality and up-to-date information was available to the community and stakeholders.

This multi-faceted consultation program ensured that the community had maximum opportunity for input throughout the planning process. An extensive program of public meetings and briefings was undertaken at this time and submissions were received. These were reviewed and key issues addressed in the development of a Draft Strategy.

After gaining Cabinet approval, the Draft Strategy was released in March 1999 for a three month public comment period. A wide ranging of consultation and information dissemination activities was undertaken during this period including:

- briefings for representatives of local government, community groups, local media, real estate industry representatives and industry representatives;
- distribution of a Summary document to all householders in the study area;
- advertisements in local newspapers;
- establishment of a Community Information Centre in Wattleup to provide information and liaison opportunities;
FRIARS website;
- appointment of a Community Resource Officer to assist members of the community wherever possible through submission preparation and provision of information;
- public meetings; and
- shopping centre displays.

The Community Information Centre at Wattleup remains open to provide ongoing and up-to-date information to the community.

The Western Australian Planning Commission (WAPC) resolved to declare an Improvement Plan (IP No. 31) over the affected townships (Wattleup and Hope Valley) owing to concerns expressed by the community that these areas could be adversely affected whilst the Draft Strategy was being considered. This gave the WAPC the legal right to purchase properties in cases of demonstrated hardship.

A total of 322 submissions on the Draft Strategy were received. Submissions were received until mid August 1999. Each submission was formally acknowledged with a letter outlining the next stages in the consultation process. A summary of the issues raised in submissions is included in this report.

In addition to written submissions, submitters were given the opportunity to attend an independent Hearings Panel to present their submissions orally. Fifty-two hearings were held at the Kwinana Arts Centre on Gilmore Avenue over four days during August 1999.

The role of the panellists was to listen to the points of view as presented and prepare a brief report outlining observations based on the oral submissions. This report has been presented directly to the Minister for Planning for his deliberations and is separately available.

This Hearings Report is not intended to duplicate the full report written by the MfP, as the hearings submissions represented only about 16 per cent of submitters. However, the Panel’s report makes a number of observations that have been carefully considered in the finalisation of the Strategy, including the need to:
- alleviate uncertainty for residents;
- consider the likelihood that Wattleup and Hope Valley could not reasonably expect to sustain permanent amenity, viability or prosperity regardless of future pressures;
- consider deleting rural properties north of Russell Road from any industrial zoning;
- broaden consideration of best practice approaches to the environmental and social realms;
- prepare a social transition plan to embrace the social adjustments as residents face progressive relocation;
- appoint an Implementing Agency as quickly as possible which has comprehensive coverage and is competent and resourced to manage social and property issues;
- treat residents with fairness and dignity;
- maintain the Wattleup Community Information Centre; and
- create a green corridor connecting Thomsons Lake and the coast.

The key conclusions and recommendations of the Panel are as follows:
- “it is imperative that an early decision be made and announced whatever is determined to be the planning future of the area. There should be no restriction on the on-stream dates for any areas in the consideration of FRIARS”;
- “the transition (social) will require skilled and proactive management. There needs to be an explicit plan to handle the social transition, with specific responsibilities allocated appropriately”.

ES.3 KEY ISSUES

The Draft Strategy, released in March 1999, outlined five options for future development of the Kwinana Environmental Protection Policy (EPP) buffer area. Submissions received on the Draft Strategy raised a number of environmental, social, economic and land use planning issues.

The preferred strategy has been developed taking into account the responses to these planning issues. It is based on the conclusions drawn from the assessment of submissions and issues which, in summary, are:
- The KIA is the State’s premier industrial site. It is important to the State’s economy and must be protected through the planning process which should maximise the potential for the development of the area, thereby delaying the need for Government to expend significant funds on development of new sites in the immediate future.
There is a need to ensure that any person living in or near the KIA has standards of air quality that comply with the specifications of the Kwinana EPP and, in the future, the State Air EPP. Therefore, development and industry emissions must be managed to achieve the required standards.

If the KIA was to expand to the full development potential proposed in the 2020 scenario, it will be necessary to remove residential uses from Hope Valley as the estimated risk from proposed developments would be greater than the EPA’s criterion for individual fatality risk. The residential amenity of Wattleup will also be impacted.

Further development of the KIA and additional general industrial uses in the KIA will create a significant demand for transport and other infrastructure. The potential for noise impacts from road and rail traffic as well as industrial operations may further impact upon residential amenity in the towns of Wattleup and Hope Valley. These impacts must be managed through appropriate land use and noise control planning.

The protection of groundwater quality, and subsequent mitigation of impacts on Cockburn Sound, are very important. Implementation of a land use strategy that minimises the potential for nutrients to enter Cockburn Sound will be beneficial to groundwater quality beneath the study area in the long term; however, any industrial uses will need to be carefully managed, through licensing.

EPP lakes and wetlands are an important part of our natural heritage and must be protected. Any development in the region must recognise these values and ensure that the integrity of environmental uses is protected. In particular, the recommendations for Bushplan sites must be noted and provision made for their inclusion in the Strategy.

There is an immediate need to plan for general industrial land in the southern metropolitan region.

Existing and proposed transport and service infrastructure in the Region is adequate to cater for additional development within the Kwinana EPP buffer area; however, consideration may need to be given to the timing of some items.

The Strategy must consider the needs of the local community within the Kwinana EPP buffer area as well as the broader economic needs of the State, and environmental considerations.

It is imperative that the Strategy delivers certainty about the future of the region for the people living there.

The Strategy is premised on the need to protect and optimise the KIA. This area represents a significant State investment and the optimisation of the area is important to the State economy. This decision means that it is important that the environmental management and land use planning for the buffer area considers this requirement.

The Strategy will enable Government to initiate land use change within the buffer area by removing the potential for land use conflict and creating the opportunity to meet the demand for general industrial land in an area where existing infrastructure can easily be upgraded to cater for this type of development.

General industrial land development will generate employment opportunities in a region where unemployment is of significant concern. The Strategy will require the progressive removal of residential uses from most of the buffer area.

The impact of this recommendation on the people living in Wattleup, Hope Valley and some of the rural areas is acknowledged and the implementation of the Strategy has been designed to minimise these negative impacts as far as possible, including a recommendation for the development of a Social Transition Strategy.

ES.4 PREFERRED LAND USE STRATEGY

Modifications to the preferred option (Option 4) presented in the Draft Strategy have been made in response to submissions. The preferred strategy supports the initial intentions of the FRIARS study to consolidate industrial landholdings adjacent to the KIA. The land use recommendations of the preferred strategy focus on heavy and general land use provision in a core area of the original FRIARS study area.

The key differences are:

- retention of additional rural land between Thomsons Lake and Cockburn Cement to the west of Henderson Road, north of Russell Road, previously proposed as industrial in Option 4. This is in addition to the rural
buffer between Thomsons Lake and Henderson Road and Power Avenue already included in Option 4;

- reduction of the proposed industrial development around Mandogalup Road, south of the Harry Waring Marsupial Reserve, in response to concerns raised about three Bushplan sites in this area;
- an increase in the environmental buffer around Long Swamp, in response to submissions about the potential impacts on this area;
- identification of an industrial buffer around the 40-year extractive mineral license area; and
- inclusion of all resource extraction areas in an underlying industrial zoning.

The preferred land use strategy (a modified version of Option 4) promotes long-term land use change at Hope Valley and Wattleup townsites. These townsites will become surrounded by long-term industrial uses, with associated decline in amenity for the residents and an uncertain land market. The prevalence of noise and potentially incompatible land uses for industrial and infrastructure operations, such as port access, are important factors.

Strategically, the FRIARS area is the best location for future industrial land in the Perth Metropolitan Region and arguably, the State. The long-term advantages of the area (including integration with existing industry, infrastructure accessibility and transport benefits) give this area a key strategic role for future employment location which is not afforded by alternative locations. The FRIARS area also offers a long-term solution, rather than ad hoc, small area initiatives.

These decisions are not taken lightly. It is acknowledged that the Preferred Land Use Strategy will result in social dislocation and changes to service provision and support for these communities. These issues must be dealt with in a consistent, fair and clear manner.

The preferred land use strategy depicts heavy industrial uses in the Hope Valley area and general industrial uses in Wattleup, Mandogalup and South Yangebup. The preferred land use strategy will:

- protect existing mineral rights for limestone extraction in the short to medium term;
- provide approximately 800 hectares of land for general industrial purposes;
- provide approximately 100 hectares of additional heavy industrial land;
- retain some existing rural areas as a green link between Thomsons Lake and the coast, and
- ensure that future uses comply with environmental standards for the area and, where possible, improve the performance of existing land uses.

The provision of industrial land indicated by the preferred strategy is in response to estimations of industrial land demand for the metropolitan area. The preferred strategy has been influenced by servicing potential, staging of land release, and topography. The culmination of the FRIARS study and the development of the preferred strategy will assist in the staged release of adequate industrial land into the future for the southern metropolitan region.

ES.5 IMPLEMENTATION

ES.5.1 Approach

There are a number of ways in which a planning strategy of this nature can be implemented. The approaches that have been considered include creation of a special Development Authority, appointing a co-ordinating agency, implementation through Local Government, and private sector project management. However, implementation of the Strategy will require a long-term commitment on the part of Government.

On this basis it is considered that the preparation of specific legislation, which provides for the identification of an Implementing Agency and objectives and development parameters, is the approach that provides the greatest certainty. In addition, given the need for involvement of the State Government in the program, it is appropriate that a public sector agency be used to co-ordinate and facilitate the development of the area. This Implementing Agency may facilitate private sector involvement, particularly from larger land owners in the subregion, in the future.

The redevelopment area specified in the proposed Act should cover only that part of the FRIARS area over which control is sought, as shown in the final Strategy plans.

The Act should give responsibility and authority for the management of the redevelopment area to a designated Implementing Agency. It should also:

- designate the redevelopment area by way of a map;
require the Implementing Agency to prepare a Masterplan for the redevelopment area;

- require that the Masterplan be considered as a scheme for the purposes of Part IV of the Environmental Protection Act and will therefore be assessed by the Environmental Protection Authority;

- specify subdivision approval and development control procedures;

- provide powers of acquisition and compensation to the Implementing Agency; and

- require a review of the Act by the Minister five years from commencement.

Compensation should be available where a development application is refused or conditions imposed on the grounds that the land is within the redevelopment area, or for a public purpose. The Act should also empower the Implementing Agency to pay additional compensation for consequential loss and solatium at its discretion.

**ES.5.2 Statutory Processes**

The statutory processes that will be applied to the project should be specified in the legislation. The Masterplan should be prepared and implemented in a manner similar to that required for the preparation of town planning schemes under the Town Planning Regulations 1967. It should contain similar elements to a planning scheme including:

- objectives;
- future needs of industry;
- proposals for land use;
- transport, infrastructure and related development requirements; and
- environmental issues and best practice management measures.

The Masterplan should be prepared by the Implementing Agency, but it should be administered by the WAPC. It will be necessary that such a plan be subject to the normal statutory public comment periods.

**ES.5.3 Management of Social Impacts and Community Concerns**

The Implementing Agency should be committed to the implementation of a Social Transition Strategy (STS). This strategy should outline the roles and responsibilities of the Implementing Agency (on behalf of the Government and its agencies) to ensure that the processes of property acquisition and community impact are managed in an accountable and equitable manner. Key components of the Social Transition Strategy are described in this report including:

- ongoing community consultation, information and support;
- provision of appropriate community services; and
- property purchase provisions.

**ES.5.4 Conclusion**

The preferred strategy supports the initial intentions of the FRIARS study to consolidate industrial landholdings adjacent to the KIA. However, modifications to Option 4 presented in the Draft Strategy have been made in response to submissions. This modified version is now referred to as the Land Use Strategy Redevelopment Area (see Figure 5.1). The Implementing Agency should put this plan into effect according to the above guidelines and responsibilities.

**ES.6 RECOMMENDATIONS**

The FRIARS strategy has been developed over a period of four years and has involved technical investigations and significant input from key stakeholders and the community. A considerable effort has been made to identify the full range of issues and respond to these in a balanced way. Notwithstanding this, implementation of the Strategy will have impacts on the local community.

It is imperative that the Strategy be implemented in a way which minimises the negative impacts on residents and landowners and maximises the benefits to the State. Recommendations for implementing the Strategy include:

1. The Implementing Agency should plan to implement the Preferred Land Use Strategy (a modified version of Option 4. See Figure 5.1) in order to provide the most appropriate strategic outcome for the region.

2. Government should prepare legislation to manage and implement the Strategy.

3. The WAPC should instruct the MfP to ensure that appropriate planning controls are developed for the rural areas within the air quality buffer to prevent further subdivision for residential purposes on these properties.
4. The Implementing Agency, in consultation with the EPA, should develop environmental performance criteria to be included in the development policies for the area.

5. The WAPC should ensure that the Wattleup Community Information Centre remains open until the Implementing Agency is appointed and in a position to manage the centre.

6. The Implementing Agency should prepare and implement a Social Transition Strategy to manage the impacts on the community.

7. The Implementing Agency should prepare a Masterplan for the area and initiate the appropriate planning and environmental approvals.

8. The Implementing Agency should liaise with infrastructure providers to further refine development requirements.

9. The Implementing Agency should have the authority to purchase properties in the region immediately, in order to respond to landowners preferences.
1 Introduction

1.1 A VISION FOR THE REGION

The Fremantle-Rockingham region (see Figure 1.1) supports the State’s premier industrial site at Kwinana and has experienced significant growth over the past decade. Careful and appropriate planning for the future of this region is vital. Growth pressures on the region and the major land uses it accommodates have highlighted the need for a strategic approach to this planning. The Fremantle-Rockingham Industrial Area Regional Strategy (FRIARS) is the State Government’s vision for the future of the region which is to achieve:

“a sustainable pattern of land use that balances the needs of the economy, the people and the environment”.

It is designed to ensure the Kwinana Industrial Area (KIA) and its surroundings can be developed in the most appropriate manner - to the ultimate benefit of the State and its people. The final Strategy is focussed on a preferred land use strategy for the Kwinana air quality buffer but recommends actions for addressing a range of regional planning issues.

The Strategy is the result of a lengthy assessment, analysis and consultation process, overseen by a Steering Committee chaired by the Ministry for Planning (MfP), with representatives from Local Government, industry and State Government agencies. This inter-agency Committee has provided expert technical input to the process of developing and finalising FRIARS and has been an important contributor to the success of the overall FRIARS process. The wider community consultation undertaken by the MfP has also provided valuable and comprehensive input to the preparation of this final report.

The Strategy offers recommendations on land use, infrastructure and environmental management. These recommendations include the development of approximately 800 hectares of general industrial land over the existing townsite of Wattleup and surrounding rural areas, as well as the extension of heavy industry over the Hope Valley area to create approximately an additional 100 hectares of this land use. The development of these uses is premised on the appropriate management of social and environmental impacts. The Strategy recommends an implementation program that will provide the local community and other stakeholders with certainty about planning objectives and the time frame. It will ensure that social impacts are sensitively managed.

1.2 STUDY OBJECTIVES

The key objectives that guided the preparation of this strategic land use plan for the Fremantle-Rockingham region include:

- Maintain Kwinana’s role as the State’s premier heavy industrial estate.
- Identify additional general industrial land in the Fremantle-Rockingham region.
- Encourage industrial land use which manages and minimises social and environmental impacts.
- Support the role of Fremantle and Rockingham as Strategic Regional Centres.
- Maximise the employment benefits to the region arising from potential changes of use.
- Resolve current land use conflicts between residential and industrial uses.
- Maintain the Kwinana Environmental Protection Policy (EPP) buffer policy.
- Provide for improvements to the transport network in the region to cater for general growth and the specific growth likely to be associated with current and future industrial activity and port facilities.
- Protect areas of environmental and heritage significance such as the Beeliar Regional Park, Cockburn Sound and areas identified in Bushplan.
- Protect the water quality of Cockburn Sound and ensure, as far as is practicable, no increase to nutrient loads entering the Sound.

1.3 STUDY PROCESS

1.3.1 Overview

Developing a Strategy to guide land use in the Fremantle-Rockingham region has been a comprehensive process, reflecting the complex nature of the region. Substantial stakeholder consultation has occurred and has been instrumental in determining the outcomes of the Strategy. The process involved:

- **Research and Review**
  Previous work on the FRIARS area was reviewed and the changes that have occurred or are proposed for the region were analysed.
Discussion Paper
A Discussion Paper was released in March 1997, setting out the key issues of the FRIARS project and detailing a strategic concept developed from the research and review process.

Consultation on Discussion Paper
The views of the community and other stakeholders were obtained during a comprehensive consultation process involving public meetings and submissions.

Draft Strategy
Five land use options were developed and analysed taking into account potential economic, environmental, planning and social impacts. This analysis was documented in the Draft FRIARS report released for public comment in March 1999.

Consultation on Draft Strategy
The Draft Strategy was released for a three month public comment period. A number of mechanisms were put in place to encourage community comment including a shopfront in the region, newsletters, summary brochures on key issues, briefing sessions and public meetings. Submissions were received from 322 individuals or groups and a full Report on Submissions is available on request from the MfP.

Final Strategy
The comments received during the submission period have been summarised, analysed and assessed. The Strategy responds to the issues raised and recommends a preferred approach to land use in the region over the next 20 to 30 years.

Implementation
Government has considered options for implementation that will control the future planning process for the region. Should it determine that specific legislation be prepared to control land use in the air quality buffer, a Masterplan needs to be prepared for the region by the designated Implementing Agency, specifying detailed planning guidelines for the nature and staging of development. This Masterplan will be based on the preferred land uses identified in this Strategy.

1.3.2 Consultation
The Government would like to acknowledge members of the community and other Government organisations who have made a contribution to the development of the Strategy including:

- Chamber of Commerce & Industry
- City of Cockburn
- City of Fremantle
- City of Rockingham
- Com-Net (Community Networking)
- Department of Commerce & Trade (DOCAT)
- Department of Environmental Protection (DEP)
- Department of Minerals & Energy (DME)
- Department of Resources Development (DRD)
- Fremantle Port Authority
- Hope Valley Progress Association
- Kwinana Air Buffer Zone Group (KABZ)
- Kwinana Industries Council
- Kwinana Watchdog Group
- LandCorp
- Main Roads Western Australia (Main Roads)
- South-West District Planning Committee
- South-West Group of Councils
- Town of Kwinana
- Transport
- Transport (Marine)
- Water Corporation
- Wattleup Citizens’ Association
- Westrail

The final report and preferred land use strategy in this document have evolved over three years out of this significant stakeholder participation.

Consultation on the Draft Strategy has been extensive, setting a new standard for this kind of project. The MfP planned a program of local activities and strategies to ensure quality and up-to-date information was available to the community and stakeholders.

This multi-faceted consultation program ensured that the community had not only maximum exposure to
Figure 1.1 Study Area
the five options presented in the Draft Strategy, but also maximum opportunity for input. The following is a brief explanation of the features of the FRIARS consultation process.

After gaining Cabinet approval, the Draft Strategy was released in March 1999 for a three-month public comment period, officially closing on 30 June 1999. Briefings were held for representatives of local government, community groups, local media, real estate industry representatives and industry representatives. The aim of these briefings was to inform as many groups as possible about the content of the Draft Strategy so that they could, in turn, inform their respective groups and memberships.

Copies of the document, as well as a 16-page summary document, were made available at these briefing sessions.

At the time of the launch, all householders living within the study area received a copy of the summary document in the mail, along with a covering letter from the Minister for Planning. The Draft Strategy was also advertised in the Local and State newspapers.

The Community Information Centre was opened on Rockingham Road in Wattleup at the start of the public comment period. The office was centrally located at a commercial precinct within the study area, providing easy access for all residents. The shopfront was opened six days a week, with staggered opening hours in order to cater for the wider community needs. Material made available at the shopfront included published reports used in the development of the Draft Strategy, maps, newsletters and copies of the Strategy. All resources were provided free of charge.

The shopfront was also able to provide other services for local community groups, including photocopying and assistance with the distribution of flyers.

The Community Information Centre was staffed with representatives from the MfP. They were available to explain the options presented in the Draft Strategy, discuss issues with members of the community and provide advice as to how to make a submission. Because many people expressed concern over property matters and how FRIARS could impact on their homes and land, appointments were made for one-on-one discussions with staff from Properties and Parks branch of the MfP. These appointments served the purpose of further explaining the possible paths for the implementation of FRIARS, as well as the potential for impacts on individual properties.

The Centre has remained open since 29 March 1999. Since the close of the public comment period, a reduction in the number of people visiting the shopfront has meant a reduction in opening hours. However, members of the community continue to access the office as a resource for the latest information. To date, the shopfront has made over 4,000 contacts with the community.

A FRIARS website was established as a link from the MfP’s homepage. Email links were also available for further information and lodgement of submissions. A report prepared by the Hearings Panel has also been included at this website. Approximately 12 submissions were received via email.

An important part of the community liaison process was the appointment of a Community Resource Officer (CRO). The CRO was available to assist members of the community wherever possible through submission preparation and the provision of information. The Officer was available at all times (including after hours and on weekends) to visit community members in their homes or at their businesses. Interpreter services were provided, when requested, to ensure full understanding of the Draft Strategy. The CRO made 165 contacts with the community throughout the duration of the public comment period. Approximately 10 per cent of all submissions received were written with the assistance of the CRO.

Public meetings and meetings with community groups were held on an ongoing basis according to the needs expressed by the community. Five public meetings were held, organised and chaired by community groups. Expert staff from the MfP attended, as well as representatives from the principal consultant group. These meetings were attended by many individuals and/or groups and were used as a forum for the community to express concerns over the potential social, environmental and economic impacts of FRIARS.

Shopping centre displays were set up at three local shopping centres to ensure maximum community exposure to the Draft Strategy. These were:

- The Lakes Shopping Centre
- Rockingham City Shopping Centre
- Phoenix Shopping Centre

The Kwinana Shopping Centre was not available during the public comment period. The displays consisted of maps of the area, explanatory notes, submission forms and update newsletters.
Introduction

The Western Australian Planning Commission (WAPC) resolved to declare an Improvement Plan (IP No. 31) over the affected townships (Wattleup and Hope Valley) due to concerns expressed by the community that these areas could be adversely affected whilst the Draft Strategy was being considered. This gave the WAPC the legal right to purchase properties in cases of demonstrated hardship only.

Towards the end of the three months, there was a call from certain sections of the community for an extension of the comment period. There were also many individuals and groups who did not wish to see the comment period extended but instead wanted to see the process finalised as soon as possible. The comment period was not extended officially; however, submissions were received up until six weeks later (mid August 1999).

A total of 322 submissions were received. Each submission was formally acknowledged with a letter outlining the next stages in the consultation process. Submissions were then read and a list of “issues” was developed in order to analyse each submission. The Report on Submissions shows the content-analysis arrived at for each submission and the WAPC responses to these issues. It is important to note that whilst “frequency of response” statistics are shown in the Report on Submissions, there was not a quantified “cut off point” for accepting or rejecting the argument presented in submissions, as other factors also needed to be considered. A summary of the issues raised in submissions is included in this report.

As with the Metropolitan Region Scheme (MRS) amendment process, submitters were given the opportunity to attend an independent Hearings Panel to present their submissions orally. Officers from the MfP attended the hearings to provide technical and logistic support. Submissions were heard by the following panel:

- Mr Stuart Hicks (Chairman)
- Mr Don Miguel
- Ms Elizabeth Brice

Fifty-two hearings were held at the Kwinana Arts Centre on Gilmore Avenue on:

- Wednesday, 11 August 1999
- Thursday, 12 August 1999
- Monday, 16 August 1999
- Tuesday, 17 August 1999

With the acknowledgment of written submissions, an offer was made for respondents to attend the panel hearings. Individual respondents were allotted 15 minutes, while group presentations were allocated a more substantial time period. All respondents were given the option to present their submissions in public or private. A copy of respondents’ written submissions was distributed to panel members prior to the hearing dates.

The role of the panellists was to listen to the points of view as presented and prepare a brief report outlining observations based on the oral submissions. This report has been presented directly to the Minister for Planning for his deliberations. This report is not intended to duplicate the full report written by the MfP, as the hearings submissions represented only about 16 per cent of submitters. The Panel’s report makes a number of observations including the need to:

- alleviate uncertainty for residents;
- consider the likelihood that Wattleup and Hope Valley could not reasonably expect to sustain permanent amenity, viability or prosperity regardless of future pressures;
- consider deleting rural properties north of Russell Road from any industrial zoning;
- broaden consideration of best practice approaches to the environmental and social realms;
- prepare a social transition plan to embrace the social adjustments as residents face progressive relocation;
- appoint an Implementing Agency as quickly as possible which has comprehensive coverage and is competent and resourced to manage social and property issues;
- treat residents with fairness and dignity;
- maintain the Wattleup Community Information Centre; and
- create a green corridor connecting Thomsons Lake and the coast.

The key conclusions and recommendations of the Panel are as follows:

- “it is imperative that an early decision be made and announced whatever is determined to be the planning future of the area. There should be no restriction on the on-stream dates for any areas in the consideration of FRIARS”;

and
“the transition (social) will require skilled and proactive management. There needs to be an explicit plan to handle the social transition, with specific responsibilities allocated appropriately”.

1.4 FORMAT OF THE REPORT

The Strategy is divided into chapters that cover the following:

- the State and regional planning context;
- a review of land use options and community responses to these options;
- planning issues for the region;
- an assessment of industrial land use demand and economic cost benefit analysis;
- a detailed description of the preferred land use option including recommendations for staging of development;
- an implementation program; and
- conclusions and recommendations.

The Strategy is a concise document that focuses on the key outcomes of previous assessments and consultation and the recommended land use option. Readers are referred to the Draft Strategy for a detailed description of the environmental, social, transport and infrastructure, economic and planning issues relevant to the region or the analysis of land use options. Other documents relevant to the preparation of the Strategy include:

- Volume 1 - Report on Submissions
- Volume 2 – Copies of Submissions
- Volume 3 - Report of the Hearings Panel and Transcripts of Hearings

Copies of these documents are available from the MfP by contacting the Publications Counter on 9264 7777, or the Community Information Centre at Wattleup on 9437 2155
2 State and Regional Planning Context

2.1 STATE PLANNING STRATEGY

The Fremantle-Rockingham region has a number of significant land uses, including the Port of Fremantle and the KIA. In recent times, development pressures associated with the region’s high growth rates have given rise to the prospect of major land use changes. Strong economic growth and diversification of the economy to include secondary processing of the State’s mineral wealth are important factors which underpin this development pressure. These trends have particular implications for the KIA and the capacity of existing port infrastructure.

An important task in the development of the regional strategy has been the review of the State and metropolitan planning framework.

The State Planning Strategy, which was prepared by the WAPC (1997a), makes broad statements of planning intent at the State level. It has been widely advertised and extensive public consultation was undertaken in its preparation. The State Planning Strategy has been endorsed by Cabinet as a broad strategic planning direction for the State’s development.

The State Planning Strategy is based on five important principles:

- to protect and enhance the key natural and cultural assets of the State and to deliver to all Western Australians a high quality of life which is based on sound environmentally sustainable principles;
- to respond to social changes and facilitate the creation of vibrant, accessible, safe and self-reliant communities;
- to actively assist in the creation of regional wealth, support the development of new industries and encourage economic activity in accordance with sustainable development principles;
- to facilitate strategic development by ensuring land use, transport and public utilities are mutually supportive; and
- to assist the development of regional Western Australia by taking account of the region’s special assets and accommodating the individual requirements of each region (WAPC, 1997a).

These principles are supported by strategies; those that are particularly relevant to the Fremantle-Rockingham region are:

- ensure that new residential developments are not located in areas with likely diminished air quality (Section 7.1) Part 2;
- ensure environmental issues are considered in the preparation of plans (Section 7.3) Part 2;
- ensure that uses emitting dust, noise or odours, or that are likely to result in risk, are adequately buffered from residential areas (Section 7.1) Part 2;
- make provision for strategic industry sites (Section 7.3) Part 2;
- protect access corridors and buffer zones for industrial sites (Section 7.3) Part 2;
- provide compatible zoning adjacent to ports and access corridors (Section 7.4) Part 2;
- ensure that the protection of ports and strategic industry sites and their associated road and rail access corridors is a priority in regional and local plans (Section 7.4) Part 2;
- identify land for long term industrial development in the South-West Urban System (Section 7.4) Part 2;
- identify additional general industrial land (Section 8.1.1) Part 2;
- provide for additional heavy industry within heavy industry zones (Section 8.1.1) Part 2; and
- secure a port site at Naval Base to complement Fremantle (Section 8.1.1) Part 2 (WAPC, 1997a).

The State Planning Strategy in its discussion of the Perth region also identifies the need to plan for population growth, protect key environmental resource areas and cultural heritage, protect water resources and protect the quality of air and water systems.

The industrial requirements identified in the State Planning Strategy have been the subject of further detailed investigation in recent times. The Strategic General Industrial Land Study was undertaken on behalf of the MiP by BSD Consultants (1996) and
SKM (1997). The Stage 1 study identified and assessed three potential general industrial sites at Barragup, Bullsbrook and Kwinana.

The Stage 2 study adopted the sites considered in Stage 1 and further assessed growth projections and demand for industrial land. This study concluded that, across the metropolitan area, there would be a requirement for an additional 3,084 hectares of industrial land, excluding heavy industry, between 1993 and 2024 (SKM, 1997). The study considered that of this gross area required, 1,750 hectares should be apportioned to Kwinana, 721 hectares to Pearce Industrial Area at Bullsbrook and 613 hectares to Barragup.

Further work on the demand for, and apportionment of, general industrial land across the metropolitan area has been undertaken on behalf of LandCorp. This work has refined demand estimates for general industrial land and the results of this assessment are included at Section 4.2.

2.2 METROPLAN (1990)

METROPLAN is a strategic land use plan for metropolitan Perth prepared by the WAPC’s predecessor, the State Planning Commission (SPC). It is currently being reviewed by the WAPC.

METROPLAN identifies the Kwinana EPP buffer area as rural/non-urban surrounded by the regional open space system, the KIA and Henderson Industrial Area (Jervoise Bay). It notes that “planning for strategic industrial areas will be based upon good access; ease of movement for industrial traffic; and minimising conflict with adjoining land uses by various means, including buffers” (Department of Planning & Urban Development (DPUD), 1990: p. 54).

It also noted that “the main focus for industrial activity in the short to medium term will continue to be the south-west corridor and the middle suburbs” (DPUD, 1990 : p. 54). The KIA was identified in METROPLAN as the only heavy industry site in Perth.

A regional open space Concept Plan was also identified in METROPLAN. In the study area, the locations with potential for addition to regional open space were a greenbelt linking Thomsons Lake south to Wellard. No urban expansion areas were identified inside the Kwinana EPP buffer.

2.3 SOUTH-WEST ECONOMIC DEVELOPMENT PLAN (1992)

This document was prepared in 1992 by the South-West Group of councils and makes a range of comments relevant to this Strategy. Using a SWOT analysis it identified the potential for further industry as a key opportunity. Six regional objectives were set, of which four are relevant to this study:

- the retention of existing businesses and the creation of new employment and income-generating enterprises in the region;
- to ensure maintenance of the region’s competitiveness in major industry sectors and maximise benefits from future developments;
- adjust the mix of housing developments and increase the region’s share of population growth to stimulate industry; and
- develop tourism, recreation and leisure enterprises which can earn income and promote the region.

2.4 STATE INDUSTRIAL BUFFER POLICY (1997)

The State Government proposes compatible uses for buffers to industry and infrastructure in its State Industrial Buffer Policy (WAPC, 1997b). This policy promotes buffers as a measure to protect the long-term security of industrial zones, transport terminals and other utilities, in addition to providing for the safety and amenity of surrounding land uses (WAPC, 1997b). The policy also intimates that buffer zones do not necessarily have to sterilise land or result in underutilised or blighted areas. The introduction of uses that are compatible with, or less sensitive to, heavy industry uses is advocated.

2.5 DRAFT AGRICULTURAL AND RURAL LAND USE POLICY (1999)

The WAPC released the Draft policy on agricultural and rural land use (Statement of Planning Policy No. 11) for public comment in October 1999.

The draft policy identifies broad areas of agricultural significance taking into account existing agricultural areas and areas highly suitable for agricultural development. These general areas need to be assessed at the local planning level to determine the detailed areas for protection. Included in the assessment is the review of the agricultural importance of these areas.
against the changing values for other uses considered to be of greater importance, for example urban growth and the environmental impact of their continuation, particularly nutrient input to groundwater (see section 4.1).

The draft agricultural policy has indicated that some broad areas in FRIARS are generally considered to be of agricultural significance. A decision at the more detailed planning level is required to determine whether the identified areas should be protected for agricultural purposes, an assessment will need to be made to determine the extent of the areas which need protection.

2.6 REGIONAL STRATEGIC PLANNING REQUIREMENTS

An outcome of the FRIARS Strategy has been a focus on land use in the Kwinana EPP buffer. However, there are a number of other regional planning issues that have been identified and require resolution in the future. Recommendations for further regional planning actions are listed below and are further shown in Figure 2.1.

   i. Land Use/Structure Planning

The key recommendations are:

- clarify future land uses on Alcoa land north of the proposed Rowley Road extension;
- protect future road and rail access options for future port facilities;
- prepare a structure plan for the precinct south of Success and Atwell;
- review buffer requirements for Alcoa residue storage areas (including consideration of a report on buffer requirements prepared by Alcoa) and identify future uses at Mandogalup;
- prepare a structure plan for the precinct north and south of Anketell Road as part of the review of Town of Kwinana Town Planning Scheme No. 2; and
- develop a Master Plan for Thomsons Lake regional centre.

   ii. Open Space

The key recommendations are:

- resolve future use of the South Fremantle Power Station;
- prepare a management plan for Woodman Point Regional Park;
- promote linkages between the areas which comprise Leda-Rockingham Lakes Regional Park; and
- ensure best practice environmental outcomes from any industrial land releases.

   iii. Transport - Main Roads

The key recommendations are:

- confirm Rowley Road as a Regional Road and requirement for an extension of this reservation to the coastline at Naval Base;
- confirm the requirement to extend the reservation for Anketell Road to the coastline; and
- review intersection details at Garden Island Highway and the Fremantle-Rockingham Primary Regional Road taking into account the recently completed Gilmore Avenue extension.

   iv. Transport - Other

The key recommendations are:

- investigate future port facility concepts between James Point and Naval Base including the proposed private port facility at James Point; and
- protect road and rail access to potential port facilities.
Figure 2.1  Current and Proposed Projects/Studies

Fremantle - Rockingham Industrial Area Regional Strategy

Produced by Project Mapping Section, Geographic & Planning Information Branch, Ministry for Planning, Perth, W.A. April 2000

Cadastral Data supplied by Department of Land Administration, W.A.

LEGEND

- Primary Regional Roads
- Other Regional Roads
- Future Rail Link
- Proposed Rockingham to Fremantle Transway

Projects/Studies

- Industrial/Commercial
- Road/Rail Transport
- Landuse/Structure Planning
- Heritage/Open Space
- Public Transport

...
3 Review of Consultation Outcomes

3.1 STRATEGY OPTIONS

Submissions received during the comment period raised a broad range of issues about the five land use options included in the Draft Strategy. The options are outlined below and shown in Figure 3.1.

- **Option 1 - Status Quo.** This option represents the continued management of the Kwinana EPP buffer area according to current arrangements. Existing residential development remains in the Hope Valley and Wattleup townsites. The Naval Base area is zoned industrial and the non-conforming residential uses in this area may remain or could be phased out over time. This will prevent the expansion of heavy industry within the KIA to the east. Any implications that this has for the future quality of the residential environment for those residing in the area are accepted. No general industry uses are proposed.

- **Option 2 - Mixed Use.** This involves the redevelopment of a small part of the Kwinana EPP buffer area to change its land use pattern. All residential developments at Naval Base, Hope Valley and Wattleup remain along with the major rural developments. Some of the available land is developed for general industry. This provides for a total area of general industrial use of approximately 262 hectares. No opportunities exist to further develop heavy industry in the current KIA. This option represents minimal change away from current land use. It allows for some general industrial land development but this is unlikely to meet the demand for this use in the region over the long term.

- **Option 3a - General Industrial Land Use with Wattleup Remaining.** This allows redevelopment of the EPP buffer area to change its land use pattern significantly. All residential developments at Naval Base and Hope Valley would be bought out along with remaining major rural developments. Wattleup townsite would be retained. The land made available by this change is devoted to general industry with opportunities to further develop heavy industry within the existing KIA being made possible by the acquisition of Hope Valley and Naval Base.

- **Option 3b - General/Heavy Industrial Land Use with Wattleup Remaining.** This is a variation Option 3a, with the KIA extended to include Hope Valley and used for heavy industry. This option makes approximately 775 hectares available for general industry and 98 hectares for heavy industrial purposes.

- **Option 4 - Integrated Industrial Expansion - No Remaining Townsites.** This allows redevelopment of the Kwinana EPP buffer solely for industrial purposes. All residential developments at Naval Base, Hope Valley and Wattleup would be acquired along with remaining rural developments. This creates opportunities to further develop heavy industry within the existing KIA and also to expand into Hope Valley. A total of approximately 899 hectares is made available for general industrial purposes and an additional 98 hectares for heavy industry.

The Draft Strategy identified Option 4 as the preferred land use strategy on the basis that it:

- maximises the potential for heavy industrial uses in the KIA;
- provides for significant development of much needed general industrial land in the region;
- creates opportunities for approximately 11,500 jobs;
- minimises potential environmental impacts; and
- removes the potential for land use conflicts.

Government determined that it was appropriate to seek community feedback on all of the options, including the preferred option.
3.2 SUMMARY OF KEY ISSUES RAISED IN SUBMISSIONS

3.2.1 The FRIARS Process
The issues raised by respondents in relation to Chapters 1 and 2 of the Draft Strategy primarily relate to process. These include:

- the need for a more comprehensive community consultation process;
- concerns that the Draft Strategy disregarded community concerns and suggestions made during previous consultation and comment periods;
- concerns regarding the difficulties experienced by residents in obtaining information; and
- suggestions for further community consultation and participation to be included in the detailed structure planning and implementation stages.

In responding to “The Planning Context” (Chapter 2), submissions commented that better integration is needed between the Strategy and the State Planning Strategy. Submissions also questioned whether more industrial land is needed in the Perth Metropolitan Region, considering that existing industrial areas in Perth are not fully developed. Alternative sites, such as Geraldton, were suggested as suitable locations for industrial development.

3.2.2 Key Environmental and Social Issues

i. Environmental Issues
Concern about the environmental impacts of the proposed land use options was expressed in a high proportion of submissions. The majority of these concerns related to the potential for increased pollution from industrial development in the KIA.

Submissions also suggested that unacceptable negative externalities may result from implementation of Option 4, including:

- decreased air quality;
- desecration of existing bushland and environmentally significant sites;
- degradation of Long Swamp;
- increased pollution of Cockburn Sound; and
- pollution of groundwater catchment areas.

It was also suggested that an increase in industrial use would result in an unacceptable level of risk to residents if the existing residential areas were to remain.

Particular concerns were expressed by local government authorities that, unless the type of industry permitted under any of the options was tightly controlled, particularly in respect to air quality impacts, there was likely to be increased pressure from industry to increase allowable emission levels, resulting in decreased air quality.

In general, respondents expressed a desire for better protection of the environment, particularly sensitive sites, for the benefit of future generations.

ii. Social Issues
The majority of submissions received during the public consultation period expressed concern about the social impacts of relocating residents from Hope Valley and Wattleup.

Residents expressed a desire for the townsites of Hope Valley and Wattleup to be retained in order to maintain their existing lifestyle, community atmosphere, access to services and infrastructure, close proximity to both Fremantle and Rockingham, as well as high quality regional recreation areas. They expressed concern about having to move to other suburbs which may not provide such high levels of residential amenity.

Submissions from residents stated that the Strategy and previous studies of the industry and buffer areas had created uncertainty, and that they were “sick of waiting in limbo” for decisions about the future. They asked that definitive decisions about the future of the townsites be made as soon as possible.

The level of compensation for residents was also an issue frequently identified in the submissions. Residents said that uncertainty has resulted in a depreciation of property values and they are concerned that the level of compensation will not be sufficient for them to recover the value of their land and businesses.

Local government and other submissions raised concerns about the potential for “planning blight” and a subsequent reduction in property values, if the time frame and program for acquisitions were not carefully managed.

3.2.3 Transport and Infrastructure
A number of transport and infrastructure issues were identified in the submissions. A significant proportion of these suggested that the Strategy needed more detailed information and analysis, including:

- improved consideration of the regional road network;
- access routes for freight rail;
Figure 3.1 Draft Strategy Land Use Options (as of March 1999)

Note: These maps reflect the draft FRARS options of March 1999. Mapping inconsistencies are corrected in the "Preferred Land Use Strategy" (Fig 5.1).
Review of Consultation Outcomes

- concern about roads having a negative impact on residential amenity;
- the view that the planned Fremantle to Rockingham Primary Regional Road (FRPRR) and Fremantle Eastern Bypass are unnecessary;
- the need for a passenger rail service in the Fremantle - Rockingham area; and
- criticism that the Draft Strategy did not include enough detail about the new port and Henderson Industrial Area (Jervoise Bay) proposals.

3.2.4 Planning Analysis

The development of land use options based on the existing Kwinana EPP buffer area was criticised in submissions. The view was expressed that the buffer area is unnecessary, and that it has been put in place without adequate scientific research. Submissions suggested that a further review of the buffer area needs to be undertaken before adequate land use options can be developed. It was also suggested that the buffer area be reduced as pollution levels improve.

The submission received from the City of Cockburn raised concerns about perceived conflicts between the FRIARS strategies and the recommendations of the Draft Agricultural and Rural Land Use Planning Policy (WAPC, 1999). This has been discussed in Section 2.5.

3.2.5 Evaluation of Land Use Options

The submissions received identified some key aspects of support for and concerns regarding the assessment of land use options.

Some respondents expressed support for the assessment outcome, saying that Option 4 is the most beneficial and logical, by keeping industry together, providing the greatest economic and employment benefits, and limiting the potential for environmental and social impacts in the future.

Concerns regarding the assessment process included the perception that the evaluation of Option 4 was based on unjustified figures for the take-up of industrial land, the level of employment likely to be generated, and the costs associated with developing a new industrial area. There was also scepticism regarding the assessed benefits of Option 4, such as increased employment opportunities in the region. Respondents suggested that further assessment is required on:

- infrastructure (drainage, sewage, power, water) requirements for each option;
- environmental and social impacts; and
- impacts on the coastal and marine environments.

3.2.6 Implementation

The implementation process and time frame were identified as issues of concern for a large number of residents and stakeholders. Resolution of the uncertainty that has existed regarding the future of the area is a high priority for residents, who have expressed a desire for definitive decisions to be implemented clearly and quickly.

A number of comments were also made questioning how the Strategy is to be implemented through local authority Town Planning Schemes and the MRS.

3.2.7 Other

Submissions commonly included comments about the proposed Kwinana Motorplex. Respondents were concerned that the proposal will have a negative impact on residential amenity in the area, and the public should have had an opportunity to comment on the proposal prior to the finalisation of the Strategy.

A full report on submissions has been prepared and includes a summary of the submissions, analysis of issues raised in submissions, and a summary and response to all submissions.
4 Response to Planning Issues

4.1 ENVIRONMENTAL ISSUES

4.1.1 Introduction

A key issue raised in public submissions was the need to protect the environmental values of the Fremantle-Rockingham region. The Environmental Protection Authority (EPA) also provided a submission dealing with environmental issues. This took the form of formal advice to the WAPC on the Draft Strategy under Section 16(j) of the Environmental Protection Act.

The intent of this advice was to:

- “assess each of the options in FRIARS in terms of the EPA’s environmental objectives and criteria;
- ensure that FRIARS adequately recognises and considers appropriate environmental issues; and
- identify the environmental matters which will require further consideration during subsequent statutory planning processes (ie. MRS and town planning scheme amendments, subdivision and development proposals) so that the environment will be adequately protected” (EPA, 1999a).

The EPA made some broad conclusions about the future of the Kwinana EPP buffer in particular, as well as some statements about specific environmental issues. The key conclusions are as follows:

- “the Kwinana EPP air quality buffer is required to provide a basis for management so that the EPA’s environmental objectives can be met for noise and air quality. The EPA would prefer that the buffer is called the Kwinana Industrial Buffer and is zoned appropriately so that it can be used as the basis for environmental management for all relevant environmental issues;
- the EPA supports the principles of implementing land use controls in the buffer area to prevent land use conflicts and ensure land use compatibility between heavy industry and sensitive land uses as promoted in FRIARS; and
- there will be a need to introduce land use controls for the rural residential lots still remaining within the buffer for all options” (EPA, 1999a).

Responses to the environmental concerns raised during the submission period and the outcomes of the EPA’s assessment in relation to specific environmental issues are discussed below.

4.1.2 Kwinana Air Quality Buffer

The Environmental Protection (Kwinana) (Atmospheric Wastes) Policy, commonly referred to as the Kwinana EPP, was established to maintain acceptable air quality around the KIA (EPA, 1992a). The policy identifies three land use areas:

- (Area A) - contains heavy industry;
- (Area B) - a buffer area surrounding the heavy industry of Area A, plus other outlying land zoned for industrial use; and
- (Area C) - land used predominantly for rural and residential purposes.

These areas are shown on Figure 4.1.

The Policy, through associated Regulations, sets different objectives for each of these areas for concentrations of sulphur dioxide and particulate matter in the air (EPA, 1992a). The objectives for residential areas are more stringent than those for the industrial strip and the policy provides for other pollutants to be included if necessary.

The Policy sets “standards” and “limits” for sulphur dioxide. The “standard” is the concentration of sulphur dioxide which it is desirable not to exceed while “limit” means the concentration of sulphur dioxide which shall not be exceeded (EPA, 1992a).

The DEP and emitting industries are responsible for monitoring sulphur dioxide levels and particulates. Recent monitoring for sulphur dioxide shown in Table 4.1 indicates that air quality in the Kwinana EPP buffer has improved since 1989.

These results show that the 99th percentile sulphur dioxide concentrations measured in micrograms per cubic metre have declined at Wattleup from approximately 507 to approximately 134 and at Hope Valley from 477 to 116. The DEP uses the 99th percentile to assess compliance with the EPP standard which, for Wattelup and Hope Valley, is 500 micrograms per cubic metre.

The EPP also sets ambient standards and limits for total suspended particulates, which have more localised sources and impacts than sulphur dioxide and are managed accordingly (EPA, 1999b).
It is important to recognise that existing sulphur dioxide licenses account for the full capacity of the Kwinana buffer as defined in the Kwinana EPP. Therefore, while air quality is improving, theoretically the potential still exists for industry to increase emissions in the region, up to the levels permitted under the EPP. However, the EPA believes that this is unlikely as ongoing management improvements will prevent significant increases in emission levels. The sulphur dioxide emission limits are determined via a computer model which the DEP has progressively developed and tested. Kwinana industries, through the Kwinana Industries Council (KIC), are currently reviewing emission limits with a view to proposing a re-determination (EPA, 1999b).

At the time the Draft Strategy was released, the EPA was conducting a review of the Environmental Protection (Kwinana) (Atmospheric Wastes) Policy. The EPA called for submissions from interested members of the community. The City of Cockburn prepared a detailed submission, outlining the results of modelling work commissioned by the City that suggested the buffer should be reduced due to low existing and estimated potential sulphur dioxide levels from existing industries.

Following receipt and review of all submissions, the EPA decided to submit the Kwinana EPP unchanged to the Minister for the Environment. The outcomes and conclusions of the review were documented in a report released to the public in June, 1999.

The EPA concluded that, given its intention to develop a State Air EPP that would require significant consultation and application of National Environmental Protection Measure (NEPM) standards, and the existing low levels of sulphur dioxide, there were no immediate issues forcing a reconsideration of buffer area standards and limits (EPA, 1999b). The EPA also concluded that land use issues were being addressed through the FRIARS process and that the role of the EPA and DEP would, in part, “be to ensure that the environmental quality objectives identified within the EPP are achieved and maintained within the context of future land use change in the (Fremantle-Rockingham) area” (EPA, 1999b).

The EPA subsequently issued its Section 16(j) advice to the WAPC in July, 1999, reinforcing the importance of the buffer as a planning and environmental management tool. The buffer is primarily a land use planning tool and this is the basis on which it has been used in this Strategy; however, it should be integrated with the requirements and specifications of the air quality protection regime.

The planning implications which arise from the Kwinana EPP are significant. Air quality within the Kwinana EPP buffer is gradually improving; however, there is also still significant vacant land within the KIA, where industries which produce sulphur dioxide and other emissions could locate. Tradeable emissions could be introduced as they have been in other countries.

### Table 4.1 99th PERCENTILE OF 1-HOUR AVERAGES FOR SULPHUR DIOXIDE

<table>
<thead>
<tr>
<th>YEAR</th>
<th>WATTLEUP (mg/m³ (1-HOUR))</th>
<th>HOPE VALLEY (mg/m³ (1-HOUR))</th>
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</thead>
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<tr>
<td>1988</td>
<td>507</td>
<td>477</td>
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<td>1989</td>
<td>394</td>
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<td>1997</td>
<td>134</td>
<td>116</td>
</tr>
</tbody>
</table>

Source: DEP, 1998
Notes: 1998 data are not all collected so a proper 99th percentile cannot be calculated.
Figure 4.1 Environmental Protection (Kwinana) (Atmospheric wastes) Policy 1992 - Policy Areas

Fremantle - Rockingham Industrial Area Regional Strategy
Conclusion

There is a need to ensure that any person living near the KIA has standards of air quality that comply with the specifications of the Kwinana EPP and, in the future, the State Air EPP. Therefore, development and industry emissions must be managed to achieve the required standards.

4.1.3 Buffer Requirements - Risk And Noise

i. Risk

Risk buffers have been identified to protect the community from potential industrial accidents. These currently fall within the Kwinana EPP buffer. Responsibility for managing risk is shared by employers, those employed in the area and the regulatory authorities. The key agencies within Western Australia with roles in industrial risk management are the EPA, State Emergency Services (SES), KIC and Department of Minerals and Energy (DME).

All hazardous industries built in Kwinana since 1985 have provided preliminary risk assessments to the EPA, and every proposal has met the EPA’s criteria for individual fatality risk. These criteria are:

- a risk level in residential zones of 1 in a million per year (1 x 10^(-6)) or less, is so small as to be acceptable to the EPA;
- a risk level in “sensitive developments”, such as hospitals, schools, child care facilities and aged care housing development of between 0.5 and 1 in a million per year (0.5 x 10^(-6) to 1 x 10^(-6)) is so small as to be acceptable to the EPA;
- risk levels from industrial facilities should not exceed a target of 50 in a million per year (50 x 10^(-6)) at the site boundary for each individual industry, and the cumulative risk imposed upon an industry should not exceed a target of 100 in a million per year (100 x 10^(-6)); and
- a risk level for any non-industrial activity located in buffer zones between industrial facilities and residential zones of 10 in a million (10 x 10^(-6)) or lower, is so small as to be acceptable to the EPA (EPA, 1992b).

The EPA’s Risk Assessment and Management: Offsite Individual Risk from Hazardous Industrial Plant, Guidance No. 2 for the Assessment of Environmental Factors (EPA, 1998a) should be taken into account when specific projects are being considered in detail. There are currently no criteria for societal risk. The EPA suggests that areas zoned for residential use should be located outside the 1 x 10^(-6) Individual Fatality Risk Contour to account for societal issues. (Keith Collins, pers.comm., 1998).

The cumulative risk from all of the activities within the KIA has been assessed in three previous studies. The Kwinana Cumulative Risk Study (DNV Technica, 1987) showed that the KIA met the EPA’s (then single) risk criterion. For every new hazardous industry proposal, the cumulative study was updated and the criterion was met in every case.

The study was comprehensively reviewed and updated in 1991, and showed that the development in the KIA met the EPA’s expanded criteria.

The third study, the Kwinana Cumulative Risk Study, conducted by AEA Technology, was completed in 1995 and recently updated in 1998. This study showed that cumulative risk from existing (1994) industrial plants satisfies the EPA’s criterion for existing residential areas (1x10^(-6) fatalities per annum). The risk levels, depicted as risk contours, are shown on Figure 4.2.

The 1998 update undertaken on behalf of the DRD predicted risk levels in a full development scenario at 2020 - using a maximum development scenario to determine the worst case implications. This scenario included a notional integrated petrochemical plant and an aluminium trifluoride plant within the KIA and notional risk generating industry in the Rockingham Industrial Park (IP) 14 area. It also provided for development of industry in Naval Base and Hope Valley (see Figure 4.3.).

Cumulative residential risk contours (1x10^(-6)) for the future development scenario in 2020 do not extend into Wattleup and therefore the EPA residential criteria are met for individual risk at this location. However, the risk contours extend into Hope Valley and Naval Base and the criteria are exceeded at these locations for the full development scenario.

The EPA’s advice on the potential risk impacts of each of the options is as follows:

- Option 4 would provide an adequate buffer between the existing/proposed heavy industry area and sensitive land use so that the EPA’s...
Figure 4.2 Individual Fatality Risk Contours 1994 (All Activities)

Source: Kwinana Cumulative Risk Study 1995 (Department of Resources Development)
criteria in relation to risk and noise can be met, provided additional planning controls are put in place to manage any rural residential areas remaining in the buffer; and

- Option 1, 2, 3a, and 3b may not provide an adequate buffer around the existing KIA, when it is developed to its full potential, to meet the EPA’s objectives and criteria for risk and noise unless special land use controls are in place (EPA, 1999a).

**Conclusion**

If the KIA was to expand to the full development potential proposed in the 2020 scenario, it would be necessary to remove residential uses from Hope Valley as the estimated risk from proposed industrial developments would be greater than the EPA’s criterion for individual fatality risk.

**ii. Noise**

Noise emissions from industrial activities and transport corridors have the potential to impact on the local environment and residential areas. Residential areas at Wattleup and Beeliar have the potential to be affected by noise from passing freight rail cars. Residential areas such as Kwinana and its suburbs, Rockingham, Hope Valley, Wattleup and the rural areas in Hope Valley, Postans and Wattleup are close to the KIA and therefore may be subject to reduced amenity resulting from industrial noise.

Industry is currently required to adhere to the Environmental Protection (Noise) Regulations 1997 which set maximum allowable noise levels at industrial premises.

The *Kwinana Central Core Development Strategy Masterplan* (Arup, 1999) includes an assessment of noise from:

- existing industries;
- existing industries with all empty lots occupied; and
- a future scenario with all empty lots occupied and emitting the maximum allowable noise levels at each lot boundary.

The assessment indicates residential areas at Hope Valley, North Rockingham and Medina are currently receiving noise at the limit of the allowable noise levels from existing industries, while noise levels in Wattleup from existing industry are well within allowable levels (Arup, 1999). With full industrial development, noise in the Medina area is likely to exceed the assigned night-time noise levels and noise levels in Hope Valley are also likely to increase (Arup, 1999).

Noise received in Medina will be the controlling factor and any noise control incorporated for this area will also result in compliance for North Rockingham (Arup, 1999). The report indicates measures for mitigating noise emissions but states that even with the implementation of these measures, exceedances would still occur. The report concludes that a joint government department committee on industrial noise is investigating noise from infrastructure corridors and industrial areas and it would be premature to discount industrial development on the basis of noise emissions (Arup, 1999). Notwithstanding this, proposals for future development would need to include provisions for noise management to ensure impacts can be appropriately managed.

Further development of land uses in the region - including residential and industrial - will create increased volumes of rail and road traffic. This will be an issue for residential areas located on major transport corridors. Wattleup is close to the freight rail line between Fremantle and Kwinana and rail movement is predicted to increase in the future. This is likely to have some impact on the residential amenity in this area. Hope Valley is near the Fremantle-Rockingham Primary Regional Road and likely to experience similar impacts.

Transport corridors are an essential and integral part of a modern industrialised society and need to be managed to provide maximum good for the community and the environment. Transport infrastructure and corridors are exempt from the Environmental Protection (Noise) Regulations 1997, but guidelines are being developed to aid in the determination of acceptable levels of transport noise. Further residential areas and other sensitive land uses should be adequately set back from transport corridors. The use of multi-purpose infrastructure corridors for transport and servicing is an appropriate way of minimising visual impacts.

A passenger rail line is proposed to pass through Kwinana and Leda and its potential noise impacts will be investigated in detail. Noise impacts associated with the proposed Motorplex are being considered as part of the environmental assessment for that proposal.

The EPA’s comments in relation to noise indicate their concern that Options 1, 2, 3a and 3b would not
Figure 4.3  Individual Fatality Risk Contours 2020 (Full Development Scenario)

Source: Kwinana Cumulative Risk Study 1998 (Department of Resources Development)

LEGEND

- $1 \times 10^{-6}$/yr (1 in a million per year risk level)
- $1 \times 10^{-5}$/yr (10 in a million per year risk level)
- $5 \times 10^{-5}$/yr (50 in a million per year risk level)
- $1 \times 10^{-4}$/yr (100 in a million per year risk level)
provide an adequate buffer for noise, unless special land use controls are involved, and that Option 4 improves compatibility between land uses and would allow the DEP to manage noise in a manner that places fewer constraints on industrial activity (EPA, 1999a).

- **Conclusion**

  Further development of the KIA and additional general industrial uses in the KIA will create a significant demand for transport and other infrastructure. The potential for noise impacts from road and rail traffic as well as industrial operations must be managed through appropriate land use and noise control planning.

### 4.1.4 Groundwater and Marine Water Quality

The Draft Strategy referred to the Perth Southern Metropolitan Coastal Waters Study and the potential for groundwater contamination in the region and subsequent impacts on Cockburn Sound. The key ways in which development can contribute to groundwater pollution include:

- disposal of industrial waste;
- fertilisers used in market gardening;
- disposal of solid and liquid domestic waste and animal manures; and
- over extraction leading to migration of the saltwater interface (EPA, 1993).

The EPA has identified large groundwater plumes, the results of industrial activity, which exist within the general area around the KIA. These are primarily the result of previous waste disposal methods. The Southern Metropolitan Coastal Waters Study recognises recent industry efforts to minimise these inputs, and indicates that the recovery and clean up of this area will be dealt with under the forthcoming contaminated sites legislation (DEP, 1996).

Industrial and other uses are now more closely controlled through licensing and conditions of approval, and industry is required to undertake whatever strategies are necessary in order to prevent groundwater pollution:

*The EPA's strategy with respect to groundwater protection in industrial areas is to initiate and encourage long term disposal strategies which not only ameliorate current pollution problems but will also prevent similar pollution episodes occurring in the future. Such strategies should include liquid effluent recycling programmes, waste minimisation (e.g. Alcoa's dry stacking of residue), and recovery programmes (e.g. BP's hydrocarbon recovery) (EPA, 1993: p. 12).*

A report on the general impacts of land use changes on groundwater in the Fremantle-Rockingham region was prepared on behalf of the MfP in March, 1999 by ERM Mitchell McCotter. This was a response to community concerns that additional industrial land uses would lead to further contamination of the groundwater and Cockburn Sound.

The shallow groundwater beneath the study area lies within sand and limestone aquifers. Groundwater is recharged by infiltration of rainfall and it flows slowly to the coast and Cockburn Sound. The groundwater is vulnerable to contamination by land-based activities.

The shallow groundwater was potable over most of the study area in the past. More saline groundwater existed near the coast and wetlands. The groundwater has been contaminated by industrial and horticultural activities in the study area and much of the groundwater is no longer potable. While the major industrial contamination plumes are being recovered, Cockburn Sound has been affected by the discharge of groundwater containing nutrients.

The impacts of different land uses on groundwater are as follows:

- vacant land and uncleared bush have negligible impact on the groundwater;
- development of residential areas, with septic tanks and fertilised, irrigated gardens has resulted in nutrient-rich leachate migrating to the groundwater;
- early industrial developments have caused significant groundwater contamination within the KIA by inappropriate handling of potential groundwater pollutants; and
- contaminated nutrient horticultural operations have resulted in broad, diffuse plumes of groundwater (ERM Mitchell McCotter, 1999).

The preferred option, Option 4, in the Draft Strategy provided for approximately 1,000 hectares of industrial land (which includes approximately 100 hectares of heavy industry) over existing rural and residential land. Much of the rural land in the region is currently under horticulture and the area is broadly...
recognised in the Draft Agricultural and Rural Land Use Planning Policy (WAPC, 1999) as having agricultural significance. Horticultural and unsewered residential land uses impact the groundwater through normal operating practices. The risk of contamination from industrial land uses can be managed by operational controls governed by the DEP.

The implementation of a land use strategy which provides for industrial development will have the following effects:

- reduction of the nutrient discharge to groundwater under current land uses;
- increase of the risk of groundwater contamination by industrial chemicals through isolated spills and leaks;
- increase in the recharge rates of fresh groundwater beneath industrial areas; and
- a long-term improvement in groundwater quality beneath the study area and ultimately an improvement in the quality of groundwater discharging into Cockburn Sound.

The majority of the proposed industrial uses are for general or light industrial purposes. Sensitive environmental receptors in the study area, such as wetlands and remnant vegetation, have been identified and carefully controlled development near these receptors could be used to manage any potential impacts (ERM Mitchell McCotter, 1999). The EPA’s advice on protecting groundwater quality and subsequent impacts on marine water quality from land use impacts is that:

- the proposed expansion of heavy industry and general industry as per Options 2, 3a, 3b and 4 will need to be carefully managed in order to avoid cumulative impacts on groundwater quality;
- groundwater quality will need to be managed through EPA licenses for each industry in Option 1, 2, 3a, 3b and 4; and
- ongoing contamination of groundwater from horticultural activities will occur but from a smaller land area in Options 2, 3a, 3b and 4 (EPA, 1999a).

This reflects earlier advice provided by the EPA in the Strategic Environmental Assessment of Port and Harbour Scenarios in Cockburn Sound (EPA, 1988b) which highlights the issues relating to Cockburn Sound. The Government has made a commitment to the establishment of a Cockburn Sound Management Authority.

**Conclusion**

The protection of groundwater quality, and subsequent mitigation of impacts on Cockburn Sound, is very important. Implementation of a land use strategy that minimises the potential for nutrients to enter Cockburn Sound will be beneficial to groundwater quality beneath the study area in the long term; however, any industrial uses will need to be carefully managed through licensing.

### 4.1.5 Regionally Significant Wetlands, Vegetation and Heritage

There are a number of sites identified in the Draft Strategy that have been identified as regionally significant wetlands or vegetation. Other areas have been identified as part of the Bushplan process. The key sites to be recognised in the planning process are shown on Figure 4.4 and include:

- Beeliar Regional Park which includes the coastal strip between Henderson and the KIA, the internationally recognised Thomsons Lake, Lake Coogee, Harry Waring Reserve, the Spectacles and a number of other wetland areas. This Regional Park and others in the region are managed by Conservation and Land Management;
- System 6 areas M91 (Reserve A24306 Coogee), M92 (Cockburn Wetlands Eastern and Western Chains) and M93 (Thomsons Lake extension). These sites are not included within Beeliar Regional Park;
- Mt Brown which is part of Beeliar Regional Park and Perth’s Bushplan (Site No. 346);
- Long Swamp; and
- Bushplan Site Nos. 267, 268 and 393.

Many of the identified sites have been mentioned in the submissions, indicating the community’s desire to protect the natural environment. The EPA’s advice in relation to the nexus between land use and protection of regionally significant wetlands and vegetation is that:

- appropriate buffers and land use management will be required between Mt Brown Lake and Long Swamp and the industrial areas identified
in Option 2, 3a, 3b and 4 to prevent unacceptable impacts on either the water quality or the hydrology of the wetlands due to a change in land use (EPA, 1999a).

The EPA has also indicated that Option 1, the status quo, is likely to result in no additional direct impacts on the regionally significant wetlands (EPA, 1999a).

Ongoing responsibility for the management of regional parks will lie with CALM. Other areas of remnant vegetation or wetlands will be the responsibility of the MfP through Bushplan or local government authorities.

The EPA has indicated that they require further information in relation to transport routes and the transportation of hazardous goods to the KIA, across the study area and the Jandakot Mound, and the implications for regionally significant wetlands and vegetation (EPA, 1999a).

There is one heritage site of local significance in the region. Postans Cottage is an item of local heritage significance which is listed by the National Trust. Future development should have regard to the Cottage once its level of significance is confirmed. The cottage at Lot 123 Hendy Street, Hope Valley is in a state of disrepair and was constructed in about 1882 by George Postans, one of the early residents of Hope Valley.

**Conclusion**

EPP lakes and wetlands are an important part of our natural heritage and must be protected. Any development in the region must recognise these values and ensure that the integrity of environmental uses is protected. In particular, the recommendations for Bushplan sites must be noted and provision made for their inclusion in the Strategy.

### 4.2 INDUSTRIAL LAND DEVELOPMENT

#### 4.2.1 Heavy Industrial Land

Kwinana is currently the premier heavy industry location in the State. Although the need for additional heavy industrial estates in Western Australia has been recognised in *The Establishment of a New Heavy Industry Site in WA*, (Confederation of Western Australian Industry, 1991), these estates at Oakajee, Kemerton, Mungari, Meenaar and Burrup are either in their development or planning stages. For the foreseeable future, Kwinana is likely to remain the preferred location for many new heavy industry developments in Western Australia.

The report, *Chemicals and Heavy Industries, Kwinana Western Australia* (Department of State Development, 1992), identified a range of advantages that Kwinana has that cannot easily be replicated in alternative locations:

- **Infrastructure.** Kwinana has an extensive network of road, rail and port facilities, including the proposed expanded port facilities.

- **Agglomeration Economics.** At Kwinana, firms receive spin off benefits due to the availability of a high level of services and work force skills that resulted from the density of heavy engineering/processing based firms in the area.

- **Technical Advantages.** Many firms at Kwinana, certainly in the chemicals sector, are physically connected (by pipelines etc.) as some firms provide inputs to others. The ability to achieve this sort of arrangement is a major benefit of Kwinana.

The economic development of the Kwinana region will depend to a large degree on the extent to which future planning in the area can accommodate further heavy and general industry development. This is, in part, tied to the capacity of the area to accommodate such developments and to the desirability of further concentration of industry in the Region.

Kwinana is the only integrated heavy industry area in the State where heavy industrial firms, especially chemical firms, can achieve the degree of interaction and integration necessary to be competitive. Many industrial processes are physically linked to processes in neighbouring firms, and many also rely on the proximity of port facilities. Technical support services for modern heavy industry are also easily available at Kwinana.

Difficulty in replicating these opportunities, the high initial cost of infrastructure and the disadvantage of transporting potentially hazardous products between areas make planning for a new heavy industry estate a complex issue. A range of development opportunities have been identified for Kwinana in recent years, including:

- expansion of oil refinery facilities
- expanded titanium pigment production for export
- petrochemicals
- further processing of silicon products
- manufacture of aluminium fluoride and a range of advanced materials
Future development of new projects will ultimately depend on a variety of economic factors and access to well located industrial sites and port facilities that provide the full range of technical support services and infrastructure. The availability of land in Kwinana may prove to be critical to the State’s ability to attract new developments over the next decade.

It is generally recognised that the KIA has a finite capacity; however, this capacity is not likely to be reached for 10-20 years. Notwithstanding this, it takes significant time to identify, plan and develop heavy industrial estates. The State Government is in the process of identifying locations for future heavy industry sites in near metropolitan and regional locations. The costs associated with developing new industrial areas is a significant factor in identifying the preferred land use strategy and is considered in detail in a separate document.

The speed with which Kwinana reaches capacity will depend on:

- the type of new heavy industry development opportunities in Western Australia and their requirement to be near Perth;
- the extent to which the efficiency of land allocation in Kwinana can be improved. Recent studies have noted the fragmented ownership of remaining vacant land and the constraint this places on efficient development. The Towards Optimising Kwinana reports (Dames and Moore, 1993a and 1996) and the Kwinana Core Development Masterplan (Arup, 1999) have looked at these issues in detail; and
- the ability to overcome current air quality and noise constraints and meet marine discharge criteria.

It is noted that existing industries are reducing emissions and discharges and new industries will be expected to meet environmental standards. For instance BP Refinery and Wesfarmers are working towards zero discharge to Cockburn Sound by 2010 or before.

**Conclusion**

The KIA is the State’s premier industrial site and has many advantages of agglomeration and infrastructure. It is vital to the State’s economy and must be protected through the planning process which should maximise the potential for the development of the area.

### 4.2.2 General Industrial Land

#### i. Projections of Demand

Many of the submissions received indicated concern about the validity of the claim that there was a short term need for industrial land in the region and the data supporting this. Investigations into the demand for general industrial land commenced with the Strategic General Industrial Lands Study, Stage 1 conducted by BSD Consultants in 1996 and Stage 2 (Sinclair Knight Merz, 1997). These studies estimated the demand for general industrial development and considered the potential for general industrial development in three locations:

- Barragup
- Bullsbrook
- Kwinana

The Sinclair Knight Merz study recommended the Kwinana site as being the most suitable for general industrial development.

Subsequent to the release of the Draft Strategy, additional studies have been undertaken on behalf of LandCorp (ERA, 1999) to identify the demand for general industrial land in different sectors of the metropolitan area.

Additional research has been undertaken and the results are presented here.

The demand for industrial land in the region needs to be considered in the context of the likely demand for general industrial land in Perth in the future. This is critical in determining:

- (a) the most reasonable take-up rate (development rate) to assume; and
- (b) the likelihood that the use of FRIARS land can avoid the development of other less efficient options.

The objective of recent studies on long run general industrial land demand has been to project the likely level of land required and then match this with likely available land supply to determine the level of new land that has to be planned for. Two methods have been used to make estimates of land requirements, a population model and a take-up rate model.

#### ii. Population Based Projections

Under the population model, general industrial land demand is projected based on projected population. In the long run, there is a close relationship between population and employment growth, based on the expectation that the age composition will change.
relatively slowly and that the employment rate will remain relatively stable.

The translation of population into land demand depends on:

- the employment mix by industry;
- the general industrial hectares required per employee; and
- the sustained vacancy ratio (ratio of vacant to occupied land).

Both of these will change over time in ways that are not easy to predict. In particular, in recent years there has been a significant rise in service sector employment. This trend will slow up the demand for general industrial land. On the other hand there is a tendency for hectares per employee to increase.

The most reasonable approach to achieving a benchmark projection for general industry land based on population is to assume that the current ratios of employment to population and hectares per employee remain as current or change only slowly over time. The former is reasonable in Perth because the periodic survey of industrial land provides a data base which can be used to adjust the key ratios over time and revise projections as new survey data becomes available.

Application of the population growth model yields the following projections of land requirements. In 1997 Perth had 5,076 hectares occupied and 2,234 hectares vacant after allowing for specific constraints on some land. This corresponds to a 30% vacancy ratio.

Between 1997 and 2021 occupied land area would need to increase from 5,076 hectares to 6,960 hectares. Total area (occupied plus vacant) would need to increase from 7,310 hectares to 9,754 hectares. This represents a total increase of 2,444 hectares to accommodate the projected growth in employment numbers while sustaining the current ratios of hectares per employee and the current 30% vacancy ratio.

Over the long run this is the most reasonable projection.

It will vary as population growth varies, as employment growth varies, as the employment pattern changes, as hectares per employee change and if the vacancy ratio changes. There will be forces pushing the projection both up and down. However, reasonable sensitivity analysis still leaves the projection around this level. This projection is shown in Graph 4.1.

### iii. Industrial Land Take-up Rate Based Projections

An alternative model is based on the take-up pattern for industrial land. The industrial land survey over the period 1985 to 1997 has indicated an average take-up rate of 72.8 hectares per annum for Perth. The take-up rate varies with the time frame surveyed. It has been lower over the period from 1988 to 1997, averaging 63.8 hectares per annum. The projection of land demand based on this method depends on:

- the continuation of the take-up rate; and
- the sustained vacancy ratio (ratio of vacant to occupied land).
Over the long run there should be a close correlation between the two sets of results for the base case. This is because general industrial land must be taken up to accommodate employment growth and taken up in a way that allows the required area per employee to be provided. In the short term there may be divergences because economic circumstances may require modification of the underlying decisions, for example delaying a move to a larger site.

If the 1985-1997 take-up rate was sustained over the next 24 years, an additional 1,747 hectares of occupied general industry land would be needed. Based on the standard 30% vacancy rate, the total additional requirement is 2,496 hectares. Hence, between 1997 and 2021 occupied land area would need to increase from 5,076 hectares to 6,823 hectares and total area (occupied plus vacant) would need to increase from 7,310 hectares to 9,806 hectares. These
results are summarised in Graph 4.2. The additional 2,496 hectares would sustain the most recent take-up rate and sustain a 30% vacancy ratio.

iv. Overall Projected Industrial Land Requirement

The population and take-up rate calculations are consistent when looked at as extrapolations of the most recent past. It is not possible to be too precise about such projections. However, the clear implication of the analysis is that if Perth is to achieve the population and employment levels included in the long range planning, an additional land area of around 2,500 hectares is likely to be required for general industrial land between 1997 and 2021.

The results as indicated by the above graphs show that the trend in the occupied land is clearer than in the vacant land. This is indicated by the fact that the vacancy ratio (ratio of vacant to total land) has fluctuated over the surveys, as shown in Graph 4.3. The vacancy ratio has fallen and then risen again as indicated by the trend line. The average over the period has been 33.7%. One important issue is the likely future vacancy ratio and this is not an easy variable to predict. It will depend on market conditions and factors such as the suitability of particular sites to meet the pattern of demand at any given time. Simple extrapolation of recent trends is not appropriate as it implies an increasing vacancy rate. The average of 33% could be used. However, within the vacant land data in the surveys there are parcels of land that are in fact unsuited to development because they are constrained in various ways. In several industrial land surveys the amount of this constrained land has not been estimated but its inclusion means that the effective vacancy rate is overstated. An assessment of the extent of constrained land has recently been made in a study for LandCorp (ERA, 1999). In that study, once the appropriate adjustments were made, the vacancy ratio was 30%. This level of vacancy has been used to scale up the project occupied land demand to the total land requirement in the future.

Another variable of significance is the level of hectares per employee. Embedded in the population model results is an assumption that the hectares per employee will remain at the current levels (based on the recent surveys). This assumption is also implicit in the take-up model where the estimated average take-up rate effectively includes the survey data on hectares per employee. Hectares per employee at any given time will reflect the pattern of industry development and market conditions.

Again, predicting the future is difficult. As Perth grows, one expectation is that efficiency of organisation and productivity improvements combined with increasing land values will encourage a decline in land area per employee. Alternatively, as Perth grows, a process is occurring whereby firms are relocating from inner to middle and outer area estates and this allows them to be more extensive with their land requirement. The recent LandCorp study shows that hectares per employee have been rising since 1990 (ERA, 1999). For the whole Perth Metropolitan region hectares per employee increased by 17% between the 1990 and 1997 surveys. However, as with the vacancy ratio a simple extrapolation of this increase is inappropriate – it cannot increase continuously into the long term. All that can be sensibly done at this stage is to recognise that these factors are important and need to be monitored. Current evidence is that, at least for the medium to near term, both are conservatively expressed in the analysis so the projected land requirement is likely to be conservative.

v. Distribution of Land Requirements

The overall land requirement of around 2,500 hectares can be initially distributed to the metropolitan sectors on the basis of past take-up rates, allowing for vacant land available in each sector in 1997 (ERA, 1999). These results are shown in the following table allowing for a small net decline in the inner sector.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner</td>
<td>-63</td>
</tr>
<tr>
<td>Middle</td>
<td>1,686</td>
</tr>
<tr>
<td>North-West</td>
<td>26</td>
</tr>
<tr>
<td>Eastern</td>
<td>428</td>
</tr>
<tr>
<td>South-West</td>
<td>319</td>
</tr>
<tr>
<td>South-East</td>
<td>100</td>
</tr>
<tr>
<td>Perth</td>
<td>2,496</td>
</tr>
</tbody>
</table>

However, there is an issue concerning the feasibility of this as an outcome. As the city grows, the demand for industrial land will spill out from the middle as competing uses emerge. Therefore the pattern as shown in the table is unlikely to be realistic.

In particular, the capacity of the Middle sector is such that the projected land demand cannot be accommodated. The interaction between planning and
market forces will ultimately determine how this excess demand spreads out and accommodates itself within the broader metropolitan area.

Reallocating the Middle land demand number to get a feel for the likely pattern of demand is a generally speculative exercise. One way of doing this is to look at the individual estates that make up the Middle, combine them with the other sectors to which they relate and use the combined take-up rates to project the overall pattern of demand. Using the allocation of Middle sector estates from the LandCorp study (ERA, 1999) produces the following results, allowing for a small make up factor to account for the reduction in inner sector areas and adjusting to be consistent with the overall 2,500 hectares figure. These are gross demands needed to accommodate projected growth and take-up.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>551</td>
</tr>
<tr>
<td>North-West</td>
<td>1,007</td>
</tr>
<tr>
<td>South-West / South-East</td>
<td>941</td>
</tr>
</tbody>
</table>

It makes no sense to differentiate between the South-West and South-East in this model because recent take-up rates in the Southern areas are dominated by Canning Vale which services both corridors. Rather, the placement of these demands will depend on land availability in the areas, the pattern of industry development and location, and accessibility. In this context it is important to recognise that the Southern areas have very good accessibility between east and west locations via rail and via the various major east-west roads.

However, in the northern suburbs, the western and eastern developments appear quite distinct and have little access between them.

An issue that cannot be resolved with available data concerns the status of the current vacant land. The presumption in the forecasting models is that the current vacant land is suitable for industrial development over time as demand grows. This may not be the case if the future demand is for particular lot sizes and configurations and the current stock does not match it. There appears, for example, to be some current concern about the availability of larger lot sizes. This being the case, it is appropriate to work with the gross figure of 2,500 hectares.

vi. Summary of Project Land Requirement and Role of FRIARS

Both the population and take-up rate methods are generally consistent when considered as extrapolations of the most recent past. There are several variables, though, which will require further consideration, including vacancy rates and land area per employee ratios.

These two methods project that an additional 2,500 hectares of general industrial land will be required within the next 20 years (to 2021).

Of this 2,500 hectares projected to be required for the metropolitan area, 551 hectares will be needed in the Eastern sector, 1,007 hectares in the Northern sector and 942 hectares in the combined South-West / South-East sectors. Ultimately the availability of accessible land and market conditions will determine the exact distribution by sector.

- Conclusion

There is an immediate need to plan for general industrial land in the southern metropolitan region.

4.3 TRANSPORT AND INFRASTRUCTURE

4.3.1 Introduction

The KIA requires efficient transport and service infrastructure. Cabinet has endorsed the area between Naval Base and James Point as an appropriate area within which future port facilities could be developed, subject to normal environmental and development approval processes. The development of port facilities will have implications for the transport network in the study area.

The area will need to be served by high quality road and rail links which facilitate the activities of the port and industry while minimising impacts on the environment and existing communities. A strategic approach to land use and transport planning is needed which considers the local and regional transport and infrastructure requirements in the metropolitan context as well as the particular context of the FRIARS Land Use Strategy Redevelopment Area. This was reinforced in the submissions on the Draft Strategy.

The Department of Transport has drafted the Draft Perth Metropolitan Freight Transport Strategy. It is important that the FRIARS Strategy reflects the importance of major freight routes in the sub-region...
including Rowley Road, Anketell Road and Thomas Road. The function of these roads needs to be protected by ensuring that future adjacent land uses are compatible with the major freight function. Key issues for transport in the subregion are discussed below. Transport and servicing infrastructure is shown on Figure 4.5.

4.3.2 Road Network

i. Existing Road Network

The primary north-south roads servicing the subregion are the Kwinana Freeway, Stock Road/Rockingham Road, Patterson Road/Ennis Avenue, Mandurah Road and Cockburn Road. All but Mandurah Road are under the control and responsibility of Main Roads. Mandurah Road is under the control and responsibility of the relevant local authorities.

The primary east-west roads within the subregion are Armadale Road/Beeliar Drive, Russell Road, Wattleup Road, Anketell Road and Thomas Road. Thomas Road is a primary distributor road, and the others are district distributor roads. Existing designated freight routes in the region include:

- Cockburn Road
- Rockingham Road
- Stock Road
- Russell Road
- Thomas Road

Proposed future designated freight routes include:

- Fremantle to Rockingham Primary Regional Road
- Rowley Road

Discussions are underway between Main Roads and other stakeholders, and the routes will be finalised with the release of the final Draft Perth Metropolitan Freight Transport Strategy.

ii. MRS Road Reservations

The MRS road reservations within the region are currently under review, particularly in terms of east-west major road connections.

The nominated Primary Regional Roads (PRR) and Other Regional Roads (ORR) reserved within the study area are as follows:

- Kwinana Freeway
- Roe Highway
- Fremantle-Rockingham Primary Regional Road (FRPRR)
- Rockingham Road/Stock Road north of the FRPRR
- Patterson Road and the remainder of Rockingham Road, south of the FRPRR
- Beeliar Drive
- Russell Road
- Spearwood Avenue (part)
- Anketell Road
- Hammond Road/Frankland Avenue
- Thomas Road
- Wellard Road
- Mundijong Road extension from Kwinana Freeway to the FRPRR

The nominated east-west ORRs have MRS reservations which extend east to the Kwinana Freeway. It is essential that the appropriate east-west links to the south-east corridor be established in conjunction with the existing east-west ORR reserves.

The proposed Rowley Road alignment is not currently included in the existing MRS reservations. This road has been the subject of an alignment assessment, and will be included in the MRS in the future. Rowley Road, Anketell Road and the FRPRR are key road planning initiatives in the subregion and these are discussed further below.

iii. Cockburn Road / FRPRR

The designation of Stock Road as a PRR in the MRS has long been accepted as necessary to cater for north-south demand along the corridor, particularly given the strong connection to Roe Highway. Stock Road/Rockingham Road forms one of two major north-south routes serving commercial and industrial centres, ports and urban areas west of Kwinana Freeway. The other route comprises Cockburn Road which is to be replaced by the FRPRR. The Stock Road/Rockingham Road route connects commercial and industrial centres and adjacent residential areas in the south-west corridor, including Rockingham, Kwinana, Naval Base, Bibra Lake, Spearwood and O’Connor. It also connects other major east-west
regional roads. Cockburn Road and the previous FRPRR proposed route are to link Rockingham/Kwinana/Naval Base in the south with Fremantle and areas beyond in the north, and to provide access to coastal industrial, recreational and residential areas in between.

The proposed Jervoise Bay southern harbour development at Henderson will require the realignment of Cockburn Road. During the Public Environmental Review (PER) process there were strong community concerns regarding the road alignment - principally that the new road would have a detrimental environmental impact on the Beeliar Regional Park in Henderson because it would bisect the park and separate the Brownman Swamps and Mt. Brown Lake from Mt. Brown.

In response to these concerns, an alternative alignment has been developed which will overcome the more significant environmental impacts associated with the previous FRPRR alignment without unduly compromising the efficiency of the road transport system in this area. The new road plan provides for the FRPRR to link to Rockingham Road via Russell Road.

The new FRPRR alignment will provide significant environmental benefits, and avoid impacts on the southern portion of Beeliar Regional Park. It will also potentially increase the park by about 25 hectares through the deletion of an unnecessary portion of the FRPRR reservation between Russell Road and Rockingham Road. The new road network plan will also release some PRR reservation which can be developed for industrial purposes within the Henderson Industrial Area (Jervoise Bay). The main disadvantage of the new plan is the extra length of the new FRPRR route to and from Fremantle (about 0.7 kilometres), which will result in increased transport costs for road users.

The new road network plan provides an acceptable alternative to the current regional road plans for the Henderson Industrial area. It will meet short-term and long-term transport objectives, with a small compromise in transport efficiency, while removing the impact of the FRPRR on the proposed Beeliar Regional Park. The new road network concept requires amendment of the MRS to delete the PRR reservation between Russell Road and Rockingham Road, create a new PRR reservation along a portion of Russell Road and delete the ORR reservation on Russell Road west of the FRPRR.

Construction of the portion of FRPRR to the south of the Rockingham Road is a longer term requirement because it is not directly linked to immediate pressures for strategic land development. However, the importance of this section of the FRPRR should not be underestimated. It creates a bypass of the KIA for the regional north-south traffic connecting at Ennis Avenue near Rockingham. The bypass route will alleviate future traffic congestion within the Naval Base/Kwinana industrial complex, improving safety and efficiency for regional transport and traffic circulation within the complex. The FRPRR will also provide a convenient alternative route for access to and from this complex, reducing risk and improving management of any hazardous incidents.

iv. Rowley Road Alignment to the Port Site

Previous studies (BSD, 1996) have considered a number of possible alignments for a major east-west road between Kwinana Freeway and the northern end of the Naval Base/Kwinana industrial complex. The Northern Road and Rail Access - Naval Base/Kwinana Port Site, Alignment Selection Report (Main Roads, 1998) reviewed three road access options to the port site and recommended the extension of Rowley Road westward from the Kwinana Freeway as the preferred alignment.

Between the coast and Rockingham Road, the proposed road alignment is on the south side of Mt. Brown. This alignment avoids Mount Brown itself and the environmentally sensitive areas north of Mt. Brown while minimising impact on Alcoa's refinery operations. This is the only feasible alignment due to the numerous constraints on the area.

Between Rockingham Road and the Kwinana Freeway, the recommended alignment veers to the north and follows the Cockburn/Kwinana municipal boundary, joining the existing Rowley Road just west of the Kwinana Freeway. Several options were considered, but this alignment has the least environmental impact and provides greater flexibility for future development south of Rowley Road in Mandogalup.

The new road concept provides for a grade-separated interchange with Rockingham Road (north) and the FRPRR, an at-grade intersection with Rockingham Road (south), closure of Cockburn Road south of the new road, and grade separated road/rail crossings.
The new regional road provides a strong connection between the northern end of the Naval Base/Kwinana industrial complex and the important north-south primary distributors in the region (i.e. FRPRR, Rockingham Road and Kwinana Freeway). In the short term, the new road will only be needed between the Kwinana Freeway and Rockingham Road. However, the recommended alignment provides the flexibility for a westward extension from Rockingham Road to the coast to service any future port facilities, and an eastward extension, to link with regional routes such as Tonkin Highway in the south-east corridor.

A Planning Control Area has been placed over properties within the anticipated road reserve, thereby notifying landowners of the future requirements for the road and triggering compensation for impacts on properties.

v. Spearwood Avenue

The potential to extend Spearwood Avenue south to the new Rowley Road alignment and further south to Thomas Road, to help service north-south demand expected if new industrial development occurs near KIA and Wattleup township, was considered in the Draft Strategy.

A supplementary north-south link would have assisted commercial vehicle distribution arising from increased northern demand if new industrial uses were developed in the northern section of the Kwinana EPP buffer. The need for this road has been considered in light of the final land use proposals for the region and it is not considered that it will be required.

vi. Anketell Road Extension to the Potential Port Site

The extension of Anketell Road to the coast, to provide access for existing jetty facilities and proposed future port facilities, is considered in detail in the Kwinana Core Development Strategy Masterplan (Arup, 1999).

This report proposes an alignment which sweeps through the centre of the BHP site and terminates at the coast, close to existing BHP jetties. The need for this alignment will be determined by the expansion of activities within the KIA and the timing and extent of any future port facilities. Detailed alignment definition studies are still required, and it is important that a reserve for the Anketell Road extension is provided to preserve the options for future access. This extension should also provide for future rail requirements.

4.3.3 Rail Network

i. Existing Rail Infrastructure in the KIA

Existing rail infrastructure has generally developed in conjunction with, and to meet the requirements of, specific needs within the KIA. All major industries in the KIA are serviced by some level of rail infrastructure.

Standard gauge and narrow gauge lines exist within the KIA. Much of the bulk commodity transport from the south-west of the State - such as bauxite, alumina and coal - uses the narrow gauge rail system. The standard gauge system provides the opportunity for direct import and export of produce from and to the Eastern States.

The existing rail infrastructure forms a major link to transport goods between Kwinana and Kewdale and between Kwinana and Fremantle and other Australian ports. The freight rail services that use this infrastructure have great economic significance to Western Australia, and are likely to become more important as these services increase.

ii. Rail Access - Port Access

   ▪ Alignments

A preliminary rail alignment has been developed in association with the proposed Rowley Road alignment. The alignment runs parallel to Rowley Road, on the north side of the road. A “triangle” junction is included which provides direct access to the north and south along the Kewdale-Kwinana rail line.

There is support in principle for the provision of a rail reserve on the northern side of Anketell Road west of Rockingham Road to service future port facilities at James Point. However, a detailed study is required to determine whether this or some other rail alignment is the preferred solution. This study is required urgently given the need for subdivision approval for the port developer.

   ▪ Grade Separated Road/Rail Crossings

The rail line associated with the Rowley Road alignment would have a grade separated crossing of the FRPRR/Rockingham Road and the Cockburn Road north connection.

East of the FRPRR the southern portion of the “triangle” junction with the Kewdale-Kwinana line will require a grade-separated crossing of Rowley Road.
Overall, rail access to the proposed port site provides a direct connection to the main rail line and would serve future port facilities well.

4.3.4 Public Transport
Public transport facilities in the area are limited to a network of bus services. Several key public transport initiatives which incorporate services through the Fremantle-Rockingham Region are planned for the South-West Corridor. A rapid transit bus lane system is proposed to service line haul public transport between Fremantle and Rockingham and will support the proposed Perth/Rockingham/Mandurah rail passenger service. The Strategy takes the implications of these developments on regional land use planning into account.

4.3.5 Proposed Port Facilities
Port container trade at Fremantle Inner Harbour has grown significantly in recent years, and this trend is expected to continue. The capacity of existing port facilities in the Inner Harbour is expected to be reached within 15-20 years, and additional port container facilities will be needed in the Outer Harbour for additional trade. The Fremantle Port Authority has undertaken several studies to examine potential port sites, with five locations initially being identified for a future port. Cabinet has endorsed a location between James Point and Naval Base.

In May 1999 the Government announced the acceptance of a private consortium as preferred developer for the construction and operation of a private port facility at this site subject to the proponent obtaining all necessary planning and environmental approvals. There needs to be adequate planning for the provision of roads, rail and other essential infrastructure necessary to service this facility.

4.3.6 Service Corridor to the KIA
Rationalisation of service corridors within the KIA will also ensure any new port facilities receive services in a planned and effective manner. Combining service corridors with transport access corridors would use land efficiently, but this issue needs detailed assessment. Providing service corridors to the KIA and James Point/Naval Base area must be co-ordinated with strategies which provide for utilities and roads for proposed light industry zones east of the KIA. Full details of the service infrastructure in the region are included in chapter 6.

Conclusion
Existing and proposed transport and service infrastructure in the Region is adequate to cater for additional development in the Kwinana EPP buffer; however, consideration may need to be given to the timing of some items.

4.4 SOCIAL ISSUES
There are a number of residential uses in the Fremantle-Rockingham region. These include residential suburbs in the urban zones outside the Kwinana EPP buffer as well as the townsites of Hope Valley, Wattleup, and the rural areas within the Kwinana EPP buffer. It is estimated that there are approximately 2,200 residents living inside the Kwinana EPP buffer. The impacts on and the needs of these people are an important consideration of this Strategy.

A number of reports on planning or industrial development in the region have been prepared in the past and many of these have identified the potential land use conflict between the residential uses inside the Kwinana EPP buffer and industrial uses. This has created uncertainty for residents and landowners, many of whom have businesses in the area.

The consultation process for the Draft Strategy involved public meetings, submissions, meetings with interest groups and the Hearings Panel. Comments made during each of these activities have highlighted the concerns of residents and landowners about the preferred option, the uncertainty of their future, and the time frame for resolving these matters. Particular concerns included:

- a perceived lack of consideration of the issues raised and suggestions made in previous submissions on FRIARS;
- the stress and anxiety the FRIARS process is causing for residents;
- the timing for any redevelopment of the area;
- impact of redevelopment proposals on the value of properties;
- property valuation processes that will be used to determine the value of homes or businesses; and
- whether compensation will be paid for relocation and inconvenience, should people have to move.

- Conclusion

  The Strategy must consider the needs of the local community in the Kwinana EPP buffer as well as the broader economic needs of the State and environmental considerations. It is imperative that the Strategy delivers certainty about the future of the region for the people living there.
5.1 INTRODUCTION

The preferred strategy has been developed taking into account the responses to each of the planning issues identified in the previous chapter. It is based on the conclusions drawn which, in summary, are:

- The KIA is vitally important to the State’s economy and must be protected through the planning process which should maximise the potential for the development of the area, thereby delaying the need for Government to expend significant funds on development of new sites in the immediate future.

- There is a need to ensure that any person living in or near the KIA has standards of air quality that comply with the specifications of the Kwinana EPP and, in the future, the State Air EPP. Therefore, development and industry emissions must be managed to achieve the required standards.

- If the KIA was to expand to the full development potential proposed in the 2020 scenario, it will be necessary to remove residential uses from Hope Valley as the estimated risk from proposed developments would be greater than the EPA’s criterion for individual fatality risk.

- Further development of the KIA and additional general industrial uses in the KIA will create a significant demand for transport and other infrastructure. The potential for noise impacts from road and rail traffic as well as industrial operations must be managed through appropriate land use and noise control planning.

- The protection of groundwater quality, and subsequent mitigation of impacts on Cockburn Sound, are very important. Implementation of a land use strategy that minimises the potential for nutrients to enter Cockburn Sound will be beneficial to groundwater quality beneath the study area in the long term; however, any industrial uses will need to be carefully managed, through licensing.

- EPP lakes and wetlands are an important part of our natural heritage and must be protected. Any development in the region must recognise these values and ensure that the integrity of environmental uses is protected. In particular, the recommendations for Bushplan sites must be noted and provision made for their inclusion in the Strategy.

- There is an immediate need to plan for general industrial land in the southern metropolitan region.

- Existing and proposed transport and service infrastructure in the Region is adequate to cater for additional development within the Kwinana EPP buffer area; however, consideration may need to be given to the timing of some items.

- The Strategy must consider the needs of the local community in the Kwinana EPP buffer as well as the broader economic needs of the State and environmental considerations. It is imperative that the Strategy delivers certainty about the future of the region for the people living there.

The Strategy is premised on the need to protect and optimise the KIA. This area represents a significant State investment and the optimisation of the area is important to the State economy. This decision means that it is important that the environmental management and land use planning for the buffer considers this requirement. The Strategy provides the opportunity for initiating land use change in the buffer area, removing the potential for land use conflict and ensuring that residential uses achieve acceptable levels of air quality.

The Strategy also provides an opportunity to meet the demand for general industrial land in an area where existing infrastructure can easily be upgraded to cater for this type of development. General industrial land development will generate employment opportunities in a region where unemployment is of significant concern. The Strategy will require the progressive removal of residential uses from most of the buffer area.

The impact of this recommendation on the people living in Wattleup, Hope Valley and some of the rural areas is acknowledged and the implementation of the Strategy has been designed to minimise these negative impacts as far as possible, including a recommendation for the development of a Social Transition Strategy.
5.2 LAND USE STRATEGY

5.2.1 Overview

This section outlines the preferred land use strategy for the Kwinana EPP buffer (see Figure 5.1). The land use recommendations focus on heavy and general land use provision in a core area of the original FRIARS study area, described as the Land Use Strategy Redevelopment Area. Uses outside the Land Use Strategy Redevelopment Area are designated as land uses defined by the MRS zonings.

The preferred strategy supports the initial intentions of the FRIARS study to consolidate industrial landholdings adjacent to the KIA. However, modifications to Option 4 presented in the Draft Strategy have been made in response to submissions.

The key differences are:

- retention of additional rural land between Thomsons Lake and Cockburn Cement to the west of Henderson Road, north of Russell Road, previously proposed as industrial in Option 4. This is in addition to the rural buffer between Thomsons Lake and Henderson Road and Power Avenue already included in Option 4;
- reduction of the proposed industrial development around Mandogalup Road, south of the Harry Waring Marsupial Reserve, in response to concerns raised about three Bushplan sites in this area;
- increase in the environmental buffer around Long Swamp, in response to submissions about the potential impacts on this area;
- identification of an industrial buffer around the 40-year extractive mineral license area; and
- inclusion of all resource extraction areas in an underlying industrial zoning.

The preferred land use strategy (a modified version of Option 4) promotes long-term land use change at Hope Valley and Wattleup townsites. These townsites will become surrounded by long-term industrial uses, with associated decline in amenity for the residents and an uncertain land market. The prevalence of noise and potentially incompatible land uses for industrial and infrastructure operations, such as port access, are important factors.

Strategically, the FRIARS area is the best location for future industrial land in the Perth Metropolitan Region and arguably, the State. The long-term advantages of the area (including integration with existing industry, infrastructure accessibility and transport benefits) give this area a key strategic role for future employment location which is not afforded by alternative locations. The FRIARS area also offers a long-term solution, rather than ad hoc, small area initiatives.

These decisions are not taken lightly. It is acknowledged that the Preferred Land Use Strategy will result in social dislocation and changes to service provision and support for these communities. These issues must be dealt with in a consistent, fair and clear manner.

The preferred land use strategy depicts heavy industrial uses in the Hope Valley area and general industrial uses in Wattleup, Mandogalup and South Yangebup. The preferred land use strategy will:

- protect existing mineral rights for limestone extraction in the short to medium term;
- provide approximately 800 hectares of land for general industrial purposes;
- provide approximately 100 hectares of additional heavy industrial land; and
- retain some existing rural areas as a green link between Thomsons Lake and the coast.

The provision of industrial land indicated by the preferred strategy is in response to estimations of industrial land demand use for the metropolitan area. The preferred strategy has been influenced by servicing potential, staging of land release, and topography. The culmination of the FRIARS study and the development of the preferred strategy will assist in the staged release of adequate industrial land into the future for the southern metropolitan region.

Table 5.1 summarises specific land use areas in the Land Use Strategy Redevelopment Area.

It is important to note that these are broadly indicative figures. They are not sequential and do not indicate suggested order nor timing for development. Actual yield of industrial land will depend on more detailed planning to incorporate landscaping, infrastructure and potential industrial park treatments.

5.2.2 Land Use Change

Land use change in the FRIARS area will be considerable and widespread in the next 20-25 years. The plan is to ensure the optimum strategic land use configuration.
### Table 5.1 LAND USE AREAS

<table>
<thead>
<tr>
<th>AREA NO. (land Use Envelope Identifier)</th>
<th>PROPOSED USE</th>
<th>AREA (Hectares)</th>
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<tr>
<td>1a</td>
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<td>36.3</td>
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<tr>
<td>1b</td>
<td>General Industry</td>
<td>53.7</td>
</tr>
<tr>
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<td>General Industry</td>
<td>20.2</td>
</tr>
<tr>
<td>2b</td>
<td>General Industry</td>
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</tr>
<tr>
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<td>42.2</td>
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</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>9</td>
<td>General Industry</td>
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<td>798.4</td>
</tr>
<tr>
<td>TOTAL</td>
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<td>896.1</td>
</tr>
</tbody>
</table>

The implementation of Options 2, 3a and 3b would result in reduced amenity of the townsites and surrounding areas, increased noise from port, industrial and regional traffic, and static land values. Whilst Option 4 envisages the greatest change, it does provide the most appropriate strategic outcome for the townsites. It is imperative that the process of change is well managed.

### i. Hope Valley

The majority of Hope Valley has been set aside for heavy industrial expansion immediately adjacent to the existing KIA. Approximately 100 hectares of land has been set aside for strategic heavy industrial use in the future, as and when demand requires. Future general industrial areas to the east will enable support industries to co-locate adjacent to heavy industry. To the east of the heavy industrial area, it is proposed to protect the margins of Long Swamp by the addition of a conservation wetland area. The buffer around this lake has been expanded to assist in the protection of the lake and its margins.

### ii. Wattleup Townsite and Rural Areas

The Wattleup townsite and rural areas north and east have been planned for future general industrial use. Approximately 800 hectares of general industrial land will be created overall for the long-term future. Creation of this industrial land will contribute significantly to the State’s strategy to provide a variety of industrial land types and areas throughout the metropolitan area.

Recognition is given to the various extractive mineral licenses that exist within the Land Use Strategy Redevelopment Area. Some of these extractive licenses are long term; accordingly these areas of land have been set aside to ensure continued efficient and effective supply of general industrial land into the future. The staged development of this area will be contingent upon the staged acquisition of properties, ability to extend service mains into the area and ease of access to arterial roads. Redevelopment areas are to come on stream at different times depending on these factors.

### iii. Thomsons Lake Rural Area

Rural uses on the west side of Thomsons Lake will be retained to maintain buffers to Thomsons Lake and other bushland areas. Topography and drainage have a significant influence on the structure planning of this
area. It is important that no further subdivision of these properties is permitted, in order to prevent additional residential development within the buffer. There is a need for some form of planning control over these areas to be applied through the local town planning instrument.

iv. South Yangebup
In the northern margins of the study area at South Yangebup, it is proposed that general industrial uses be separated from the residential areas by a rural buffer. An extractive industrial buffer has also been proposed adjacent to the 40-year limestone extraction licence to buffer residential and rural uses. It is recommended that there be no further subdivision of these rural properties, implemented through controls specified in the local planning scheme.

v. Marine Technology Park
Within the north-western margins of the study area a marine technology park has been planned. This will provide support industries for the Jervoise Bay maritime industries. The marine technology park will be a high quality landscaped service industrial area that will act as a buffer between general industrial uses and residential uses.

vi. Alcoa
In the area west of the Mandogalup townsite, Alcoa will continue to operate the mudlakes for some time into the future. The preferred strategy at Figure 5.1 shows the maintenance of the Alcoa facility by recognising that the appropriate zonings remain to enable continued use.

5.3 INFRASTRUCTURE STRATEGY

5.3.1 Transport Strategy

i. Introduction
The establishment of complementary transport and service infrastructure strategies for the area is critical to the successful implementation of the land use recommendations.

Development of the transport and services infrastructure strategy has been based on the findings of current investigations and research into the various transport and services infrastructure issues. Many of the transport initiatives are independent, and are considered separately to avoid confusion.

Most major roads within the FRIARS study area will need road reservations to provide for four-lane median separated roads. Rockingham Road, south of Rowley Road, is expected to lose some traffic to FRPRR once the industrial area is fully developed, but should be retained as a four-lane road within the KIA region.

ii. Road Transport

- Port Access
New port facilities are expected to be developed within the area agreed by Cabinet - between Naval Base and James Point. Based on long-term port development planning, access links to the north and south parts of the port site will be needed.

The proposed northern access to the port is via an extension of Rowley Road, and has been studied extensively by Main Roads. The final recommended alignment - to the south of Mt. Brown, just to the north of the old Hope Valley Road - takes into account physical, environmental, social and economic issues. An interchange is proposed at the FRPRR intersection, then the new Rowley Road would be aligned north of Lake Wattleup, to join the existing Rowley Road alignment and the Kwinana Freeway interchange.

The Fremantle Port Authority studies of a potential port within the KIA indicate the need for improved access. The proposal to construct a private port facility at James Point will prompt the need to extend Anketell Road.

More detailed traffic modelling will be required to determine the likely traffic demand for the Anketell Road extension. An extension in the short to medium term may be needed to improve access to, and traffic circulation within, the KIA and a continuation of the east-west freight route from the Kwinana Freeway and south-east corridor. A road reserve should be provided to accommodate a four-lane road with a high proportion of commercial vehicles.

- East-West Road Connections
A network of east-west roads is needed to link the KIA and buffer area to the Kwinana Freeway and beyond. A number of these roads are reserved in the MRS, including Russell Road, Thomas Road, Wellard Road and Beeliar Drive.

A screening analysis of these east-west roads was done for the FRIARS Draft to determine whether the roads could handle likely future traffic demand.
Figure 5.1 Preferred land Use Strategy
The screenline was established to the east of the FRPRR, between Russell Road and Mundijong Road, and the nominated east-west infrastructure is expected to cater for demand.

Main Roads has reviewed the alignment of the FRPRR from Russell Road to the intersection with Rockingham Road, in response to concerns about its possible impacts on the Beeliar Regional Park. A revised alignment that links the FRPRR to Rockingham Road via Russell Road has been defined and will be the subject of an MRS amendment.

The FRPRR will be a major transport link within the strategy area, and it is important that it service proposed land use in the KIA and associated industrial, retail and residential land uses. Good connections to Thomas Road, Anketell Road and Rowley Road are also needed, to ensure good distribution of traffic onto the major road system. The proposed Main Roads Rowley Road interchange with the FRPRR is supported, as are interchanges with Anketell and Thomas Roads which are already planned in the MRS.

Patterson Road’s place in the subregional road hierarchy will be under review after the FRPRR is constructed south of Rockingham Road. Patterson Road will remain an important regional road, but its role as a service road in the expanded KIA needs to be investigated. Patterson Road is expected to continue to attract significant levels of traffic (about 25,000 vehicles per day), and this may create a problem for the orderly expansion of the KIA across Patterson Road.

Two options are available for the KIA expansion:

- plan the KIA expansion on each side of Patterson Road, assuming it will be a major access and distribution road for KIA; or
- downgrade Patterson Road to a local distribution road incorporated into the KIA, with major access to KIA off the FRPRR.

Site Access

A new site access road (See Figure 4.5) is proposed for the general industrial area connecting Rockingham Road with Power Avenue. It is proposed that this local road will be along the northern margins of the Cockburn Landfill site. The connection with Power Avenue will enable a local north-south connection to be extended to Henderson Road and Spearwood Avenue.

iii. Rail Strategy

The rail freight strategy for the FRIARS area is to:

- establish and protect reserves for rail connections to port facilities (e.g. Rowley and Anketell Roads west of the Kewdale-Kwinana freight line, and Dixon Road loop to the Mundijong main line);
- identify strategic links into KIA to support buffer zones around transport corridors (e.g. through Yangebup, Jandakot, Wellard and Mundijong);
- protect and manage the strategic rail link into the KIA (e.g. through to Forrestfield and with the intra- and interstate rail network);
- minimise land sterilised by rail geometry (e.g. the need for spurs and loops);
- grade separate all major public highways and roads including major access corridors to port facilities; and
- complement land development options (e.g. container storage sites).

iv. Port Strategy

The port strategy for the FRIARS area is to:

- keep options open for future port development;
- reserve waterfront land for port-related uses (e.g. between Naval Base and James Point);
- use existing navigation channels where possible (e.g. Stirling and Calista Channels);
- retain nearby industrial land for port storage uses (e.g. Alcoa residue areas A, B and C); and
- protect new and existing access and service corridors (e.g. rail and road connections: i.e. Rowley and Anketell Road and rail connections).

v. Public Transport Strategy

Several key public transport initiatives are planned for the South-West Corridor, including the FRIARS area. A rapid transit bus way is being developed for line haul public transport between Fremantle and Rockingham. This will be supported by the Perth/Rockingham/Mandurah rail passenger service. Both initiatives are in the planning stage and need to be
taken into account. The integration of normal bus services with these two primary public transport services for employment, commercial and residential areas must also be investigated.

5.3.2 Service Infrastructure

i. Introduction

This section identifies the bulk and external services required for specific land use areas of the Fremantle–Rockingham Industrial Area and provides an indicative cost estimate for the provision of these services. Internal services (subdivision services) are not included in this evaluation but have been assessed and are included in the economic assessment. Therefore, bulk servicing and subdivision and servicing costs are inputs to the economic analysis.

The land use areas shown in Figure 5.1 outline a preliminary staged development approach which has assisted in deriving the cost estimates for bulk services. The estimates are based on planning advice provided by relevant service authorities. The staging and the servicing costs will need to be reviewed during the detailed planning phases.

ii. Bulk Water Supply

Current bulk supply to the area is limited to a 915 millimetre diameter water main on the western boundary of the land use areas. It is proposed that the bulk of the Land Use Strategy Redevelopment Area would receive water from the existing Jandakot Ground Water supply and reservoir system. Discussions with the Water Corporation confirmed that only limited upgrading of the existing Jandakot Treatment Plant and reservoir system will be required to service the industrial development (896 hectares). A total length of approximately 22 kilometres of new bulk water supply lines must be constructed to service the 896 hectares of proposed industrial area.

The approach in the cost estimate was to accept the priorities of land use areas one to nine, as proposed in Figure 5.1. Services installed for phase one were assumed to be in place once costs for phase two were calculated. This approach is applicable to all services evaluated. The total cost for bulk water supply services is estimated at $10.1 million at an average cost per hectare of $10,500. The cost estimate did not allow for major geotechnical constraints or relocation of existing services on a large scale, primarily due to the fact that the exact depth and position of water mains are flexible. Some allowance was made for rock excavation.

Detailed cost tables are shown in Appendix A.

iii. Bulk Sewer Services

No existing bulk sewer services exist in the Land Use Strategy Redevelopment Area. The area will be serviced by the major Regional Woodman Point Waste Water Treatment Works. According to the Water Corporation, 896 hectares of industrial land would have a limited impact on the Treatment Works and no major upgrading costs were included in the cost estimates.

The development boundaries of the land use areas were determined based on sewer catchment areas and each area will therefore be serviced with its own system, feeding to the proposed bulk sewer lines.

In general it was assumed that the bulk sewer lines would be constructed as indicated by the Water Corporation, except for the following:

Area 1a Sewage will be pumped through a temporary pumping main across the ridge to the proposed gravity sewer line in the Rockingham Road reserve. Alternatively, the pumping main can cross the mining reserve next to the existing gas lines.

Areas 4a, 4b, 4c and 4d These areas will all be serviced by pumping mains to a proposed gravity main on the northern boundary of 4a and 4b.

Areas 6-9 These areas do not form part of any sewer district and will be accommodated in the future East Rockingham Waste Water Treatment Works to be constructed in 2015. Although Water Corporation recommended that development of these areas must not proceed before 2015, it was assumed that temporary pumping stations, rising mains and gravity lines will be constructed and this was included in the cost estimates.
The total cost for bulk sewer services is estimated at $26.4 million at an average cost per hectare of $28,000. Detailed cost tables are shown in Appendix A.

iv. Power Supply

High voltage (66 kV and 132 kV) Western Power transmission lines run through the proposed development site. It is proposed to use these existing lines to supply power to the Land Use Strategy Redevelopment Area. It is assumed that there is no available medium voltage power line (11 kV or 22 kV) distribution system within the development site. Hence, the cost estimate allows for the provision of high voltage (66/11 kV, 132/11 kV) substations, medium voltage (11 kV) distribution system and low voltage (11 kV/415 V) substations. Underground cables have been allowed for in the 11 kV distribution system.

The approach in the cost estimate was to accept the priorities of land use areas one to nine as proposed in Figure 5.1. Services installed for phase one were assumed to be in place before costs for phase two were calculated. This approach is applicable to all services evaluated. The total cost for provision of bulk power supply services is estimated at $27.2 million at an average cost per hectare of approximately $30,000. The cost estimate does not allow for major geotechnical constraints or relocation of existing services on a large scale, primarily due to the fact that the final location of substations and underground cables is flexible.

Detailed cost tables are shown in Appendix A.

v. Gas

Major CMS and EPIC gas lines extend towards the eastern portion of the area covered by cells one to nine. Discussions with Alinta Gas revealed that gas bulk supply and reticulation for industrial areas are considered on an individual consumer application base. Any possible construction cost or headworks charges will form part of an individual economic evaluation completed for each application.

The result is that all bulk supply costs for industrial areas are covered by individual applications and no costs are applicable to the bulk servicing estimates.

vi. Stormwater Drainage

It is accepted that all stormwater drainage will be detained on specific sites and the cost of drainage is therefore included in the subdivision development costs.

The groundwater table level at approximately RL2 to RL15 indicated on the drawings from Water & Rivers Commission (WRC) confirms that this will be an acceptable solution, although specific measures will be required to prevent contamination of the groundwater sources. These measures will have to be included in relevant subdivision requirements. No stormwater
drainage costs are included in the bulk servicing estimates.

**vii. Preliminary Cost Report**

A summary of the estimated costs for bulk services is indicated in Graph 5.1 and a table is included at Appendix B on page 58.

This cost report does not include any subdivisional costs, headworks costs and charges, consultant fees or government taxes. All values are current Australian dollar value with no allowance for escalation.

The following assumptions must be noted:

- development will be progressive (i.e. Area 1 through to Area 9); and
- infrastructure included in the development of Area 1 was not added again.

**5.3.3 Environmental Implications**

The development of heavy and general/light industrial land use within the Kwinana EPP will have implications for the environment. Many of the submissions, including those from local authorities, have questioned how environmental impacts will be managed and controlled. The Strategy is premised on the adoption of best practice environmental management. It is expected that any development in the area will comply with EPA legislation and Regulations. The following principles for environmental management are recommended for incorporation into the implementation mechanisms:

- limit the expansion of heavy industries (where risks and emissions cannot be contained within the site boundary) to the Hope Valley area west of the proposed FRPRR;
- the emissions of all other industries developed in the area should be contained on site or have negligible impacts on sensitive land uses;
- no net increase in groundwater pollution;
- no expansion of the air quality buffer to provide for increased emissions from industry; and
- all industries in the area should adopt the principles of best practice environment management and be approved by the EPA.

**5.4 STAGING PLAN**

The strategic release of industrial land into the future is also shown in Figure 5.1 by reference to the Land Use Area identifier numbers. The staging sequence and release of land may vary depending on a number of factors including:

- service mains provision, particularly sewer mains which form the most significant servicing cost;
- timing of land acquisition;
- the existence of extractive mineral licences;
- demand for non-heavy industrial segments;
- topography; and
- ease of heavy haulage transport access.

It should be noted that the estimated life of limestone reserves in the study area are susceptible to increased demands for limestone for future breakwater construction and other demands. The Department of Minerals and Energy has advised that the reserves could be depleted at faster than expected rates.

**5.5 ECONOMIC IMPLICATIONS**

A full outline of the economic implications of the FRIARS preferred option is outlined in a separate document.

However, the major assumptions and results from the Economic report are presented here.

Many of the submissions received indicated a need to clarify figures included in the initial economic assessment. Further analysis has considered the potential net benefits associated with achieving the change in land use activities.

The cost benefit question is whether, in choosing the Preferred Land Use Strategy, net benefits are produced when account is taken of the costs of achieving the change and the benefits, including any spin off benefits and costs that might result.

There is inherent land use competition for the land within the Kwinana EPP Air Quality Buffer area which is the result of inconsistency between the economic incentives that exist and the planning prescriptions for the buffer and surrounding areas.

The Preferred Land Use Strategy (a modified version of Option 4 - see Figure 5.1) resolves this conflict.
between the further development of the KIA’s available industrial land and the requirement that all residents in Perth have a certain minimum air quality through the relocation of the town sites.

The Preferred Land Use Strategy provides for around 800 hectares of general industrial land. In addition it provides 100 hectares of heavy industry land. Also, it is possible that in the long term the land immediately east of the Cockburn Cement plant would be used for general industrial purposes. This additional 70 hectares represents a long term benefit to the State and has been included in the economic cost-benefit assessment.

Therefore the proposed FRIARS general industrial land development is sufficient to cover the projected requirements based on population and employment growth and past take-up rates, for 20-25 years. This should obviate the need to open a second major industrial area and the need to move the location of general industrial land development to less efficient and therefore more expensive sites.

Major heavy industry projects are dependent on many factors for their success and it is difficult to assess the extent of these benefits. Specific projects and their location options in and outside of Western Australia need to be considered. However, on balance there is a down side risk that developments will be lost in the future or that industry development will be compromised if the planning for the area does not proceed along the directions envisaged in the FRIARS options.

The benefits considered are:

- Residential Benefits
- General Industrial Benefits
- Employment Generation
- Expanding Land Availability in the KIA
- Delaying the Development of a New Heavy Industry Area
- Not Developing at Other Sites

There are two distinct parts to the analysis: removal of the town sites and expansion of land area as part of overall planning and development of the general industry land. These have been modelled separately. The development of the general industry land has been modelled as a 25-year project with acquisitions occurring over a 10-year period initially and land sales occurring throughout the period.

Employment creation is of considerable importance given the high unemployment rate in the region, particularly in Kwinana and Rockingham. Under the Preferred Land Use Strategy, a total in excess of ten thousand (10,000) persons could potentially be employed.

This analysis shows that there will be a net economic benefit from the Preferred Land Use Strategy because it will:

- generate substantial benefits to the State by delaying the need for the establishment of an additional heavy industrial site such as Breton Bay;
- result in the creation of approximately 10,000 new jobs;
- address the forecast shortfall in general industrial land supply in the South-West/South-East sectors;
- allow for the more efficient use of existing infrastructure and heavy industrial land in the KIA;
- reinforce environmental buffers between industrial and residential areas.
6 Implementation

6.1 INTRODUCTION

Implementation of the preferred strategy requires a considered approach given the sensitivity of land use decisions in the FRIARS region. At the same time, because the Strategy presents a consolidation of environmental, land use, transport and administrative considerations for the region, implementation will involve different agencies and activities. For example, the major land use changes, infrastructure proposals and the improvements to the transport network traditionally come under the control of different government agencies and can occur separately over time.

The following sections discuss the implementation strategy for the preferred option including:

- the land assembly mechanisms necessary to implement the recommendations;
- the statutory processes that are required to implement the preferred option; and
- suggested mechanisms for managing the social and community impacts which will occur as a result of implementing the preferred option.

6.2 LAND PLANNING AND ASSEMBLY MECHANISMS

6.2.1 Options

The implementation of the preferred strategy is a significant undertaking. It will comprise a variety of functions including land assembly, property acquisition in the short, medium and long term, coordination of land development and staging, development of environmental and building guidelines and management of the social and community issues.

The extent and size of the proposed redevelopment area, the number of landowners involved and the take-up rates for industrial land will mean that the acquisition of properties will occur for the duration of the development time frame (20-25 years). Some properties are not likely to be required for many years and landowners may choose to continue their current operations for some time. In addition, some existing land uses may be considered to be of an industrial nature and could be integrated into the proposed land use structure.

A number of options have been considered for implementation of the preferred strategy. These are discussed below.

- Development Authority

The State Government has created development authorities for specific areas where large scale land assembly has been required. These have been established at Joondalup, East Perth, Subiaco and Midland. These authorities generally have their own legislation which allows them to assemble land expeditiously and fast-track planning and development. These authorities have been established by Acts of Parliament, which means that the time involved in setting them up can be significant.

In the case of FRIARS, specific legislation could provide the framework for redevelopment in the region. The legislation could appoint an Implementing Agency, and require the preparation of detailed plans for the redevelopment area which would be subject to statutory planning and environmental approvals. It could also specify the powers of acquisition and compensation relevant to the redevelopment area.

While legislation can be time consuming to prepare, it would allow the redevelopment to occur in a co-ordinated and timely manner.

- LandCorp

LandCorp is the government agency charged with planning and developing industrial land in Western Australia. LandCorp is providing project management and land development experience for industrial development projects in a number of areas. These include Canning Vale, Meenaar, Kemerton, Neerabup and Oakajee. While the co-operation of local government is essential for these projects, LandCorp can receive directions from Cabinet via the Minister for Lands and can respond to a steering committee made up of stakeholders. This is considered a useful approach given the multi-disciplinary nature of the preferred strategy. It allows for input from various sectors of government and industry.

- Local Government

Local Government has the potential under the Town Planning and Development Act to administer development schemes for designated areas. This approach has the advantage of delegating management of the area to local government, though approval of the scheme would be required by the Minister for Planning. While these schemes have the power to
acquire land and apportion costs, they are difficult to administer. This is most likely to be the case with the FRIARS sub-region.

- **Private Sector Project Management**

A final option for implementation is the use of private sector project management expertise. This option has merits in that it limits government exposure to the implementation program. However, given the significant government input that is required in the initial stages to acquire land and identify alternative arrangements for residents in the town sites, it is considered less likely than other options. Private sector development of certain parcels within the project area could be promoted later in the development process. Current initiatives for future ports include a strong emphasis on private sector involvement.

Each implementation option has advantages and disadvantages; however, the approach which is adopted should:

- be effective and efficient in facilitating land use changes and the development of required infrastructure;
- have adequate funding to ensure that land acquisition and development can be progressed within designated time frames and to meet the needs of the local community;
- have a strong commitment from all levels of Government, reflecting the political will to resolve many of the region’s longstanding land use issues; and
- involve the private sector as much as possible in the implementation process.

### 6.2.2 Preferred Approach

The preparation of legislation which provides for the establishment of a specific Implementing Agency and objectives and development parameters is considered to be the approach which offers the greatest certainty. In addition, given the need for involvement of State Government in the program, it is appropriate that a public sector agency is used to co-ordinate and facilitate the development of the area. This Implementing Agency may facilitate private sector involvement, particularly from larger landowners in the subregion, in the future.

The redevelopment area should cover only that part of the FRIARS area over which control is sought as shown in the final Strategy plans.

The Act should give responsibility and authority for the management of the redevelopment area to the designated Implementing Agency. It should also:

- designate the redevelopment area by way of a map;
- require the Implementing Agency to prepare a Masterplan for the redevelopment area;
- require that the Masterplan be considered as a scheme for the purposes of Part IV of the Environmental Protection Act and will therefore be assessed by the Environmental Protection Authority;
- specify subdivision approval and development control procedures;
- provide powers of acquisition and compensation to the Implementing Agency; and
- require a review of the Act by the Minister five years from commencement.

Compensation should be available where a development application is refused or conditions imposed on the grounds that the land is reserved for the purposes of the redevelopment area, or for a public purpose. The Act should also allow for the consideration of additional payments for consequential loss and solatium.

### 6.3 STATUTORY PROCESS

The statutory processes that will be applied to the project should be specified in the legislation. The Masterplan should be prepared and implemented in a manner similar to that required for the preparation of town planning schemes under the Town Planning Regulations 1967. It will contain similar elements to a planning scheme including:

- objectives;
- future needs of industry;
- proposals for land use;
- transport, infrastructure and related development requirements; and
- environmental issues and best practice management measures.

The Masterplan should be prepared by the Implementing Agency, but administered by the Western Australian Planning Commission. The plan should be subject to the normal statutory public comment periods.
6.4 MANAGEMENT OF SOCIAL IMPACTS AND COMMUNITY CONCERNS

The Implementing Agency should be committed to the implementation of a Social Transition Strategy (STS). This strategy should outline the roles and responsibilities of the Implementing Agency (on behalf of the Government) to ensure that the processes of property acquisition and community impact are managed in an accountable and equitable manner. The following is a description of certain components of the Social Transition Strategy, prepared and implemented for the community living within the FRIARS area.

6.4.1 Ongoing Community Consultation, Information and Support

An important element of the FRIARS Social Transition Strategy should be the exchange of accurate and up-to-date information, coupled with community consultation and support. Due to the protracted life of the FRIARS redevelopment, the composition and the needs of the community will change over time and these changes will need to be accounted for throughout an ongoing and iterative consultation program. There are five important elements to providing support and information for the affected community.

i. Early Announcement of Decision

In December 1999, the Minister for Planning released the FRIARS Hearings Panel report. The first of two major recommendations made by the panel was that “it is imperative that an early decision be made and announced, whatever is determined to be the planning future of the area” (p. 23). The FRIARS final strategy has been prepared and released, having undertaken extensive consultation with the affected community, government agencies and other relevant bodies. The process has been expedited as quickly as possible in order to accommodate the community need for early and definitive land use planning decisions.

ii. Maintenance of the Community Information Centre (CIC) and Personnel at Wattleup

The second of the two major recommendations made by the Hearings Panel was that “this transition will require skilled and pro-active management. There needs to be an explicit plan to handle the social transition, with specific responsibilities allocated appropriately” (p. 26).

In accordance with this, the CIC should remain staffed; well stocked with up-to-date, relevant and practical information; and open at times convenient to the local community.

iii. Formal Requirements for Public Consultation

The development of a detailed Masterplan for the area should include a public consultation component. This formal process should access the resources of the CIC at Wattleup to maximise exposure and community involvement.

iv. Support from Local Government Authorities (LGA)

The two main LGAs affected by the FRIARS redevelopment are the City of Cockburn and the Town of Kwinana. It is vital to the success of the project in general, and the social transition in particular, that the LGAs remain fully informed throughout the life of the redevelopment project. This will require an integrated approach for planning and land use management between all levels of Government and the Implementing Agency.

v. Residents Outside the Redevelopment Area

There are many landholders and residents whose properties do not fall within the FRIARS redevelopment directly, but will remain under the protection of the EPP Buffer area. Therefore, it is vital that the situation is confirmed as soon as possible. All landholders and residents must be made explicitly aware of the continued restrictions placed on the development of their land. It will be necessary to once again explain to residents the environmental and planning justification for these planning controls and seek co-operation over the long term.

6.4.2 Provision of Appropriate Community Services

The key to providing the community with a comprehensive and holistic range of services to allow for a smooth transition from one area to another will be the personnel at the Community Information Centre at Wattleup coupled with multi-agency communication and co-ordination. The facilitation of a well-managed process of social transition will require the involvement of a large number of government departments and agencies. The staff at the CIC and relevant staff at both the Implementing Agency and the MfP will work to provide the
following services, as well as any other services that may prove to be important in the process of achieving a successful social transition. The following issues will need to be addressed.

i. Local Government Assistance (where necessary)
ii. Advice on all Aspects of Property Issues (including valuations)
iii. Counselling and Interpreter Services
iv. Ensure Adequate Community Facilities and Amenity for the Remaining Community
v. Generalised Interagency Support

6.4.3 Property Purchase Provisions

The Implementing Agency should establish a clearly defined process for the purchase of properties to ensure that the process of purchase is transparent, equitable and, as much as possible, eases the financial burden of relocation from Hope Valley/Wattleup to a similar area.

i. Provision for Purchase of Property

The Implementing Agency should have the legal and financial capacity to purchase property within the FRIARS redevelopment area. The Implementing Agency should also have the provision to enter into negotiations with individual landholders at fair and current market values, following advice from licensed independent valuers.

ii. Provision for Compensation

In certain circumstances (eg. the refusal of a development application), landholders have the right to apply for compensation (under the Land Administration Act 1997. This will need to be considered for residents.

iii. Provision for Resumption

The Implementing Agency should have the statutory provision to resume property if and when it becomes necessary (due to land use planning or environmental requirements). It is envisaged that these powers of acquisition will be utilised infrequently during the life of the FRIARS redevelopment.

iv. Protect Remaining Residents from Rate Increases (both within and external to the defined redevelopment area)

It is important to ensure that those who remain in the redevelopment area for an extended (if finite) period of time are not disadvantaged by having to pay substantially higher industrial land rates. It is recommended that statutory provisions are implemented to maintain the existing basis for rating until such time as land is redeveloped for industrial use.

Conclusion

It is imperative that a transparent and detailed Social Transition Strategy be prepared. The important elements of the Strategy (including information, consultation and service provision) will require active reviews and updates to ensure that implementation is responsive and timely.
7 Conclusions and Recommendations

This report is the culmination of an extensive investigation into the issues and redevelopment opportunities for the Fremantle-Rockingham region. It has addressed the key planning issues facing the region including:

- existing and potential land use conflicts between industrial and other land uses;
- the protection of the KIA and preservation of opportunities for heavy industry and port facilities in the region;
- the future role of the Kwinana EPP buffer as a land use planning and environmental management tool;
- protection of environmentally significant features in the region, including Cockburn Sound;
- provision of employment opportunities;
- identification of land appropriate for general industrial development; and
- certainty for residents in the region by recommending a clear plan and time frame for redevelopment.

The preferred strategy reflects the way in which each of these issues has been addressed. It is imperative that the Strategy is implemented in a way which minimises the negative impacts on residents and landowners and maximises the benefits to the State.

Recommendations for implementing the Strategy include:

1. The Implementing Agency should plan to implement the Preferred Land Use Strategy (a modified version of Option 4. See Figure 5.1) in order to provide the most appropriate strategic outcome for the region.

2. Government should prepare legislation to manage and implement the Strategy.

3. The WAPC should instruct the MfP to ensure that appropriate planning controls are developed for the rural areas within the air quality buffer to prevent further subdivision for residential purposes on these properties.

4. The Implementing Agency, in consultation with the EPA, should develop environmental performance criteria to be included in the development policies for the area.

5. The WAPC should ensure that the Community Information Centre remains open until the Implementing Agency is appointed and in a position to manage the centre.

6. The Implementing Agency should prepare and implement a Social Transition Strategy to manage the impacts on the community.

7. The Implementing Agency should prepare a Masterplan for the area and initiate the appropriate planning and environmental approvals.

8. The Implementing Agency should liaise with infrastructure providers to further refine development requirements.

9. The Implementing Agency should have the authority to purchase properties in the region immediately, in order to respond to landowners preferences.
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Appendices

Appendix A

Detailed Cost Tables for Each Service

Appendix Note:

A separate column was added to Table A2 for the longer term additional infrastructure cost associated with sewer services once the area is fully developed, as initial development may sometimes include temporary infrastructure only. For example, Table A2 “Long Term Add Cost Main Sewers”.

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TABLE A1: BULK WATER SUPPLY COSTS
### TABLE A2: BULK SEWER SERVICES COSTS

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## Appendix B

Detailed cost table for all services.

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