



## 1. FREMANTLE - A PORT CITY AND A CITY PORT

### 1.1 The Role of the Port of Fremantle

The Port of Fremantle plays a unique role in the economy of Western Australia. Between them, Fremantle Port's Inner and Outer Harbours currently handle around 91 per cent by value of the State's sea imports and 30 per cent of exports. The value of this trade is estimated at some \$12 billion annually. While the Port shares with several regional ports the task of handling the State's bulk grain and mineral exports, it is the handling of general cargoes such as containers, motor vehicles and livestock that gives Fremantle its particular character. Most of Western Australia's exports of manufactured goods and value-added food products pass through Fremantle, as do most of the consumer goods and motor vehicles that are imported by sea.





A recent economic impact study of the Port of Fremantle has confirmed the Port as an economic catalyst and one of Western Australia's significant individual sources of jobs and revenue.

The direct and flow-on effects of the Port's activity in 1998/99 accounted for a total of 5,792 jobs, which represents about 0.8 per cent of total employment in Western Australia. The annual economic output, taking into account the direct and flow-on effects, is estimated at \$728 million.

Among the other key findings of the study were that the direct and flow-on effects of the operations of Fremantle Port accounted for value added of \$440 million annually and household income of \$223 million annually.

For more than a hundred years, the Inner Harbour has played a leading role in shaping the physical, commercial and social environment of Fremantle.

The proximity of the port activity and the waterfront continues to be an important element of the distinctive character of Fremantle, helping it to grow into a complex and fascinating city that is a source of pride to its residents and a source of enjoyment to visitors from inter-state and overseas.

The Mission of the Fremantle Port Authority is to facilitate trade and to add value for customers using the Port of Fremantle. This Mission can only be pursued if the constructive relationship that has existed between the Port and the surrounding community in the past is continued and intensified in the future. This cannot be taken for granted. Experience around the world has shown that careful planning is required if the needs of an operating port are to be reconciled with broader environmental and social goals of the community. But this same experience also shows that, where this planning is successfully undertaken, both the port and its community can gain a great deal.



## 1.2 The Port Development Plan

Work on a Development Plan for the Inner Harbour commenced in 1997. The purpose of this Plan is to articulate a clear, shared vision for the future. In preparing the plan, the views of a wide cross-section of stakeholders were sought. These have included interested individuals from the community as well as exporters, shipping line representatives, service providers, and community groups. Further consultation occurred with the release of the draft Plan.

The groundwork for the Development Plan involved a wide cross-section of FPA staff working together with a team of local, national and international consultants.

The development of the Plan began with a detailed examination of the likely future demand for the Port's services, in both the Inner and Outer Harbours, over a thirty-year period. Based on a combination of statistical analysis and an extensive round of interviews of the port users, forecasts were prepared for all of the major import and export trades. Detailed technical analysis was then undertaken of each of the main facilities currently available to the Port, both in the Inner and Outer Harbours, to assess the capacity of the facilities.



North Quay, Fremantle Harbour

Bringing these two elements together made it possible to assess when additional capacity will be required for each trade component. Additional capacity can be provided either by building new facilities, or by extending, redesigning, or otherwise enhancing existing facilities.

A Plan of the whole of the Fremantle Port area, showing the general location of current port facilities, is included at the back of this document.

Developing new facilities is generally an expensive option, commonly requiring the construction and development not only of the berth, itself, but also of the access to it. The general strategy of the Development Plan is, therefore, to examine what can be done to enhance and improve existing facilities before proceeding to entirely new developments.

The ability of the Port to handle future trade demands is not determined by the technical capacity of the cargo handling facilities alone. In developing the recommendations of the Plan, a wide range of other issues was also examined:

- the implications for future port development of changes in shipping technology
- the road and traffic system in the vicinity of the Port, and its ability to deal with increases in port trade
- the role of rail in the carriage of cargoes to and from the Port, in both the long and short term
- the environmental implications of increased port throughput
- heritage values
- other impacts of the Port on the social environment, including noise and light emissions
- the need to provide adequate separation between the working port and areas devoted to other urban uses.

The Plan will ensure that, as the Western Australian economy grows and trade through the Port grows with it, the gains to the State and local community from the opportunities offered by that growth will be maximised, while any possible disadvantages are minimised. It will also provide users of the Port, and those who provide and operate port facilities, with the certainty they need to continue to invest in Fremantle, and to develop the maritime businesses that form such an important component of Fremantle's economic structure.

This document outlines the findings of the Port Development Plan for the Inner Harbour and the initiatives that are considered necessary to enable future trade growth to be accommodated.

## 2. STAYING COMPETITIVE

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The port business has changed. In years past, ports served a clearly defined hinterland. Expensive land transport and the costs of double and triple handling meant that exporters and importers had little real alternative to shipping their goods through their local port.

This is no longer the case. The use of containers has radically reduced the costs of moving goods between sea and land transport, and between different forms of land transport. At the same time, improvements in infrastructure, technology and commercial practices have reduced the real cost of land transport. This has stimulated an unprecedented degree of competition between ports. This competition is most intense for the container trades, but extends well beyond this to non-containerised general cargo and increasingly to the bulk trades.



Fremantle Inner Harbour

No longer protected by its isolation, Fremantle now competes actively for business with other ports throughout Australia. A small but growing proportion of the container traffic through the Port is destined for the Eastern States. After entering Australia at Fremantle, cargo is railed to final destinations in Adelaide and beyond. This landbridge traffic provides additional business and employment opportunities for a wide range of Western Australian businesses, from customs agents through to transport companies.

Fremantle also faces competition from other ports within the State. The Western Australian port system consists of a number of independent statutory bodies, each of which is responsible for a single port. This has led to competition between ports, with each striving to stimulate the economic growth of its local community and to reduce unit costs to facilitate trade by attracting new business. The recently announced proposed private port development at James Point is likely to add further to this competition should it proceed.

In future years, competition between ports and between the different modes of transport can be expected to intensify. To succeed in this competitive environment, Fremantle will need to provide world class service for all of its customers. This means:

- understanding the nature of future demand
- carefully assessing what land and facilities will be needed to meet that demand
- ensuring that port sites are assigned to their most appropriate use
- providing adequate separation between port operating areas and sensitive land uses so that it is not necessary to compromise operating efficiency to achieve environmental and social requirements

## 3. A CLOSER LOOK AT THE INNER HARBOUR

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Fremantle Port's Inner Harbour consists of three main areas, North Quay, Victoria Quay, and Rous Head.

North Quay accommodates the Port's two container terminals, which occupy the greater proportion of



The first container terminal was developed at Berths 11 and 12 on North Quay in 1969, and a second terminal was opened in 1983.

In 1989, the harbour was deepened to provide a depth of 13m at the main berths along North Quay. This is deeper than the entrance to the port of Melbourne, and ensures that Fremantle is able to accommodate the largest vessel currently employed in the Australian liner trades.

In a collaborative project involving the FPA and container terminal operators, North Quay was redeveloped in 1996/97 to provide approximately 1100 m of continuous linear heavy-duty berth. This allows greater flexibility and efficiency in the use of space and equipment, and has significantly increased both productivity and handling capacity. Although the growth of the Port's container business has driven many of the major developments in the Inner Harbour over the last twenty-five years, the Inner Harbour continues to serve a number of other important functions:

- the vast majority of motor vehicles imported into Western Australia are discharged in the Inner Harbour
- the majority of the State's livestock exports pass through the Inner Harbour
- a wide range of non-containerised cargoes, including steel, timber, tallow, agricultural machinery, cables and paper is handled at both North Quay and Victoria Quay
- visiting cruise vessels berth at the Fremantle Passenger Terminal on Victoria Quay
- deep sea fishing vessels, naval ships and local ferries make extensive use of berths not dedicated to cargo handling activities.

Meeting the needs of this broad range of customers has required investments by the FPA and the private sector in land, berths, buildings, equipment and site development valued in the hundreds of millions of dollars. The Inner Harbour Port Development Plan is designed to guide future development of Inner Harbour facilities and ensure that the best possible return is secured on both this past investment and the future investments that will need to be made as trade grows.

the Quay, and a number of general cargo berths used mainly for break-bulk and liquid bulk cargoes.

Victoria Quay comprises two main areas, the eastern end, from C Berth to J Berth, which is a fully operational area, with D to H Berths used mainly for general and break-bulk cargoes and J Berth for tug berthing. The western end, from A Berth to C Berth, is a publicly accessible area accommodating port administration functions, a small ferry terminal, a market and other uses. The western end of Victoria Quay is the site of the Fremantle Waterfront Project, which is referred to later in Section 6.4.

Rous Head is a large port-related industrial estate which was created on land reclaimed from material dredged from the Inner Harbour and its shipping access channel. The land is used by a variety of port-related and marine industries. A large ferry terminal is located at the western end of Rous Head Harbour, providing regular services to and from Rottnest Island.

As shipping technology has changed, the Inner Harbour has been improved and adapted to meet the new trade requirements. With the advent of containerisation, the Inner Harbour was developed as the State's container port, and it remains the only port in Western Australia with dedicated container-handling facilities. These facilities have been enhanced and expanded as trade through the Port has grown.



## 4. THE TASK AHEAD

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### 4.1 Containers

Containerised cargoes comprise a complex mix of agricultural, manufacturing, mining and other cargoes. In principle, it is possible to build up an estimate of future container volumes by examining in detail each of the main components of this mix, and forecasting its prospects. In practice, however, this approach is useful only for fairly short forecasting periods. This is because the composition of the container trades is constantly changing. Many of the goods that are now important in the international container trades simply did not exist twenty years ago. In other cases, geographical patterns of production of particular goods have been radically altered as global companies have transferred factories to lower-cost production centres.

For longer term planning, it is more usual and more reliable to rely on aggregated forecasts for the container trade as a whole. Although there are still

many factors that need to be taken into account, the relationships between the state of development and future growth of the economy and the increase in container volumes tend to be reasonably stable. The Port Development Plan has, therefore, adopted an aggregated approach in preparing container forecasts, focussing on broad aggregate trends rather than the detailed composition of containerised cargoes.

Future container volumes through the Port of Fremantle can be divided into three main components:

- **International:** containers carrying exports originating in Western Australia and bound for overseas destinations, and imports from other countries to Western Australia
- **Landbridge:** cargoes from overseas countries entering Australia through Fremantle but ultimately bound for other States
- **Domestic:** cargoes travelling by sea through Fremantle to and from other States of Australia and other ports in Western Australia.



#### 4.1.1 International

Over the last decade, the growth in worldwide container trade has averaged approximately 7.6 per cent annually. This global growth has been, in part, due to an increase in world trade in manufactures, metals and processed foodstuffs. The growth in container volumes has also been, in part, due to the containerisation of traffic previously carried in loose form. In recent years, for instance, the growth was stimulated by the rapid containerisation of the trades of a number of large Asian countries. As the container shipping industry in these countries matures, it is likely that this global rate of growth will slow: to around 6 per cent in the first decade of the next century, then trending down to around 5 per cent annually in later decades.

Because the Australian container trades are already fairly mature, it is reasonable to expect them to grow more slowly than the world average. During the 1980s and the early 1990s this was the case. The rate of growth of Australian container volumes was significantly lower than the global average. The medium trade forecasts used in planning for the Inner Harbour reflect this long-term trend. However, during the last five years, Australia's economic performance has been better than that of most OECD countries. If this strong economic performance can be maintained, it is possible that container volumes through Fremantle will grow at a rate close to or even exceeding the world average.

#### 4.1.2 Landbridging

Landbridging in the United States of America has had a major impact on container shipping to and from that country, and has been the major cause of the decline of ports on the east coast of the United States relative to those on the west coast. Conditions in Australia are considerably less favourable to the development of large-scale landbridging operations than they were in the United States. There is, nevertheless, already a certain amount of movement of international cargo between capital city ports that could reasonably be included within a broad definition of landbridging.

Under present cost conditions, large-scale landbridge operations between major Australian ports are unlikely to be economically viable. There is, however, a particular niche for the landbridging through Fremantle of high value cargoes, for which transit time savings are highly valued. Landbridging via Fremantle to the Eastern States can provide significant time savings for cargoes from South East Asia and Europe. As the unit value of cargoes shipped by sea is increasing steadily, particularly out of South East Asia, it is likely that the size of this niche will continue to expand proportionately more than the market as a whole. It is therefore reasonable to expect that, although landbridge traffic will remain a minor component of total container volumes, it will grow more rapidly than total container volumes.

#### 4.1.3 Coastal Container Trades

In Australia, the past decade has seen an almost complete elimination of dedicated domestic coastal container services anywhere where coastal shipping services could be replaced by road or rail. However, a number of the regular international container services are moving domestic cargo between Australian capital city ports under a permit system. Ships engaged in interstate trade on the Australian coast require a licence under the Navigation Act. Provision is made under this Act for unlicensed ships to carry interstate trade under a Single or Continuous Voyage Permit, where no licensed ship is available or the licensed ship is inadequate. Indeed, the coastal container trade between eastern Australia and the west coast carried by international liner services has exhibited vigorous growth in recent years.



Coastal cargo container movements are at present overwhelmingly from east to west (east-west movements of full containers outnumber west-east movements by more than five to one). The economics of the coastal container trade are complex, and depend to a large extent on the need of individual lines to reposition empty containers in Fremantle for overseas export. Despite the fact that there is now a reasonable balance between full container imports and exports through Fremantle, over 20 per cent of all containers imported through the Port are empty. If a shipping line can make even a small revenue contribution by filling some of these boxes with domestic cargo, it is clearly to its advantage to do so.

However, the number of containers that shipping lines wish to reposition from the east coast to Western Australia is limited. As this limit is approached, the economics of coastal container operations will change. Additional growth will take place only if lines can charge rates that cover the full cost of stevedoring and some contribution to the general costs of vessel operation.

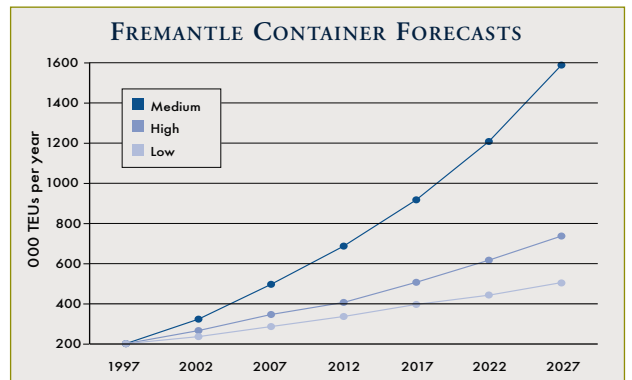
This possibility should not be ruled out. The elimination of cabotage (the practice of limiting access to a country's coastal trade to national ship operators or national flag vessels with national crews) and/or further waterfront productivity savings, could very significantly reduce coastal shipping costs, and make sea transport a more attractive option for cargoes travelling between the east and west coasts. However, it should be borne in mind that the scope for productivity improvement and cost reduction in the rail sector is also very extensive. If the potential reductions in rail costs are achieved, it will be much more difficult for shipping services to compete with land transport for the container business.

In any event, the capacity available on international services will be limited to the spare slots that a line has on the east coast to Fremantle leg. (The low backhaul rates available on land transport will make it difficult for the sea carriage of domestic containers to be competitive in the eastbound direction). To surmount this capacity threshold, a dedicated coastal container service would need to be introduced.

#### 4.1.4 Fremantle Container Forecasts

Combining all of the above considerations, forecasts were produced for the likely growth in the volume of containers through Fremantle over the next thirty years. These forecasts suggest a volume of around 750,000 TEUs by the end of the forecast period. The TEU, or twenty-foot long container, is the standard measure of container capacity.

It is, however, relevant that supported by a strong Australian economy, the growth of container traffic through Fremantle as well as a number of other Australian ports has been in excess of the world average over the last five years. In Fremantle's case, container trade has more than doubled between 1990/91 and 1997/98, reflecting an average annual growth over this period of 11 per cent.



Even slightly higher annual growth rates sustained over a long period can lead to much higher container volumes. An optimistic forecast, based on recent high levels of trade growth and other assumptions favourable to container trade growth, was therefore also prepared. This forecast indicated that, with a very buoyant Australian economy, reductions in coastal shipping costs and increased use of landbridging, container traffic through Fremantle could reach as high as 1.6 million TEUs by 2027.

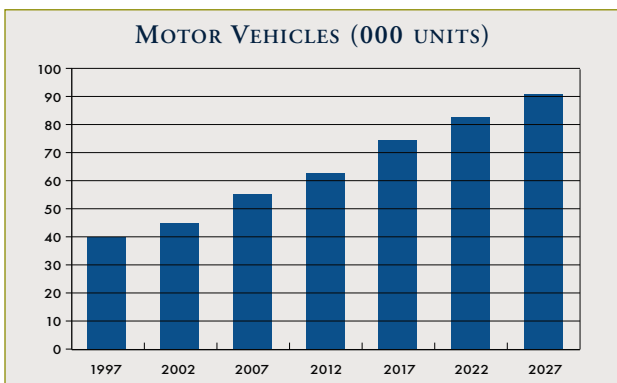
On the other hand, slower growth of the State economy, together with increased competition from other Western Australian and inter-state ports and improved rail performance, may lead to reduced rates of growth for container traffic through Fremantle. A pessimistic forecast, based on the set of credible assumptions least favourable to trade growth, produced an estimate of 0.5 million TEUs - about twice current volumes - by the year 2027.



More than 45,000 vehicles are imported through Fremantle Port every year.

### 4.2 Motor Vehicles

The number of motor vehicles moving through the State in future years will depend on population growth, vehicle ownership, how often vehicles are replaced, and the share of international imports in total vehicle sales. Imports from the Eastern States currently travel by land transport. It may be that in the future some of these imports could also be brought into Western Australia by sea through Fremantle.



WA's population growth is expected to fall gradually over the next thirty years. Vehicle ownership rates, which have increased consistently for many decades, appear now to have reached saturation and tapered off. By international standards, however, the Australian fleet is old, and increasing pressure to meet ever tighter emission standards is likely to lead to more frequent vehicle replacement in future. The share of demand met by imports is also likely to rise as tariffs are lowered.

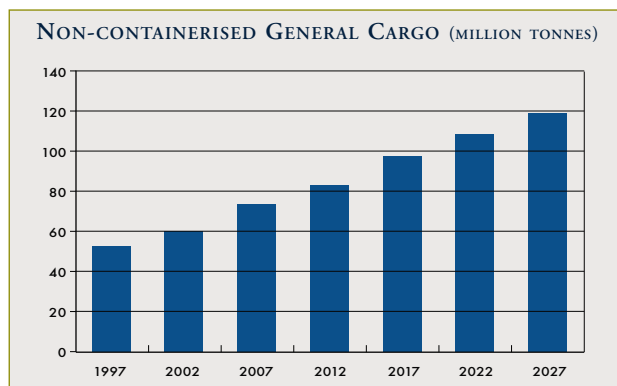
Overall, taking the above factors into account, motor vehicle imports are expected to increase at an average annual rate of 2.8 per cent over the planning period.

### 4.3 Livestock

The level of livestock exports through Fremantle in recent years has fluctuated around 3.5 to 4.0 million head annually. This is not expected to alter significantly in the future, as present export levels approximately balance sustainable supply.

### 4.4 Other non-bulk cargoes

Because this sector is so diverse, it is difficult to predict future needs with great confidence. In general, solid growth is expected, although for some individual components specific circumstances have been identified that may lead to contraction of volumes in the future. On average, it is likely that these trades will grow more slowly than container traffic.



## 5. MEETING THE NEED

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It is difficult to be completely definitive about how much cargo a port can handle. It is almost always possible to draw a little more out of a port facility, if the owner is prepared to invest enough capital or accept lower service standards. Capacity is also affected by the characteristics of the trade that is served. A terminal at which each ship loads or discharges a large volume of cargo will be able to handle more cargo in a year than one at which each ship works a smaller volume of cargo.

For these reasons, it is usual to talk in terms of maximum practical capacity. This may be thought of as the throughput that can be achieved:

- using operating practices and levels of capital investment that are normal for the operating environment;
- given the characteristics of the trade to be handled; and
- at a level of service that is likely to be acceptable in the particular commercial context.

To assess the maximum practical capacity of facilities in the Inner Harbour, the physical and operational characteristics of the port facilities were fed into

detailed computerised cargo-handling models developed by the US-based port planning consultants VZM Transystems.

### 5.1 Container Terminals

It is estimated that, with a modest amount of investment, and some extension of terminal area, the maximum practical capacity of the container terminals on North Quay would be approximately 700,000 TEUs. This is almost three times the container traffic handled through the Port during 1997/98. The terminal operators believe that, with appropriate changes to internal operating arrangements and some further extensions to the container berths in the Inner Harbour, even greater volumes could be handled and that the capacity of the Inner Harbour could be four or more times current trade levels.

On best available estimates, the Inner Harbour should have the capacity to accommodate the growth in the container handling needs of the State for around twenty years. If the more rapid growth of recent years is maintained, it may bring forward the time at which the development of new supplementary container facilities is desirable. On the other hand, it may be possible to push back the time at which additional facilities are required by a





few years through a higher level of investment and more intensive use of space. Similarly, increased competition from other container ports on the east coast, from regional ports, or from other possible port developments, such as the proposed private port at James Point, may push this time back. Eventually, there will be a need to develop new facilities to supplement the Inner Harbour capacity and depending on shipping trends, deepwater facilities may be required to handle much larger and deeper vessels that cannot be accommodated in the Inner Harbour.

However, supplementary facilities in the Outer Harbour to handle the overflow from Fremantle's Inner Harbour are not expected to be required on capacity grounds, until approximately 2020. Even after supplementary facilities are developed, it is planned that the Inner Harbour will continue in the longer term, throughout the twenty first century, as a major, dynamic container and general cargo port facility able to efficiently cater for the handling of container trade at more than three times current levels.

## 5.2 Other Facilities

While container vessels are handled at berths equipped with specialised container cranes, most of the other trades handled in the Inner Harbour do not require access to particular loading facilities. Some berths are better than others for particular purposes. For instance, large motor vehicle carriers are best accommodated at H Berth, because this gives them the best access to the storage space needed for marshalling the vehicles. However, in many cases it is possible to use one berth in place of another, or use a berth sometimes for one trade, sometimes for another. If full use is made of this flexibility, and the existing berths are enhanced in the ways proposed in the Port Development Plan, the Inner Harbour will be capable of handling at least twice the current volume of non-containerised general cargoes.

To achieve the optimum use of berths and land facilities for the handling of future trade growth, the consultants undertaking the Port Development Plan recommended removal/relocation of the Passenger Terminal in Stage 2 by 2007. However the Fremantle Port Authority has not accepted this recommendation and the terminal has now been placed on the State Register of Heritage places. (Refer also to Section 6.2)

## 6. THE PORT IN ITS CONTEXT

### 6.1 The Port and the Natural Environment

The ecology of the Inner Harbour was significantly modified by removal of the protective bar at the mouth of the harbour, under the direction of C.Y. O'Connor in the 1890s and is an area of low biological habitat value. The Inner Harbour does, however, provide an important pathway for the migration of fish, crabs and prawns between the Swan River estuary and the ocean, and many species of fish spend the winter in the Harbour. Maintenance of high water and sediment quality is important for these functions.

The FPA is committed to best environmental practice and is implementing a comprehensive environmental management system to ensure that all environmental practices continue to be of a high standard.

With these measures in place, the increase in ship traffic that will come with increased trade and the further development of port facilities is not expected to have an environmentally significant effect on animal or plant species.

### 6.2 The Port and its Heritage

Heritage is recognised as an integral component of the Inner Harbour's fabric. Within the Inner Harbour there are various heritage places. From the FPA's viewpoint the most important and authentic form of heritage is the maintenance of the Inner Harbour as a working port.

In recognition of the significance of the Inner Harbour's heritage, the FPA, in the latter half of the 1990s, commissioned a heritage study for the West End of Victoria Quay. A summary report of this work was subsequently prepared. Using these works as the basis of an assessment, the Heritage Council of WA (HCWA) placed the West End of Victoria Quay on the Register of Heritage Places on an Interim Basis.

The FPA liaises frequently with HCWA officers with regard to uses and developments within the West End of Victoria Quay. This end of Victoria Quay is largely covered by the Fremantle Waterfront project, and heritage issues have been considered in that project. The Fremantle Waterfront Project is referred to again in Section 6.4.

The heritage value of the Passenger Terminal was also assessed by the HCWA in 1999. Resulting from that assessment, the HCWA and the FPA worked together to produce a Management Agreement which seeks to maintain and protect the building, whilst meeting port operational requirements. To ensure the continuing proper maintenance and use of the Passenger Terminal, the FPA has also recently commissioned a heritage consultant to prepare a detailed conservation plan.

To cater for the continuing growth in trade, the former North Quay grain silos were removed in 2000. To ensure that this part of the Inner Harbour is properly remembered, the FPA has, with the assistance of consultants, undertaken a documentation study (including slides, photographs and plans) and prepared an assessment study and an audio visual record which includes a history of the building. CBH's microfiche plans have been sourced by the FPA for archiving and CBH has also produced a report on the practical operational aspects of the silos.

The statue of the Inner Harbour's designer, CY O'Connor, located at the western end of Victoria Quay, has been on the State Register of Heritage of Places for several years. This important sculpture by Porcelli is a focal point for many visitors and has been appropriately maintained to a high standard over many years.

### 6.3 Aboriginal Heritage:

In early 2000, the FPA completed an Aboriginal Heritage Assessment study of the Inner Harbour. Aboriginal heritage consultants, together with anthropological and archaeological consultants, worked with the FPA on the project. The project involved extensive consultation with Aboriginal elders and community representatives. The work identified the relevance of the port area, particularly the Swan River, to Aboriginal communities. The outcome of the work will ensure that the Aboriginal heritage of the area is appropriately recognised in future planning.

### 6.4 The Port and Other Urban Uses

The container and general cargo trades that are handled in the harbour are easier to integrate with other aspects of an urban environment than most bulk trades.

Nevertheless, there are potential conflicts between port operations and residential land uses, in particular with respect to light, noise and odour emissions. Risk management considerations also make it important that there is sufficient distance between port operating areas and areas of high public usage.

To this end, it is important that proper controls are exercised on urban development in the vicinity of the Port. The Inner Harbour Development Plan proposes that, should technical studies show it is necessary, a land use buffer be established in accordance with the Western Australian Planning Commission's State Industrial Buffer Policy.

As a first step towards the identification of whether buffer areas are needed around the Port, a Buffer Definition Study has been commenced to identify and assess the impacts of port activities on surrounding land uses. This involves detailed analysis to assess public risk, noise, light, odour and air quality to establish the technical basis on which any buffer area would be defined. A strategy will then be developed for the implementation of any necessary planning controls identified through the Buffer Definition Study.

Residents and visitors to Fremantle have an interest in the Port and are keen to have access to the port area for recreational purposes. At Victoria Quay, through careful management, it has been possible to permit a high level of access to the western end while retaining a working port at the eastern end. It is intended that this will continue. The western end of Victoria Quay is the site of the Fremantle Waterfront Project being implemented by the Fremantle Port Authority and the Government Projects Office.

The Fremantle Waterfront Project will see the development of a world class maritime museum which will house the yacht, Australia II, and many other interesting maritime exhibits. It is also proposed that the project will include other marine-related developments, including an upgraded berth for ferries. The Fremantle Waterfront Project is being carefully planned to ensure that it will not conflict with current or future port operations or growth.



**Continued and enhanced rail access to North Quay is important to Fremantle Port's future competitiveness.**

The Fremantle Waterfront Project does not form part of the Inner Harbour Port Development Plan. Whilst integrating the needs of the Port, the project planning was managed by the Government Projects Office and has undergone a separate public consultation process.

The Port Development Plan envisages continued segregation of public activities at the western end of the quay from the working areas to the east. This will allow the public to view port activities from the western end and to enjoy other activities in the non-operational areas of the Port without impeding port operations.

## 7. TRANSPORT LINKS

### 7.1 Roads and the Port

Most cargo shipped through the Inner Harbour at present enters or leaves by road. Maintaining an adequate level of road access is vital to the efficiency of future port operations. Main Roads WA, as the responsible authority, the Fremantle Port Authority, and other relevant agencies have been working closely together on road planning related to port access requirements.

The Fremantle Regional Strategy (1994) envisaged improved linkages between Tydeman Road and the southern section of Port Beach Road to provide the continuous freight access route to North Quay from Stirling Highway. An extension to Curtin Avenue would link with this route to provide the main north-south access route for predominantly regional traffic travelling north of the Inner Harbour. However, due to changing circumstances, the Department of Transport, in consultation with the Fremantle Port Authority, Main Roads WA, WAGR, the Ministry for Planning and local government, is currently reviewing the relevant road and rail port access proposals contained in the Fremantle Regional Strategy. This work is being undertaken as part of the Fremantle to Cottesloe Transport Plan study. The study is expected to be completed early in 2001.

Provided there is adequate road width on the main links, particularly Tydeman Road, this road system would have the capacity to handle the anticipated traffic to and from North Quay for the foreseeable future.

The proposed Fremantle Eastern Bypass will improve north-south freight linkages between Fremantle Inner Harbour and Perth's southern industrial areas and will significantly reduce freight traffic on Hampton Road, which passes through the City of Fremantle.

Considerable work has already been done on rationalising access to Victoria Quay. Although physical restrictions on alternative access routes make it important to retain the Cliff Street entrance, use of this approach has been minimised and Gate 3 near the Rail Bridge has been developed as the primary access point for freight. The need to improve the connection between this gate and Canning Highway is currently being addressed by Main Roads WA, in consultation with the City of Fremantle and other groups.

Beyond the immediate environs of the Port, trucks carrying import and export cargoes will continue to use the general urban road system. However, even within the Fremantle region, port generated traffic accounts for a relatively small proportion of the total traffic on the arterial roads that it uses: typically only about 2 to 5 per cent in terms of number of vehicles. Detailed analysis undertaken during the preparation of the Port Development Plan indicated that port-related traffic would not add appreciably to either road traffic congestion or environmental noise levels on the arterial road network.

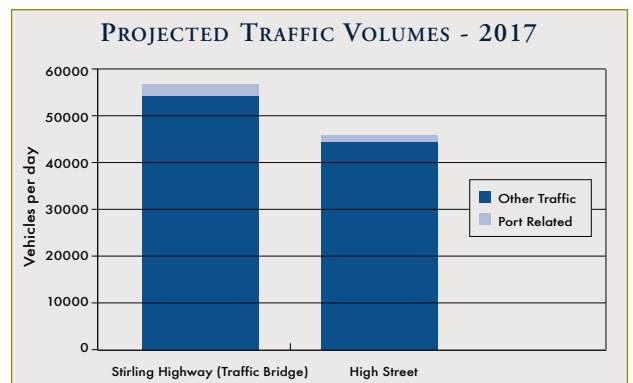
The Department of Transport's Perth Metropolitan Freight Transport Strategy provides a comprehensive framework for the management of freight transport in the Perth metropolitan area. The Strategy strongly supports the on-going operations of the Fremantle Inner Harbour and recognises the importance of maintaining efficient road and rail freight access links to the Port.

## 7.2 Rail and the Port

Although rail transport at present plays only a minor role in the moving of goods to and from the Inner Harbour (approximately 9,000 containers annually) there has recently been a resurgence of interest in the use of rail to transport port freight. Under the National Competition Policy framework, the State Government instigated a third party access regime to enable rail operators other than WAGR to access the State's freight rail network, subject to agreements between the parties. In 1998, National Rail Corporation was granted access to the rail link between North Quay and Kewdale for the carriage of interstate cargo and it has since provided a twice-weekly service to and from the Inner Harbour. The Toll Group was appointed manager of the North

Quay Rail Terminal in July 1999 and Toll/WAGR also run services to North Quay approximately six times per week. Greatly improved service levels have resulted from these initiatives. It is anticipated that access to the network for the carriage of intrastate cargoes will follow at some future time, enabling access to service various other niche markets, including the mining industry and the Goldfields.

Consideration is currently being given to effecting the necessary rail corridor improvements to enable double stacking, using well wagons. This would enable further rail efficiencies and associated benefits to be gained.



There are obvious environmental benefits in encouraging greater use of rail for major freight movements. Rail is between four and six times more fuel efficient than road transport. Increased use of rail would greatly reduce the number of trucks moving to and from the Inner Harbour. Assuming that the Inner Harbour throughput is 1,000,000 TEUs annually, a rail share of 27 per cent could be accommodated by four double-stacked trains per day. These four trains would replace between 300 and 400 truck movements daily.

The preservation and enhancement of rail connections to the main container terminals on North Quay is also strategically important to the future competitiveness of the Port. Greater use of rail is strongly supported by Government transport and planning policies and by port users.

The proposed re-development of the Leighton Marshalling Yards for urban uses will require the construction of a new freight rail link to North Quay which will need to be completed before the existing link is closed. The Fremantle Regional Strategy (1994) identified a direct rail loop corridor.



However, due to changing circumstances, the Fremantle Regional Strategy rail proposal is also being reviewed by the Department of Transport as part of the previously mentioned Fremantle to Cottesloe Transport Plan study.

It is estimated that the percentage of containerised cargo carried by rail will increase significantly in the future as trade through the Port grows. A target of 20 percent to 30 per cent is seen as realistic in the medium term.

The Port Development Plan makes provision for the future development of high standard rail access. Existing rail access to the Port is subject to a number of limitations, the most important of which is a severe restriction on the length of trains that can be handled, due to the limited length of the existing North Quay rail terminal. As rail volumes grow, it will be economically and operationally desirable to invest in a new, larger scale rail terminal on North Quay to handle longer trains.



## 8. THE INNER HARBOUR - A VISION FOR THE FUTURE

Because there are only very limited opportunities to expand the Inner Harbour, it is vital that:

- all existing berths are used to their optimal capacity
- each berth is used for the purpose to which it is best suited
- port land uses are optimised to best facilitate trade

The Inner Harbour Port Development Plan provides a framework within which these goals can be pursued, taking into account the wide range of factors that impact on, or influence, port operations in Fremantle. The Plan embodies a strategic vision of how the Inner Harbour of the future will function.

Provided below is a brief description of how it is envisaged that the Inner Harbour will look in 30 years' time taking into account the development initiatives arising from the Port Development Plan and seen as necessary in enabling optimum use of the Inner Harbour. This is followed by more details of the various initiatives proposed and their likely timing.

### 8.1 The Inner Harbour-Thirty Years On

Berths 1 and 2 on North Quay, just east of the North Mole, will probably remain much as they are today. There will be a larger storage area behind the berths, created gradually as leases on nearby properties expire. But otherwise, not much will have changed. These berths are awkwardly located on the bend at the entrance to the Port, and they are too short to comfortably accommodate many of the larger vessels that already visit the Port. They will continue to serve the break-bulk and livestock trades, and will be largely restricted to these uses. Options may exist in the medium to long term for Berth 2 to be demolished to allow a greater extension of Berth 4 (see below) to provide greater berth length for container ships. This would further increase the container handling capacity of the Inner Harbour.

East of these berths are the Port's two container terminals, which will stretch through from an extended Berth 4 through to a refurbished Berth 10. A water depth of 13m will be available at all of these berths.



The storage areas of the terminals will probably be significantly larger, subsuming the sites of the former grain silos and the current alignment of Port Beach Road.

Subject to environmental and other necessary approvals, new land will be created by reclaiming the area immediately seaward of the existing Rous Head extension, using fill material obtained from dredging operations, together with supplementary fill material from other sources if necessary. This land will accommodate the ancillary port uses and leases displaced by the terminal expansion.

Berths 11 and 12 will form one of the Port's principal break-bulk facilities in the Inner Harbour. Demolishing the existing covered storage will have created a clear open working area immediately behind the berth. A new general-purpose covered storage area will be located towards the rear of the area. Berths 11 and 12 were originally constructed as heavy duty container berths.

Victoria Quay will be divided into two distinct areas. The western end of the Quay, extending west from C Berth, will be used for the Fremantle Waterfront Project. The eastern end, from C Berth on, will continue to be very much a part of the working port, used primarily to serve the motor vehicle, livestock and scrap metal trades, as well as for non-commercial shipping.

At the traffic bridge end of Victoria Quay, an extended wharf face will include a fully developed J berth. This would provide over 1 kilometre of linear quay along Victoria Quay, stretching eastwards from E Berth.

Behind these berths will be a large open storage area that will provide for a range of break-bulk cargo operations including the provision of satisfactory storage for large shipments of motor vehicles. It is proposed that the area of open storage space will be enhanced through the acquisition of approximately 2 hectares of surplus railway land on the Victoria Quay side of the railway reserve.

These enhancements will provide the Western Australian community with a world class general cargo port that will continue to serve the needs of the State's trade well beyond the thirty year planning period, with no reason to believe this should not continue indefinitely.

Plans showing the key features of the three stages of development of the Inner Harbour are included at the back of this document.

The plans and approximate dates of implementation are:

- Port Development Plan for Inner Harbour Stage 1 - By 2002
- Port Development Plan for Inner Harbour Stage 2 - By 2007
- Port Development Plan for Inner Harbour Stage 3 - By 2017

The exact timing of the initiatives included under Stage 2 and Stage 3 will depend on the actual growth in future trade levels.

Furthermore, the exact alignment of new road and rail links and the boundaries for container terminal expansion will be subject to further detailed consideration, involving consultation with relevant stakeholders.



## 8.2 Achieving the Vision

The Port Development Plan envisages that the future development of the Inner Harbour will proceed in three stages.

### Stage 1: Operational Improvements

For several years to come, the Inner Harbour will be able to meet all of the demands of trade without substantial structural enhancement. Stage 1, which will take place shortly, will therefore consist of several projects designed primarily to improve operating efficiency. This includes:

- extending the P&O Ports terminal to provide additional space in the gate area
- extending the Patrick Terminal to include the site previously occupied by the grain silos
- consideration is being given to removal of the No 1 shed to create additional space behind Berth 1
- constructing a new rail link to North Quay to replace the existing link when it is withdrawn as a result of the Leighton Marshalling Yard redevelopment

- extending the open storage area at Victoria Quay through the acquisition of surplus railway land

### Stage 2: Capacity Enhancement

During Stage 2, in the second five years of the planning period, between 2002 and 2007, depending on future trade levels, the more significant works required to develop the Inner Harbour to its full operating capacity will be undertaken:

- realigning Port Beach Road to accommodate the expansion of the container terminals and construction of the new North Quay rail terminal
- developing a new rail terminal on the Harbour side of the new alignment of Port Beach Road
- extending the two container terminals to incorporate additional land on the Harbour side of the rail terminal
- strengthening of Berth 10, including dredging to a depth of 13m, and the extension of Berth 4 to provide extra quay length for container vessels
- possible removal of the existing covered storage on Berths 11 and 12 and constructing a new covered storage area at the rear of the berth

- subject to necessary environmental and other approvals being obtained, completing the infilling of the area immediately seaward of the existing Rous Head extension, to provide land for ancillary activities displaced by the terminal activities

### Stage 3: Rounding Off

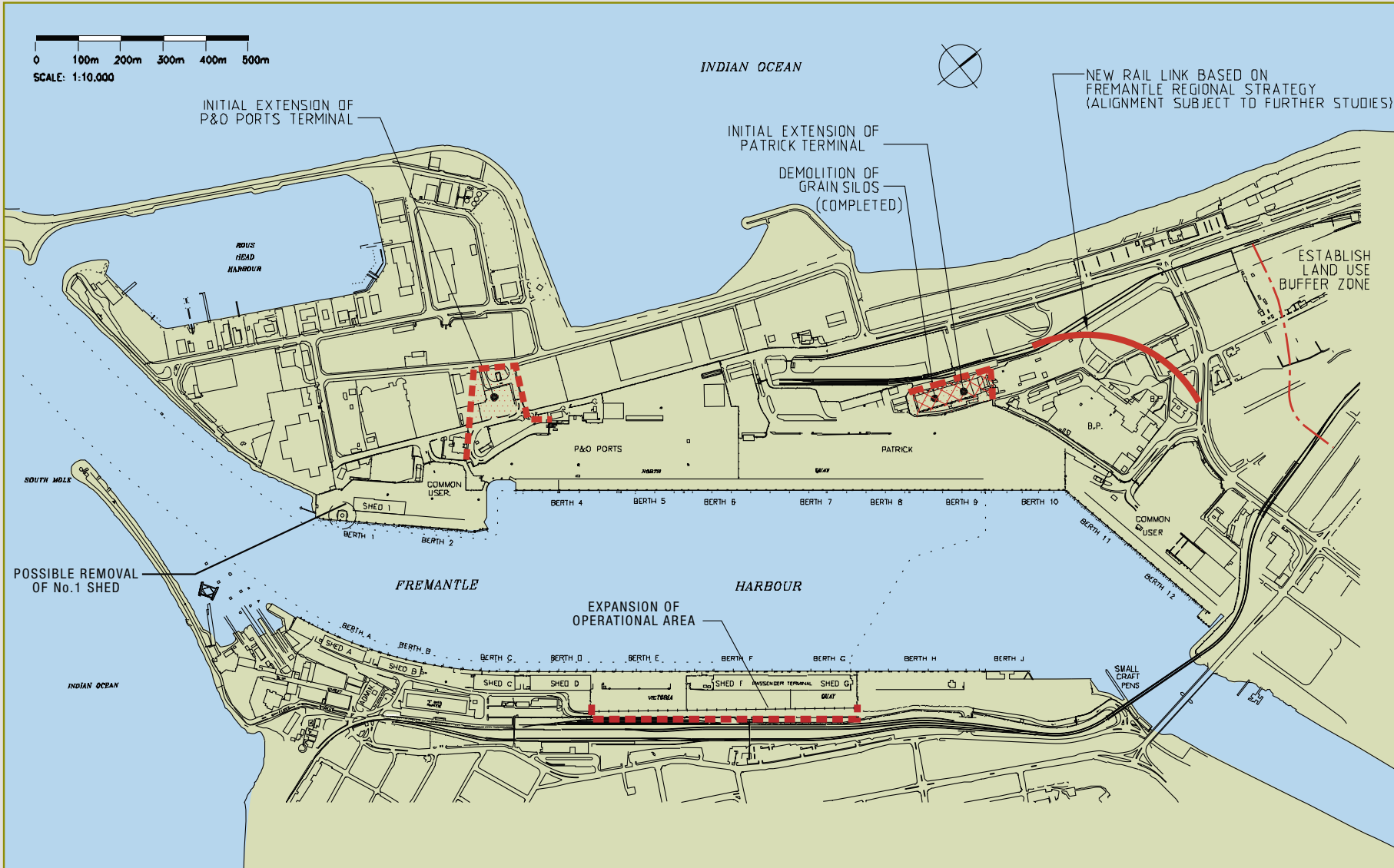
The initiatives of the third stage of the Development Plan will focus on refining the facility improvements undertaken during Stage 2:

- extending and developing J Berth
- improving the linkage between Port Beach Road and Rudderham Drive to increase the efficiency of road access to the container berths
- evaluating the further reclamation east of Rous Head extension, providing additional area for port related uses.

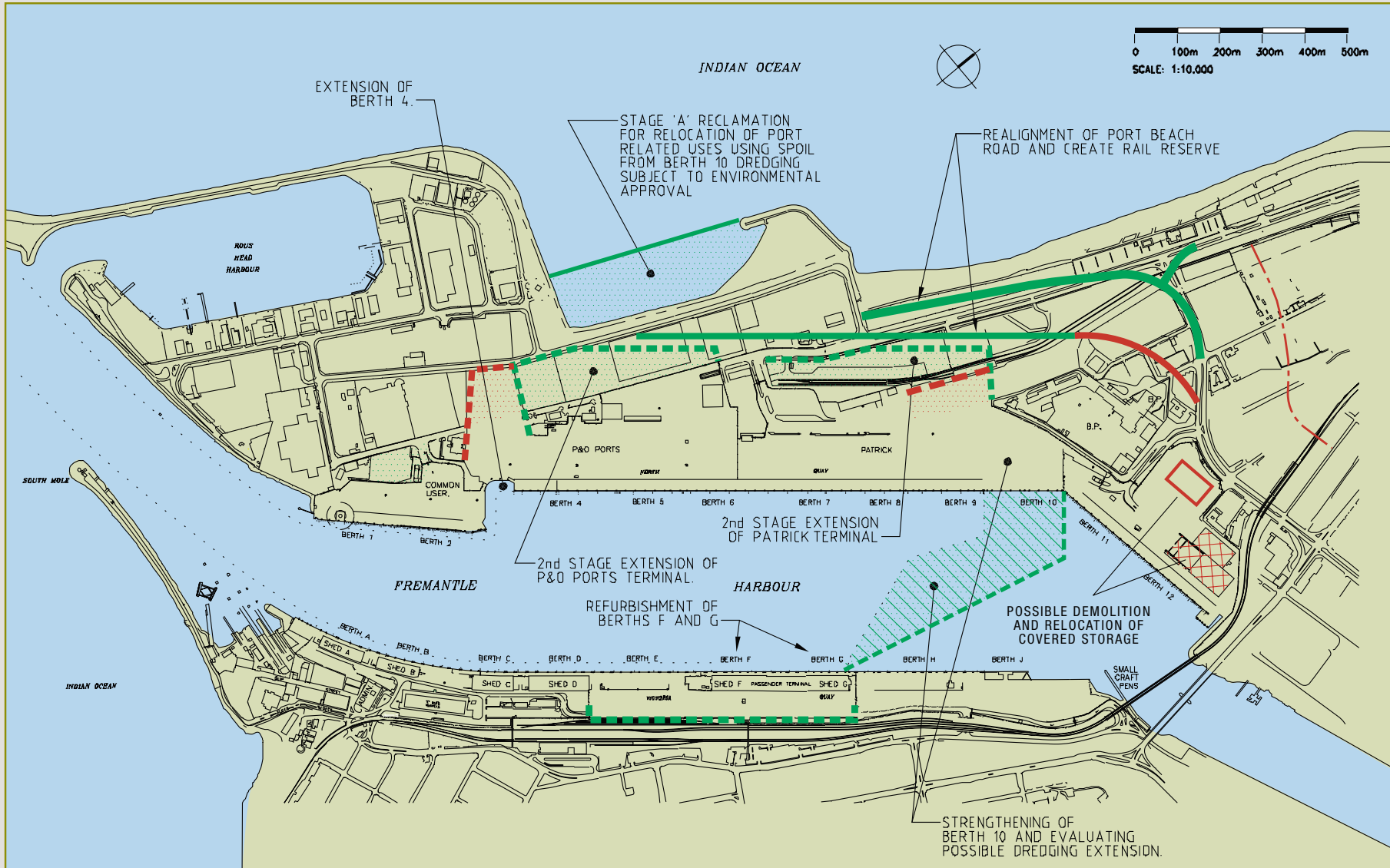
## 8.3 Conclusion

The Port Development Plan for the Fremantle Inner Harbour embodies a strategy for the efficient and effective means of handling the increase in general cargo trade that will inevitably occur as the Western Australian economy grows, while ensuring that the Port develops in harmony with its physical and social environment. The improvements envisaged in the Plan will allow the Western Australian community to take the fullest possible advantage of the very significant investment that has already been made in the Inner Harbour. At the same time, they will allow the Port to maintain the leading role that it plays in the economy of Fremantle, and preserve and enhance the distinctive character of Fremantle as the maritime gateway to Western Australia. The FPA believes that, by working together to implement the Plan, the special potential of Fremantle as both a port city and a city port can be fully realised.

# PORT DEVELOPMENT PLAN FOR INNER HARBOUR STAGE 1 - BY 2002



# PORT DEVELOPMENT PLAN FOR INNER HARBOUR STAGE 2 - BY 2007



# PORT DEVELOPMENT PLAN FOR INNER HARBOUR STAGE 3 - BY 2017

