

MELBOURNE DOCKLANDS

STRATEGIC OPTIONS



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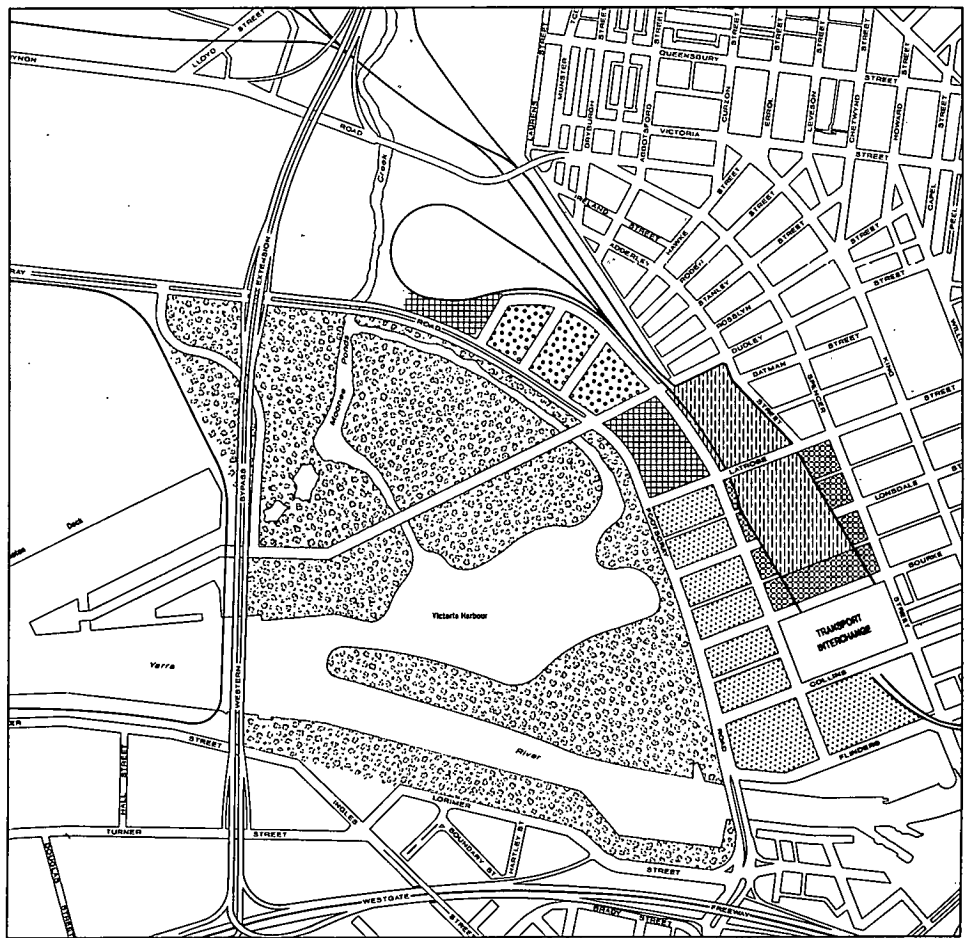
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


Melbourne Docklands: Strategic Options

34 Strategic Option 4: Core Area



**DOCKLANDS
TASK FORCE**

REFERENCE

	Central City		Institutions, Education etc
	Mixed Use		Industry, High Tech Industry
	Office		Open Space
	Residential		Rail

0 500 1000
scale of metres



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Guide to the Structure of the Report

The Summary describes the role of the Docklands Task Force (DTF) in preparing this report and outlines the consultation process which commences with the report's launch. It also summarises the report, with particular emphasis given to transport issues and to four Strategic Options presented to stimulate public debate.

Part One, the Introduction, defines the area considered by the DTF, the guiding objectives and nominates four key issues for consideration: land use, intensity of development, transport infrastructure and economic development.

Parts Two and Three establish the context. Part Two describes a range of Government policies that set the parameters in which development could occur and includes a description of property market trends and funding issues. Part Three describes existing physical conditions and focuses on the future requirements of the Port of Melbourne and the rail system. This section also describes a possible land release timetable.

Part Four examines some of the key issues involved in determining the best new land uses for Docklands. An analysis of what activities are most suitable to the physical conditions is provided, as is a discussion of the potential for residential development. Finally, four land use scenarios are described which demonstrate some possible combinations of land uses.

Part Five discusses physical infrastructure: services such as sewerage, gas, electricity and water, and the opportunities that exist to provide advanced telecommunications infrastructure. Most emphasis is, however, placed on transport infrastructure. Provision of an effective public transport network and good pedestrian and bicycle access is stressed. It is the view of the DTF that, whilst the transport network finally decided upon must be appropriate to the land use and activities proposed, an understanding of the transport issues involved is of great importance. In particular, ways of dealing with north-south traffic flows, the Spencer Street Rail Yards and Station, the Webb Dock Rail Line and the overall role of the road network are emphasised.

Part Six outlines the Strategic Options. The Options combine the land use Scenarios described in Part Four with a transport network based on the discussion contained in Part Five. Options 1, 2 and 3, which represent different intensities and mixes of development, are provided with the same transport network. Option 4, which proposes mainly parkland, is provided with a simpler transport network. All Options are then evaluated in both financial and non-financial terms, and a number of possible variations to the transport network are discussed for Option 2.

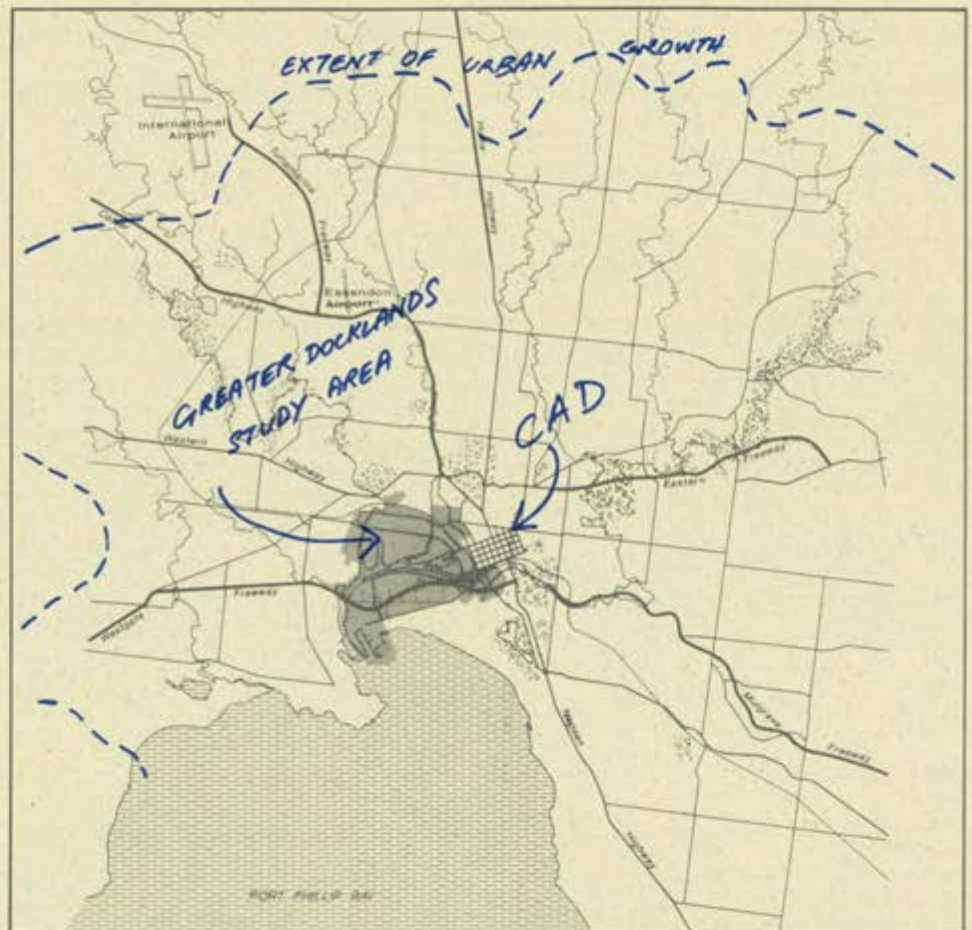
Part Seven discusses some of the economic development opportunities which exist for Docklands.

Part Eight provides information on related consultation processes and a listing of other relevant

documents: DTF working papers, Consultants' reports to the DTF and documents previously published.

All dollar amounts quoted in the report are in 1990 dollars.

1 Greater Docklands Study Area: Location



Summary of the Report

Foreword

Preparing a strategy for the development of Docklands is one of the most challenging opportunities Melbourne has faced for many decades.

Large areas of land at the western edge of the city, previously required for port and rail activities, could now be made available for other uses. This report is designed to assist people form views about what these new uses could be.

Various uses have already been talked about for Docklands, notably the proposal to locate the Olympic Village there, had our Olympic bid been successful. Docklands was also suggested as a possible site for the Multifunction Polis. It is now necessary to begin a fresh examination of the best options for Docklands.

The Docklands Task Force (DTF) was formed early in 1990 to formulate a long term strategy for developing Docklands. The release of this report heralds the beginning of a two stage public consultation which will help shape that strategy.

In preparing this report, the DTF has been guided by the following objectives for Docklands. It should be noted, however, that the objectives themselves are open for discussion and review.

Objectives of Docklands Development

To use the opportunity provided by the waterfront location to increase the efficiency of existing land uses and encourage new land uses and other activities that:

- strengthen Melbourne's role as a prime commercial, financial and research centre by facilitating major new developments in an attractive waterfront environment, with strong links to institutions and activities in other parts of the city, throughout Victoria and beyond;
- develop transport and other infrastructure which improves the competitive position of Melbourne and of Victoria as a whole;
- house a large, new population in central Melbourne; and
- attract people to central Melbourne for business, residence and leisure.

To ensure that any development:

- is the outcome of an intensive and flexible public consultation program;
- is of the highest possible urban and environmental quality;
- allows for growth in the Central Activities District (CAD) in a way which preserves and enhances the unique character of the existing city;

- maximises benefits available through release of under-utilised Government land to finance basic infrastructure; and
- is properly integrated into existing neighbourhoods.

This, the first report of the DTF, presents a range of Strategic Options about which public comment and discussion are now sought. The Options represent points on a continuum ranging from high density, city centre style development at one end to parkland and open space at the other. The Options include varying degrees of housing and incorporate transport infrastructure.

Many other ways of developing Docklands are no doubt possible. The possibility of deciding that development should not proceed now, or that it should proceed at a slower rate than envisaged as possible in this report, also exists. Nevertheless, this report presents four Options which are regarded as being physically and financially sound. People should not, however, feel limited to choosing between them. Rather, it is hoped that through a process of open and wide-ranging debate, assisted by some practical examples of what might be achieved, the best possible strategy will emerge.

Background and Context

The Role of the Docklands Task Force

The DTF was established in February 1990 following a decision of the Government in late 1989. At that time, a number of different Government agencies were involved with planning for Docklands. The DTF was charged with co-ordinating that work and with consulting with the community to prepare a long-term strategy for Docklands.

The DTF, which reports to the Minister for Industry and Economic Planning, the Hon. David White, MLC, comprises representatives of a number of Government agencies and private sector consultants appointed to provide specific expertise. It is guided by a Steering Committee made up of the permanent heads of the Department of Industry, the Department of Planning and Urban Growth, Treasury, the Major Projects Unit, the Ministry of Transport and the Ministry of Housing and Construction.

Over the last nine months or so the work of the DTF has been assisted by an Executive Group and a Planning Panel, chaired by the Hon. Evan Walker, MLC. The Government has now established the Docklands Advisory Board, the broad role of which is to work with the Government on establishing market interest in Docklands and on the establishment of an implementation strategy should the Government proceed to legislate for a Docklands Authority in the future.

A Consultation Steering Group, the role and membership of which are discussed later, has also been established to guide the consultation process.

The DTF has built on work already carried out in relation to planning for the Olympics, the Committee for Melbourne's proposal for the Multifunction Polis, studies carried out to support these and other initiatives (such as planning for the redevelopment of Spencer Street Station) and the consultation process carried out over the "Strategic Planning Framework" issued in August 1989 by the then Ministry for Planning and Environment (now Department of Planning and Urban Growth) and the Major Projects Unit's "Progress Report - Melbourne's Docklands" published in May 1990.

In addition, the DTF has consulted with a wide range of groups and individuals. Local councils and associations, developers, urban planning bodies, social issues groups, environmentalists and a wide range of expertise within Government agencies and the private sector have been tapped to help formulate issues and assist in developing and presenting options.

The Purpose of this Report

The purpose of this report is to discuss a range of issues that will affect development of Docklands and to present four Strategic Options that are considered to be physically and financially sound, in order to stimulate community debate about the best way of developing Docklands.

Broadly speaking, four key areas are explored. The first is that of **land use**: what new activities could occur at Docklands and in what mix? A related concern is that of the **intensity of development** which has a number of important implications, particularly in terms of trade-offs between economic viability and attractive urban form, and the number of people that might be housed in Docklands.

The third area relates to **transport infrastructure** and involves ensuring both that adequate transport infrastructure is provided for whatever land use is finally agreed upon and that the barriers currently created by the Spencer Street Rail Tracks and Station, by the Webb Dock Rail Line and by the heavy traffic carried on Footscray Road, are overcome.

Finally, development of Docklands could make a significant contribution to improving the competitiveness of the Victorian economy. A number of **economic development** opportunities have been identified by the DTF and are

discussed in the body of this report.

This report presents four Strategic Options for discussion, three of which involve reasonably intense development of the site, though with different combinations of commercial, residential, mixed use, open space, industrial and institutional development. These three Options incorporate the same transport infrastructure network. The fourth Option, which provides mainly for parkland, requires less investment in transport infrastructure.

This Summary briefly describes each of the Strategic Options and provides a general outline of the issues considered in their development. The rest of the report provides a far more detailed account of the work that has gone into shaping the Options and is, therefore, strongly recommended to anyone who wants a full understanding of all the issues involved. In addition, a range of working papers and consultants' reports used by the DTF are available on request to assist people who want to investigate particular topics in depth. These are listed in Part 8 of the report.

The Consultation Process during 1990 - 1991

The Government is committed to consultation as a means of ensuring that any developments proposed have community support that is as broadly based as possible. In the case of Docklands, the potential significance of the project to the people of Melbourne renders vital their active involvement in the definition of a strategy for the area.

The Government has appointed a Consultation Steering Group to direct the consultation. The Committee will meet regularly with the DTF which will carry out the

consultation. It will also report directly to the Minister for Industry and Economic Planning.

The Terms of Reference of the Consultation Steering Committee are to:

- advise the Minister and the DTF on all major aspects of the design and implementation of an extensive and high quality consultation program;
- participate, along with key DTF personnel, in all major consultation sessions conducted by the DTF and, where appropriate and practical, participate in other consultative arrangements relevant to Docklands;
- advise the DTF on the merging of public consultation input with the research and policy work relevant to planning for Docklands;
- ensure that the broad effects of proposals on the physical, social, economic and cultural environment are addressed;
- consider issues raised in public comments received on the draft Docklands Authority Bill and Discussion Paper and report to the Minister on those and any other relevant matters;
- following public release of the draft Docklands Strategy (stage 2 of the consultation process), report in writing to the Minister. This may involve the holding of a public inquiry, including the hearing of submissions.

The members of the Consultation Steering Group are:

Mr John Fowler (Chairperson)
 Mr Tony Dalton
 Mr Des Gunn
 Ms Dimity Reed
 Mr Laurie Wilson
 Ms Helen Gow

The release of this report heralds the beginning of a two stage consultation process. This report is

intended to be the major resource for the first stage which will last until the end of April, 1991. During the first stage, public comment will be sought on the four Strategic Options presented, and all other issues raised in the report. The report will be widely distributed and public meetings and workshops will be held, written submissions called for and opportunities provided for people to express their views directly to the DTF.

At the end of the first stage, the comments received will be distilled to a point where a more refined option or model can emerge. This will form the subject of a second report which will be used during stage two of the consultation, lasting until late in 1991. It is intended that a final development strategy will be announced after the close of the second stage of consultation.

Consultation Timelines:

Stage One: December 1990 - April 1991

Major Resources:

- DTF "Strategic Options" report
- Draft Docklands Authority Bill and Discussion Paper

Stage Two: July 1991 - October 1991

Major Resource:

- Second DTF report

Release of "Docklands Development Authority - Discussion Paper"

In addition to this report, the Government is releasing a Discussion Paper on draft legislation to establish a Docklands Development Authority.

If development of Docklands is to proceed, the Government must decide the most effective way to manage its implementation. A Docklands Authority, as described in the Discussion Paper, is one

Summary of some of the Key Issues for Community Comment

The work carried out to date by the DTF has suggested a number of issues that require community debate and comment. A brief list of these issues is provided below and further detail is provided in the body of the report. Other issues will no doubt emerge through the process of consultation.

Issues that people are asked to comment on therefore include, but are not limited to, the following:

- whether it is desirable to develop Docklands, and at what rate;
- the most appropriate land use pattern, including the balance between and impact of different types of uses, for example, the quantity and location of city centre style development compared to open space, retail or residential development (refer to Part 4 and Part 6 of the report);
- the intensity of development in terms of building heights and the overall appearance of the development. For example, large areas of city centre style development may be regarded as desirable in financial terms, but less desirable in terms of environmental impact or urban form (refer to Part 4 and Part 6 of the report);
- the appropriateness of locations around the Greater Docklands nominated for possible residential development;
- the mix of housing types, including public and "affordable" housing and housing appropriate to the needs of families, single people, the elderly and others (refer to Part 4 of the report);
- the density of housing provided. This issue is particularly important in terms of the total number of people who can be housed in Docklands. Density relates to such things as the number of storeys, size of dwellings and the amount of open space provided. (refer to Part 4 of the report)
- overall development of transport infrastructure, especially public transport. Developing an effective transport network is important not only for ease of movement within and around Docklands, but also in terms of its overall environmental impact and its impact on surrounding communities (refer to Part 5 of the report);
- ways of providing for efficient north-south traffic movements and, in particular, possibilities related to the treatment of Footscray Road and the possible extension of the proposed Western Bypass (refer to Part 5 of report);
- ways of overcoming the barrier formed by the Spencer Street Rail Yards and redevelopment of Spencer Street Station as a major Transport Interchange; (refer to Part 5 of the report);
- the long-term location of the Webb Dock Rail Line (refer to Part 5 of the report);
- the development of appropriate guidelines or controls in terms of environmental and urban quality if development is to proceed (refer to Part 6 of the report).

option. Comments on the Discussion Paper should also be addressed to the Consultation Steering Group, care of the DTF.

Other Related Consultation Processes

It should also be noted that a number of other consultation processes which impact on or are related to development of Docklands are underway. These include:

- Melbourne City Council's update of its long-term strategy plan;
- the draft Central Area Transport Strategy;
- the Traffic in Melbourne Study;
- the Victorian Transport Strategy; and
- the Ministerial Task Force on Hazardous Materials.

Of particular significance is the fact that the Port of Melbourne Authority (PMA) is currently involved in the Victorian Ports Land Use Study which is referred to later in the report. People are encouraged to register their interest in participating in this Study with the PMA. Details of how to do this, and of the other processes mentioned, are provided in Part Eight of this report.

Defining Docklands

(Refer to Part 3 of the report)

The Greater Docklands Study Area considered by the DTF comprises about 21 square kilometres of land and waterways immediately to the west of Melbourne's CAD, on both sides of the Yarra. The boundaries are flexible and were deliberately drawn wide (much wider than the area discussed in the "Strategic Planning Framework" report issued in 1989) to ensure the DTF took full account of the future role of the Port and the relationship between Docklands and surrounding areas.

Within the Study Area, a Core

Area of about 300 hectares of land and water can be clearly defined. This can be compared with the "Golden Mile" of the CAD which is about 160 hectares in area. It is this Core Area which has the greatest potential for change. (It should also be noted that the proposed Olympic Village site accounted for only about 10 per cent of the Core Area.)

Most of the Study Area is currently used for port activities, whilst the eastern part of the Docklands Core lies on railway land. It is the proposed consolidation of these uses to smaller areas, to new port development downstream or to new locations that will create sites for Docklands development. Clearing of much of the railway land is a relatively straightforward matter and can be accomplished within a few years. However, release of port land will occur over a longer period as different berths reach the end of their useful lives.

The Port is a very important competitive strength of the Victorian economy. In the future, Victoria will rely on the efficiency of the Port to ensure anticipated growth in trade can be delivered. Historically, the Port has used a lot of land. The opportunity now exists to achieve productivity boosts, using a smaller area. Whilst it is generally agreed that the sites nominated for development in this report can be vacated by the PMA, the long-term Land Use Study referred to earlier will assist in clarifying the precise land use requirements, appropriate timing for release of land and, in particular, long term requirements for Appleton Dock and its potential expansion towards the Moonee Ponds Creek.

As mentioned above, the Core Area has the greatest development potential and has therefore been the major focus of attention in developing the Strategic Options. It is large enough to be regarded as a

greenfields opportunity, with all the advantages this offers. However, it is also so centrally and strategically located that it is able to build strong links to existing facilities and activities. Links with CAD and educational, research and technology related activities in inner Melbourne are particularly important in this regard.

The relationship of Docklands to surrounding areas is also vitally important in determining appropriate sites for residential activity. It is desirable to locate new housing close to existing residential communities and their facilities. It is also important to recognise that not all areas within the Core are suitable for housing because of their proximity to major roads or port or industrial uses. In proposing

potential sites for residential development, the DTF has, therefore, examined the entire Greater Docklands Study Area, not just the Core.

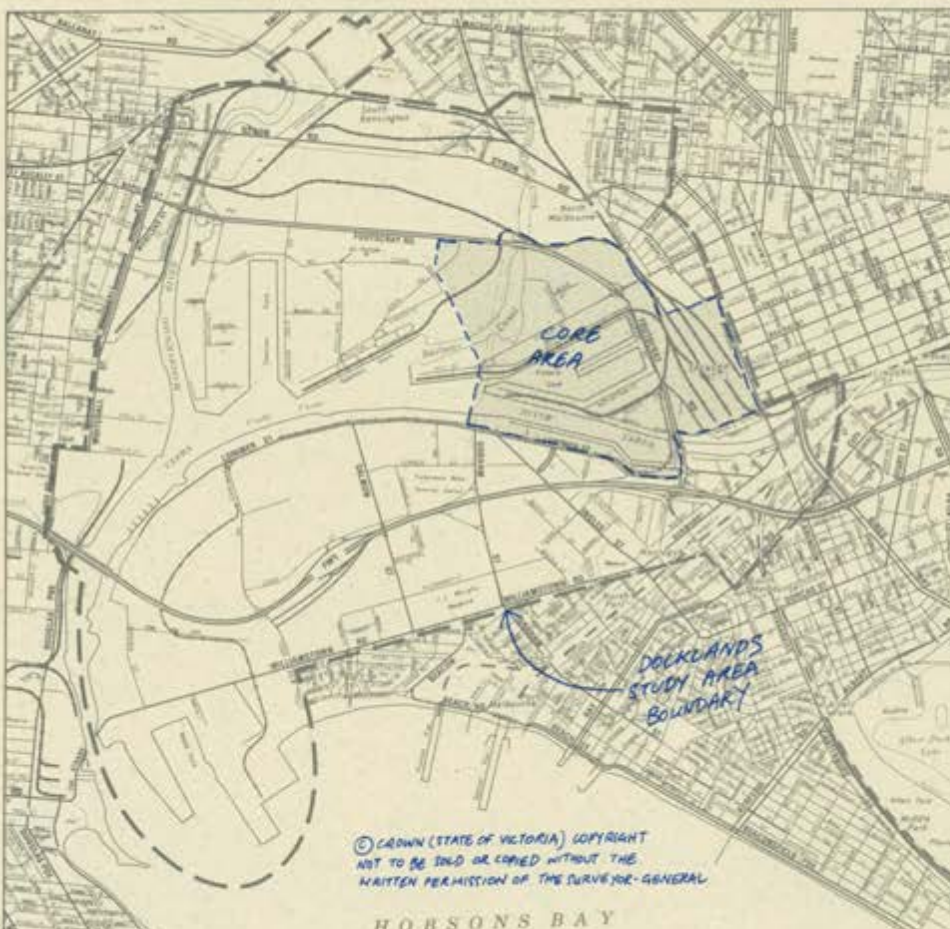
Policy Impacts

(Refer to Part 2 of the report)

Economic Policy

More efficient and technologically advanced transport and communications infrastructure would assist in improving the competitiveness of Victorian trade and export industries generally. It is recognised that micro-economic reform of transport, especially port operations and road and rail transport, is required regardless of the future of Docklands.

2 Greater Docklands Study Area



Nevertheless, strategies to improve the efficiency of the port and freight transport are fundamental to and encouraged by the release of land for Docklands.

Another important aspect of the Government's economic policy has been to improve the competitive position of the Victorian economy by encouraging the development of knowledge based and service industries. Part of Docklands could be developed as a location for industries such as information and telecommunications, media production and services, advanced transport, environmental management and education and design and so enable Victoria to capture a larger share of the growing world market for these services.

Urban Policy

Urban policy has set new directions for the physical planning of Melbourne to meet the economic challenges of emerging information based industries. It has also identified opportunities for the transformation of central Melbourne to create new relationships between the central city, the river and the bay.

Docklands also represents a significant land resource with the potential to contribute to urban consolidation objectives. Principles of urban consolidation include the encouragement of medium density housing in inner areas and the release of surplus Government land for residential development. Principles of choice and affordability are also stressed.

Transport Policy

In addition to issues related to micro-economic reform of the transport system, the other major transport policy is the draft Central Area Transport Strategy (CATS). Issues canvassed in CATS, such as the diversion of traffic around the

CAD and measures designed to encourage a shift away from private vehicles towards public transport, are of fundamental importance to Docklands. These issues are also central to options for redevelopment of Spencer Street Station as a major transport interchange.

Specific proposals which may have some impact on Docklands include the Fast Freight Train proposal to upgrade rail freight between Melbourne and Sydney and the National Rail Freight Initiative which is examining the feasibility of a National Rail Freight Corporation. Proposals for a Rapid Transit Link to Tullamarine Airport and the development of the Very Fast Train are significant in terms of Spencer Street Station.

Environmental Policy

Proposals for Docklands will need to be consistent with the Government's Conservation and Greenhouse Strategies, and take heed of the requirements of the Environment Protection Authority and other Government agencies regarding hazardous materials and site contamination.

Of particular importance are issues of energy efficiency, the need to provide a range of open spaces, to minimise pollution, to respect heritage areas and enhance the built environment. Protection of and access to waterways will be a priority. Transport and housing strategies are also of great importance in environmental terms.

Social Justice Policy

Finally, but just as importantly, Docklands will need to be developed in a manner consistent with the Government's Social Justice Strategy.

Planning for Docklands will need to take account of the Strategy's objectives. Principles of social justice impact on nearly every aspect of the planning process and are critical to

such issues as provision of employment, housing and transport, integration of Docklands with surrounding areas and, indeed, the process by which a development strategy is produced and implemented.

One example of the impact of social justice principles on planning for Docklands relates to provision of public transport and the importance of recognising the needs of different users. The provision of varied housing types (for families, single people, older people) is another area where there are clear implications in terms of social justice.

Investigation of Physical Options

Existing Conditions

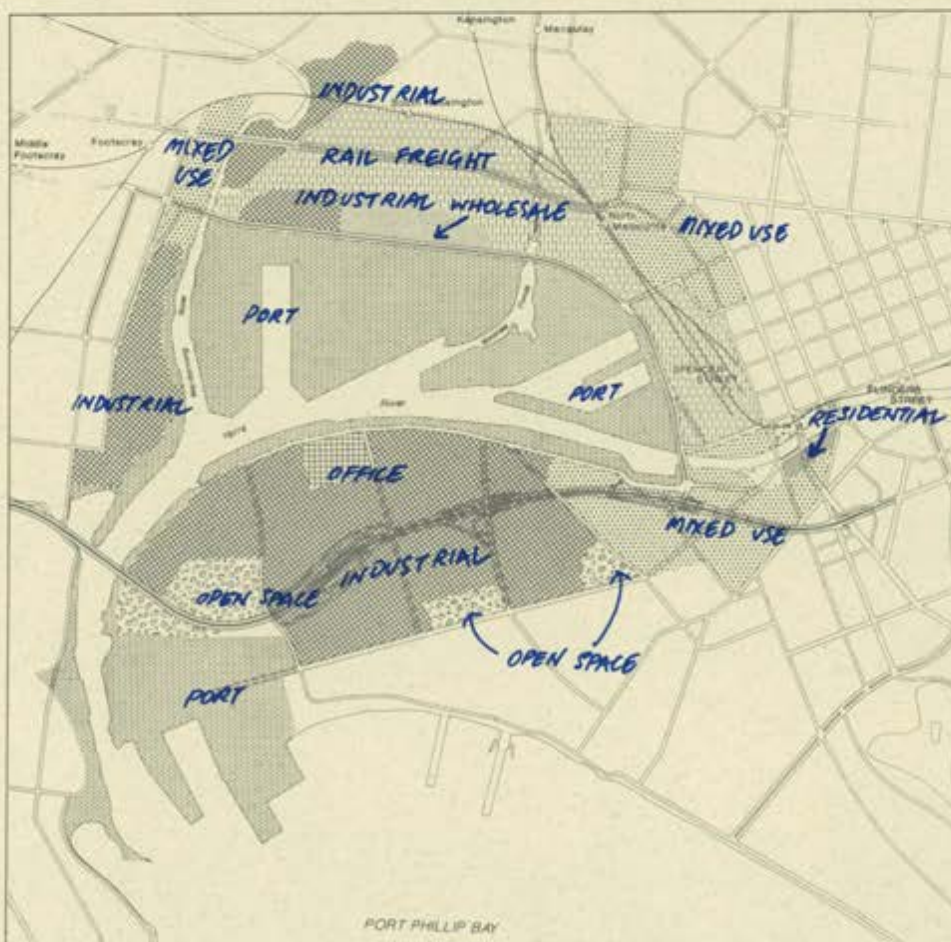
(Refer to Part 3 of the report)

As discussed above, the Greater Docklands Study Area covers approximately 21 square kilometres and the Core Area, which has the greatest development potential, covers about 300 hectares of land and water.

Over 80 per cent of the Study Area is publicly owned and, with the sole exception of the old railways administration building in Spencer Street, the entire Core Area is in public ownership.

The Study Area is serviced by a

6 Existing Land Use



sparse skeleton of arterial roads which, while adequate for current activities, is incomplete in terms of providing for proper road access to and past the Area, especially in a north-south direction.

Currently, there is only limited provision of public transport. The Study Area is not serviced by tram or light rail with the exception of an area south of the CAD. Several tram and light rail services travel on Spencer Street. Spencer Street Station is a major passenger rail terminal and has the potential to become an even more important passenger transport interchange.

No additional headworks infrastructure in terms of water supply, drainage, sewerage, gas, electricity or current standard telecommunications is envisaged, although the existing infrastructure may require upgrading and reticulation of services will be needed.

The generally poor soil conditions within the Core Area (Coode Island Silt covers most of it) mean that multistorey buildings, bridges and other major structures will need piled foundations.

Large parts of the Study Area are also low lying and subject to flooding. Construction of the Arundel Retarding Basin on the Maribrynong River would alleviate this problem in areas near and along that river and would assist in releasing potential residential areas at Lynch's Bridge and in Kensington.

A variety of places, structures and areas of heritage and conservation significance are located within the Study Area. Their value must be respected. The on-going planning process will include further study and interpretation of places and structures of possible significance. The architectural and heritage value of the North and West Melbourne

Urban Conservation Area is also acknowledged as being significant.

Parts of the Study Area are listed on the Environment Protection Authority's (EPA) register of contaminated sites. A preliminary investigation of the Core Area indicates that contamination is generally of a manageable level, with the exception of two former gasworks sites which require particular attention.

Contamination elsewhere in the Study Area includes industrial sites in Yarraville, South and Port Melbourne and the Coode Island liquid bulk chemical store.

The degree of clean-up and associated cost will depend on the intended land use.

Hazardous materials are handled at a variety of sites within the Study Area, notably Coode Island. The PMA and a Ministerial Task Force on Hazardous Chemicals are both currently reviewing the location of this land use, including an investigation of possible alternative sites. If this activity were to be relocated, other port related activities are likely to occupy this land.

The Strategic Options described later in this report take into account the EPA buffer distances for industrial emissions to ensure that sensitive new land uses, particularly housing, are located outside the buffer zones. Before any new development can be undertaken, the Minister for Planning and Urban Growth will consider the need for an Environment Effects Statement (EES) which would include consideration of the effects of nearby contaminated, or otherwise hazardous, sites. The Minister may not always consider an EES necessary in cases where the planning and/or works approval processes will adequately cover environmental and social impacts.

All these statutory processes provide opportunity for public comment.

Transport Infrastructure

(Refer to Part 5 of the report)

Whilst some investment will be required to upgrade and extend reticulation of most services if development of the Docklands Core proceeds, the most important and costly decisions relate to provision of transport infrastructure.

Transport infrastructure, in particular a road network, is required to ensure efficient movement of people and goods around and within the Docklands Core, using both private and public transport. Provision of an efficient and accessible public transport network is essential.

Four issues are critical to developing appropriate transport infrastructure. These are:

- the provision of a safe, efficient, accessible and reliable public transport system;
- management of north-south traffic generally and, in particular, the barrier effect created by large volumes of heavy traffic using Footscray Road;
- the means by which the physical and psychological barrier of the Spencer Street Rail Tracks and Station can be overcome and the related opportunity to redevelop Spencer Street Station as transport interchange;
- the long-term location of the Webb Dock Rail Line, particularly between Lorimer Street and the South Dynon Container Terminal.

Public Transport

(Refer to Section 5.1)

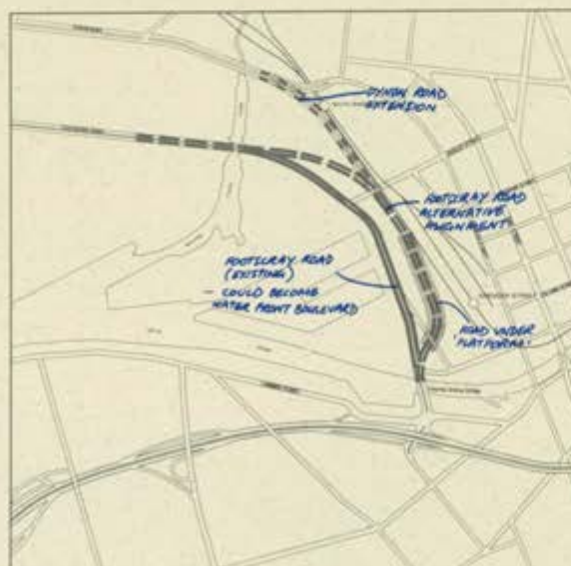
The proximity of Spencer Street Station to the Docklands Core reinforces its role as a public transport hub for Docklands as well as surrounding areas.

Existing tram and light rail services could be extended into the Core Area. Buses may also be introduced.

Other innovative forms of public transport could be introduced: water taxis, people movers and other escalator type systems. State-of-the-art technology should be considered. Provision for bicycles and pedestrians is also a priority.

Trams, buses and taxis rely on the road network. They are easier and cheaper to introduce than new heavy rail. It is for this reason that particular emphasis has been placed on road networks in the discussion of transport infrastructure.

25 Possible routes to and from Charles Grimes Bridge



Management of North-South Traffic

(Refer to section 5.2.1 of the report)

Up to 48,000 vehicles, over a third of which are trucks, now use Footscray Road each day. Assuming the Western Bypass is built, up to 81,000 vehicles a day are expected by 2001.

Ideally, because of its waterfront location, all through-traffic should be removed from Footscray Road. Several schemes to achieve this have been considered and are summarised below. It should be noted, however, that these schemes are not necessarily alternatives. Each scheme may be needed, but at a different time.

Footscray Road Duplication

A bypassing of Footscray Road (called the Footscray Road duplication), constructed at-grade adjacent to the rail corridor before sweeping back to the Charles Grimes Bridge, would improve the amenity of the waterfront area, but would not reduce the number of vehicles passing through the Core

Area. The estimated cost of this duplication is \$50 million.

If the east-west streets were extended over this duplication, a local access road could be constructed on top. The cost of this two tiered road is estimated at \$193 million.

Alternatively, a tunnel could be constructed, at an estimated cost of \$215 million, immediately east of the existing alignment of Footscray Road, allowing through traffic to be carried underground and local traffic to be carried on top.

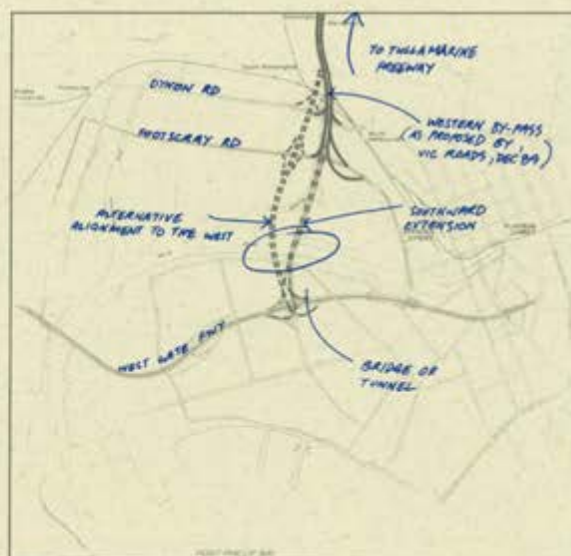
Dynon Road Extension

This involves linking Dynon Road to the Footscray Road duplication at Dudley Street. At an estimated cost of \$90 million, this link would reduce through traffic on Spencer Street.

Western Bypass Extension

Planning for the proposed Western Bypass includes a possible future extension from Footscray Road to the West Gate Freeway. A direct freeway-to-freeway, tee intersection is envisaged which would be designed to prevent traffic travelling to the bayside suburbs.

23 Western Bypass Extension Options



The key issue is how to cross the Yarra in a way that does not disrupt port activity. A high level bridge (similar to the West Gate Bridge) could not be connected to the West Gate Freeway without unacceptably high grades and has therefore been discarded. A tunnel under the Yarra would be difficult, and therefore expensive (estimated cost \$500 million) to build, given the poor soil conditions. The tunnel would also be difficult to connect with the Freeway from its low level under the river. A low level bridge would disrupt port operations unless an opening bridge was constructed, but an opening bridge is not compatible with a freeway function. A permanent low

level bridge, at an estimated cost of \$180 million, would be possible once port operations had moved downstream.

It is also important to consider the alignment of any extension of the Bypass. The current alignment is along the Moonee Ponds Creek. An alternative, more westerly alignment could avoid the lower reaches of the Creek and thus provide greater opportunity for development, primarily of open space. This alignment would, however, prevent extension of Appleton Dock into the mouth of the Creek. The alignment of any extension of the Bypass should be determined before construction of the Bypass proceeds.

North-South Arterial Road

An additional north-south arterial road between Footscray Road and Lorimer Street would provide improved linkage between Swanson and Appleton Docks and Webb Dock and so reduce the local port traffic on the Docklands Core section of Footscray Road. At an estimated cost of \$27 million, the new road would also provide direct access between Docklands and the South-Port Technology Precinct. It would not warrant a high level bridge so unless an opening bridge was constructed, a low level bridge would mark the eastern extreme of commercial port operations.

As mentioned above, these different schemes are not necessarily alternatives. For example, construction of a duplication of Footscray Road through the rail yards could begin almost immediately and act as the through-route in the short-term, before being downgraded to a local access function if the Western Bypass extension is constructed. The existing Footscray Road would become a waterfront boulevard.

Spencer Street Rail Tracks and Station

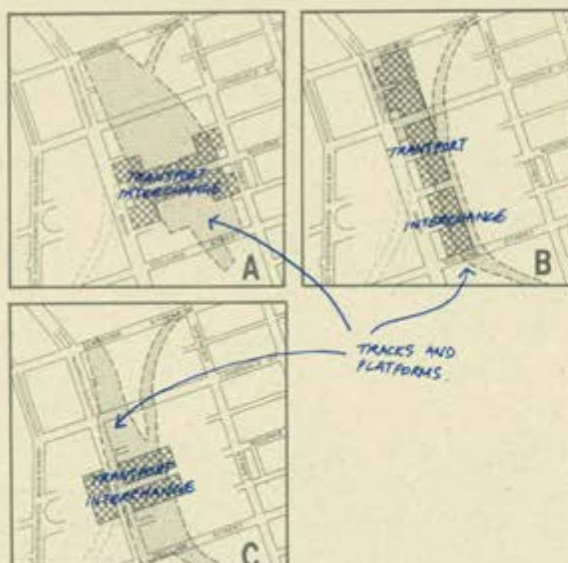
(Refer to section 5.2.2 and 5.2.3 of the report)

Today, the Spencer Street rail tracks present a significant barrier between the CAD and the land leading down to the waterfront. Somehow, this barrier must be overcome to allow Docklands to be linked to the city. A related consideration is the future role of the Station and the potential that exists to upgrade its role to a major transport interchange centre. A variety of ways of addressing these issues are discussed in sections 5.2.2 and 5.2.3 of the report. Three schemes, including requirements for the transport interchange, have been considered in detail and are summarised below.

Scheme A

For an estimated \$370 million, the Station could be redeveloped in its current location. To clear the tracks, east-west street extensions would need to be elevated, at a steep but acceptable gradient. Extension of the streets can be undertaken

26 Spencer Street Rail Tracks and Station



independently of the Station's redevelopment, enabling land release to be flexible and demand led.

A variation of this scheme involves siting the Station on the Collins Street extension, providing continuous built form on Collins Street.

Scheme B

For an estimated \$858 million, the Station could be developed in a north-south linear fashion over platforms and tracks relocated to the west and lowered. Because the tracks are lowered, east-west streets can be extended at grade.

This platform layout increases pedestrian distances between country and suburban lines. However, it also maximises land fronting Spencer Street which could be made available for development.

Extension of the east-west streets cannot be undertaken until after the Station is constructed, although careful staging could enable extensions to be brought forward (temporary bridges could provide interim access). The release of land is not as flexible as it is in scheme A and is dependent on a commitment

to proceed with the relocation.

The Station is moved more than one city block away from the CAD but consequently is closer to the waterfront and associated development.

Scheme C

This scheme is very similar to scheme B except that the new platforms are all side by side and centrally located. This allows development of the Station in a form similar to scheme A on the Bourke Street axis. The estimated cost is \$844 million. East-west street extensions have a lower elevation than equivalents under schemes A and B.

Webb Dock Rail Line

(Refer to section 5.2.4 of the report)

The Webb Dock Rail Line connects Webb Dock to the South Dynon Container Terminal and its current route cuts through the heart of the Docklands Core. While the Line is lightly used at present, it is important and expected to become busier in future years. A decision about its ultimate location is therefore required. Relocation and realignment are the two main options.

Relocation

The Line could be relocated to the west incorporating a new Yarra crossing, at an estimated cost of between \$20 and \$35 million. Freight trains require gradients of no more than about 1 per cent, so a tunnel or high level bridge is not feasible. A low level bridge, either opening or permanent, is required.

Different routes are possible and identification of the preferred route will need to take account of port operations, the possibility of extending the Western Bypass and Docklands' land uses.

27 Webb Dock Rail Line Options



Realignment

The Line could be realigned to run alongside Footscray Road, at an estimated cost of \$13 million. While this would release land for development in the railyards, it would run counter to the objective of improving waterfront amenity and the Line would continue to be a barrier. This realignment would not, however, affect PMA operations.

Other Transport Linkages

(Refer to section 5.3 of the report)

There are several other forms of physical linkage into and through Docklands that are desirable and these are summarised below.

North-South Transportation Corridor

There is obvious merit in locating all north-south linkages (eg the Bypass extension, the arterial road and the Webb Dock Rail Line) in a single transportation corridor. Such a corridor would in effect mark the boundary between the Docklands Core development and the Port.

Links to the CAD and Inner North

There will be a need for new access routes into the Docklands Core from the CAD and the inner north. Collins, Lonsdale and LaTrobe Streets in the CAD and possibly another from the north-east, are all appropriate candidates for extension, although any extension should be demand led. Collins and LaTrobe Streets are likely to be early priorities. Unless Spencer Street Station is relocated, Bourke Street cannot be extended.

Variations in the form of the street network could be explored but continuing the existing grid pattern has compelling features in its favour. These include direct linking of the city to the water, maintenance of vistas, acceptance of the grid as a hallmark of central Melbourne and

ease of provision of services, public transport and of property development.

Extension of streets may require bridging over the railway tracks and, possibly, over the duplication of Footscray Road. Extended streets would require continuous built form at street level to provide appropriate street frontages.

Links to the West

Only Dynon and Footscray Roads and the West Gate Freeway link Docklands to the western suburbs. Careful consideration should be given to improving amenity and access between the west and Docklands without adversely affecting the Footscray District Centre. Maintaining efficient freight carrying functions will also be important, as is the need to provide a welcoming waterfront boulevard rather than the barrier formed by the current use of Footscray Road.

Strategic Options

(Refer to Part 6 of the report)

The key variables in the physical planning for the Core Area of

30 Strategic Options 1, 2, 3 & 4 (outside Core Area)



Docklands are intensity of development, land use mix and associated infrastructure requirements.

Four Strategic Options have been prepared to demonstrate some of the possibilities. Whilst many other alternatives are possible, the four Options presented are considered to be physically and financially sound. (At this early stage, Option Two has been deemed to best meet all financial and non-financial evaluation criteria and has,

therefore, been used as the base case for the testing of variations in section 6.6 of the report.)

Beyond the Core Area, the Options are generally similar, with Port, rail and high technology industry being the main uses. Residential development is proposed in the north-west of the Study Area and within part of the South-Port Technology Precinct south of the Yarra (except in Option One).

Options One, Two and Three propose the same treatment for the proposed Olympic Village site, consisting largely of housing, with small areas of open space, mixed use and office development.

Option 1 - Higher Intensity, Commercial Emphasis

Option 1 most resembles a city centre scale of development. Office and complementary retail, service and entertainment functions face Spencer and Bourke Streets and the main thoroughfare, the Footscray Road duplication. Buildings would be between 10 and 40 storeys.

Between the central city development and Victoria Dock is a mixed use area with buildings generally of 8 to 10 storeys.

South of the Collins Street

31 Strategic Option 1: Core Area



35 Strategic Option 1: View from the South



extension a site is proposed for exhibition purposes (including the historically significant Rail Shed No. 2). To its west is a site for a medium to high-rise landmark office building.

North of the LaTrobe Street extension is an office zone for small scale offices comparable with North and West Melbourne and Carlton development.

Office and mixed use activities are included along the north side of Victoria Dock. This is the main difference between Option 1 and the other Options. Mixed use along the water's edge would have buildings of 5 to 7 storeys, behind which 8 to 10 storey offices would be located.

A large site facing open space along the Moonee Ponds Creek is allocated for campus style development with low to medium-rise buildings in a spacious, parkland setting.

Also facing this large, water-oriented space are three sites designated for residential use. Development would be of a town-house density, comprising up to 500 dwelling units.

To the west of the Western Bypass extension and adjacent to the

Appleton Dock back-up land, two sites are proposed for industrial use.

Over half of the 2.6 million square metres of floorspace in the Core Area would be office, while only 16 per cent would be residential.

Option 2 - Medium Density, Mixed Use

Option 2 emphasises mixed use and residential development with a lower overall intensity than Option 1. The general shape of land use is

32 Strategic Option 2: Core Area



36 Strategic Option 2: View from the South



similar to Option 1 with the major differences being:

- central city and mixed use buildings are lowered to 5 to 10 storeys;
- in North Victoria Dock, residential uses replace central city functions and mixed uses;
- a larger campus area is provided but at a lower density.

Overall floorspace is 1.7 million square metres with central city accounting for 40 per cent of the

total and residential uses accounting for about 29 per cent.

Option 3 - Low Density, Residential Emphasis

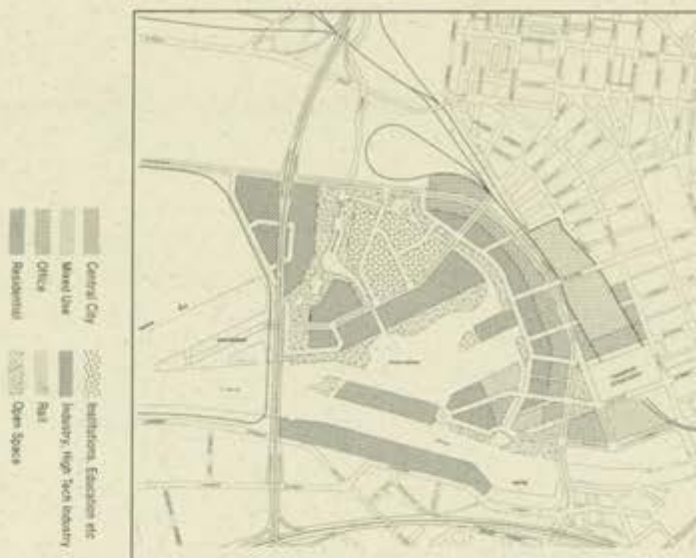
While the total floorspace is comparable to Option 2, residential space is increased to over a third of the total and would be the predominant waterfront use. The developed area would consist mostly of low-rise buildings of less than four storeys.

Option 3 is designed to have a character more typical of inner Melbourne than the central city or fringe suburbs, with a distinctly residential character being the main feature.

The major differences between Option 3 and Option 1 are:

- central city buildings are lowered to 8 to 10 storeys;
- mixed use along Footscray Road is replaced by residential use;
- north of LaTrobe Street, office use on land facing Footscray Road is replaced by residential use;
- in North Victoria Dock, residential uses replace central city and mixed uses.

33 Strategic Option 3: Core Area



37 Strategic Option 3: View from the South



Option 4 - Low Density, Open Space Emphasis

This Option gives to the western edge of central Melbourne a large, water-oriented parkland of similar size to the established parks and gardens to the city's north, east and south. Total Core Area floorspace is 855,000 square metres, one third of that for Option 1. Up to 40 per cent of this would be office and related uses close to the existing CAD. No industrial and very limited residential uses are included.

All land west of Footscray Road is reserved as a major area of open space, focussed on Victoria Dock and the Moonee Ponds Creek wetlands. This new central park complements Melbourne's historical tradition of large, well established open spaces such as Royal Park and the King's Domain.

East of Footscray Road, the general land use configuration is similar to the other Options, although central city uses, with building heights generally of 8 to 10 storeys, are confined to Spencer Street, the extension of Collins Street and the east side of the new north-south local road.

The transport interchange has a Collins Street frontage. A broad

band of mixed use development, between Footscray Road and the north-south local road, stretches from Flinders Street to an extension of LaTrobe Street. This mixed use area generally has building heights of 4 to 6 storeys.

North of LaTrobe Street, a medium density campus area is flanked by office development with building heights of one to two storeys.

Residential development in the Core Area is restricted to the mixed

34 Strategic Option 4: Core Area



38 Strategic Option 4: View from the South



use area. Land use cannot be considered in isolation of requirements for infrastructure, in this case particularly transport infrastructure.

The Strategic Options therefore include an appropriate road network and associated infrastructure.

Transport Infrastructure

Options 1, 2 and 3

The same infrastructure is assumed for Options 1, 2 and 3. Each of these Options incorporates a significant increase in activity in the area and substantial development of the road network is, therefore, considered appropriate for purposes of both public and private transport.

This base case network has the following features:

- Footscray Road could be bypassed from just east of Moonee Ponds Creek, through redundant freight yards, to Charles Grimes Bridge. This road (the Footscray Road duplication) could become the primary through-route, at least in the short-term, assuming the Western Bypass is eventually extended to the West Gate Freeway.
- The existing Footscray Road could become a quieter waterfront boulevard carrying only local traffic.
- Collins and LaTrobe Streets could be extended over the passenger rail tracks to form at-grade intersections with the Footscray Road duplication and the waterfront boulevard respectively. Further extensions would occur only when dictated by market demand, but traffic considerations require at least one additional east-west street at either end.
- Ramps would provide a link between the Footscray Road duplication and LaTrobe Street to

relieve pressure which would otherwise be placed on Dudley Street and Flinders Street and to provide direct connection into the north-west sector of the CAD.

- The Transport Interchange, with a Collins Street frontage, could extend from Spencer Street to the Footscray Road duplication.
- The Western Bypass could be extended southwards, from Footscray Road across the river to a freeway-to-freeway, tee junction with the West Gate Freeway at Graham Street. This cross-river link could also serve as a connection between Footscray Road and Port Melbourne.
- The Webb Dock Rail Line could cross the Yarra River near to the Western Bypass extension.
- The transportation corridor created by the Western Bypass extension and the Webb Dock Rail Line could mark the western boundary of the Docklands development area and the eastern boundary of port-related activities, and would be constructed after commercial port operations have been relocated from Victoria Dock.

Option 4

Option 4 involves a simpler infrastructure network because of its lower level of development. It has the following features which distinguish it from the other Options:

- Footscray Road could retain its existing function as the primary through-route. In the longer term, an extension of the Western Bypass to the West Gate Freeway would relieve traffic volumes on Footscray Road.
- A local, north-south road could be constructed within the Core Area, east of Footscray Road.
- Collins and LaTrobe Streets could be extended over the rail tracks to form at grade intersections with

the new north-south road and Footscray Road.

- The Transport Interchange with a Collins Street frontage could extend from Spencer Street to the new north-south local road.

These two transport networks are the outcome of a process of identifying a road network and land parcel layout which accommodates projected traffic demands and which can be financially self-supporting. Neither represents the only possible solution.

Residential Development

(Refer to Part 4 of the report)

Generally, this report and the Strategic Options presented, focus on development possibilities for the Core Area. It should be noted, however, that sites suitable for residential development can be identified beyond the Core Area and, further, that not all parts of the Core are suitable candidates for housing.

Six locations within the Study Area have been identified as suitable for residential development:

- various sites within the Docklands Core
- Lynch's Bridge/Kensington
- Maribyrnong
- Southbank
- North and West Melbourne
- Port and South Melbourne

Some of these areas are appropriate for residential development mixed with other uses, whilst others could be developed for housing only.

As much of the land is Government owned there is a clear opportunity to ensure a range of housing options, including a significant degree of public and

private rental and affordable housing. It is suggested that up to 10 per cent of the total housing provided on Government land could be public housing. The opportunity also exists, particularly in the Core Area, to provide medium density housing.

Overall, it is considered that between 6,000 and 9,500 dwellings could be accommodated in Greater Docklands for a population of up to 25,000. Up to 40 per cent could be accommodated in the Core Area.

Implementation Issues

Land Release Timetable

(Refer to section 3.3 of the report)

The time at which land could become available for development varies significantly. The Core Area has been divided into seven different sections according to the order of their potential release.

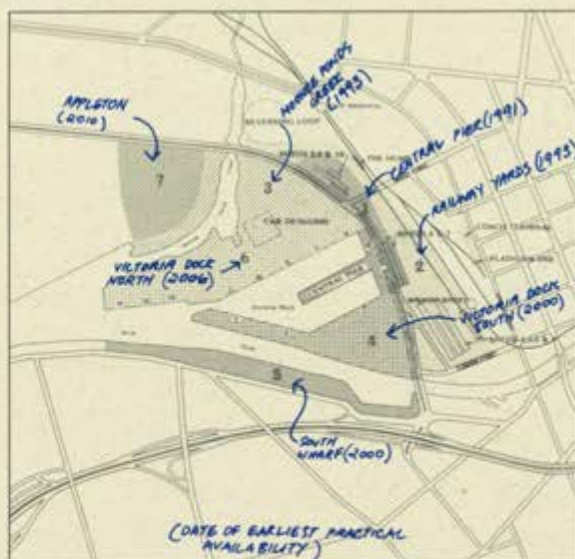
18 Potential Residential Areas



1. Central Pier

This area could be cleared by late 1991.

17 Land Release Areas



2. Railway Yards

The triangle of land on the corner of Footscray Road and Flinders Street Extension, with the exception on one historic building, could be made available immediately. The balance of the area could be available in 1993. Relocation of some rail facilities is required.

An area fronting Spencer Street could be made available by relocating Platform One and the Coach Terminal to the west of the existing passenger rail tracks. Availability of this area depends on the timing of the development of Spencer Street Station as a major transport interchange.

3. Moonee Ponds Creek

A substantial site, with water frontage east of Moonee Ponds Creek, could be released for development from 1993 onwards.

4. Victoria Dock South

This area forms part of the site that was proposed for the Olympic Village. Village development was planned comprehensively to be completed before 1996. Alternative

development is likely to stretch to the year 2000 or beyond.

5. South Wharf

South Wharf was also planned to become part of the Olympic Village. In the absence of the Olympics, the area is unlikely to be developed early: the remaining useful lives of the berths varies from berth to berth and is as much as 15 years in one case.

6. Victoria Dock North

The earliest that Victoria Dock North could reasonably be available for development would be about 2006. It is at this time that the whole triangular area bounded by Victoria Dock, Footscray Road and Moonee Ponds Creek could be developed with improved accessibility and amenity.

7. Appleton Dock

To release this area, leases around the intersection of Appleton Dock Road and Footscray Road would have to be terminated. Resumption of these leases need not occur until after other areas to the east have been developed, that is, beyond 2010 or 2015.

Funding Issues

(Refer to section 2.1.4 of the report)

To facilitate and encourage the development of Docklands, significant investment in infrastructure will be required. It is neither possible nor appropriate for the Victorian Government to be the sole provider of such investment.

Development must be demand led. It will be up to both the private and public sectors to grasp the challenges and opportunities offered by Docklands. A Task Force, recently established by the Treasurer, will assist in facilitating those infrastructure projects which could in full or in part be privately

funded.

Strategic investments, particularly in areas which improve accessibility and amenity, will be of paramount importance. The level and timing of these investments must await an investigation currently underway to determine the underlying demand for Docklands. While consideration of Docklands issues will be coloured by current economic and property market conditions, the long-term potential of Docklands must also be recognised. Ultimately, an implementation plan is needed, but one which is flexible and responsive to market forces.

The Government is committed to urban consolidation. Investment in Docklands could reduce the call on Government funds elsewhere. This is particularly true of residential development in outer areas. Identifying the scale of resultant resource savings is a complex task and an appropriate economic analysis is underway.

While it may be tempting to offer development incentives in the form of tax concessions and the like, revenue foregone is the equivalent of expenditure incurred. It may be better for Government to target its assistance to specific economic and infrastructure projects under industry programs administered by the Department of Industry. Another area where seeding of development could occur is in the delivery of public sector office accommodation.

Federal funding may be available in areas where programs have been announced or can be anticipated. These include urban renewal, micro-economic reform and collaborative research.

Financial Evaluation

(Refer to section 6.2 of the report)

The four Strategic Options have been assessed in terms of their net present value, that is, a comparison of the financial benefits generated and the costs of making development available. Benefits are measured in terms of revenue from land release, while costs are primarily associated with infrastructure provision and relocation of services.

It should be noted, however, that those Options which perform better on financial criteria may be less desirable on social, environmental, urban design or other non-financial criteria.

It should also be noted that this type of analysis has some inherent limitations, the most significant being that it is impossible to include all of the relevant considerations; some factors are simply too difficult to measure or value. Consequently, an outcome which shows an excess of costs over benefits in net present value terms does not necessarily mean that development should not proceed, and vice versa. A range of assumptions must also be made about such matters as land values, the rate of demand for land and the cost of infrastructure.

Finally, it is also important to note that this analysis is independent of the method of financing development and whether the private or public sector is involved.

Table 6.1 summarises the revenue, cost and net present value of each Option. The major difference between the first three Options concerns estimated revenues which are over 40 per cent greater in Option 1 than in Option 3. However, the gap is much less marked on a net present value basis. This reflects the fact that much of additional revenue generated under Option 1 is received well into the future (post 2019) and, therefore, has a significantly lower present value. All three Options are, however, shown to

be financially viable.

Option 4 is quite different from the other Options and results in significantly lower estimates for both revenue and outlays.

Nevertheless, on the basis of this analysis, it represents a net cost.

The impact of changes to the most important assumptions underlying this analysis - assumed land values and cost of infrastructure - is examined in section 6.5 of the report.

Table 6.1

Financial Evaluation of Schemes

\$million, 1990 prices

	Revenue	Costs	Net Present Value (4%)
Scheme 1	1186	541	127
Scheme 2	862	541	74
Scheme 3	827	541	66
Scheme 4	351	371	-11

Economic Development Opportunities

(Refer to Part 7 of the report)

Given its central location, Docklands is intrinsically valuable. Therefore, whilst there are a number of social priorities guiding the development of the area, particularly the need for housing, it is also appropriate to examine

activities which deliver the best economic value. Further, the existing uses and characteristics of the site themselves suggest viable economic directions.

Advanced transport activities clearly have potential, given Docklands' continuing importance in terms of port and freight activity and potential redevelopment of Spencer Street Station.

The provision of new telecommunications infrastructure in Docklands could have substantial economic as well as social benefits and support a range of new and existing commercial activities (including advanced transport and research, education and technology activities) as well as providing a substantial boost to the local information and communications industry.

Education and research and media and design activities can all build on intrinsic locational advantages and have potential as growth industries of the next century. New commercial opportunities, and considerable cost saving, may also be achieved by establishing Docklands as a demonstration of the most innovative and advanced environmental management systems.

Part One: Introduction and Objectives

This section simply introduces the report by defining the area that has been considered by the DTF and listing the objectives that have guided the DTF's work. It should be noted that the objectives themselves are open for public review.

The methodology used by the DTF is then described.

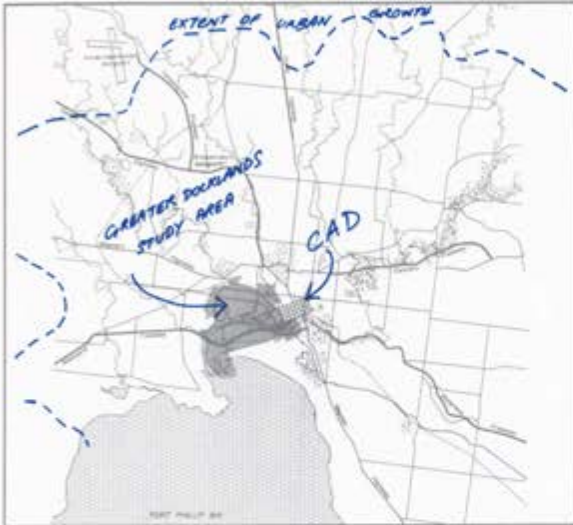
This section also highlights four issues considered by the DTF to be of fundamental importance in defining the best way to develop Docklands. These are:

- land use, including recognition of the important role of the Port and the need to determine the optimum mix of possible new activities;
- intensity of development, which impacts upon the number of

people that can be housed, the appearance of the development especially in terms of building heights, and the economics of development;

- transport infrastructure, which the DTF considers to be of considerable importance in terms both of expense and the creation of an attractive and efficient development with minimal environmental and other adverse impacts;
- economic development and the recognition of some of the key ways in which development of Docklands could contribute to building a more competitive Victorian economy.

1 Greater Docklands Study Area: Location



2 Greater Docklands Study Area



Part One: Introduction and Objectives

1.1: Introduction

Defining the area

The Greater Docklands Study Area comprises about 21 square kilometres of land and waterways immediately to the west of the Melbourne Central Activities District (CAD), on both sides of the Yarra River. The boundaries of this area are flexible and have been drawn to ensure full account is taken of the future role of the Port of Melbourne and the relationship between Docklands development and surrounding areas. Within this boundary a Core Area of some 300 hectares has been identified as the prime focus for development (refer Figures 1 and 2).

Currently, much of the land and water within the Core Area is devoted to transport purposes, mainly port and rail freight, just as it has been for past decades.

Given the substantial changes in the pattern of trade and port technology that are now occurring, new uses of some of these areas can be allowed or, indeed, encouraged. This particularly applies to the western portion of the Spencer Street railyards and to the older berths in Victoria Dock. It should also be noted, however, that the possibility of deciding that development should not proceed now, or that it should proceed at a slower rate than envisaged as possible in this report, also exists.

Docklands has some inherent advantages: the Core Area is large enough to be regarded as a greenfields opportunity, with all the advantages that this offers, but also is so centrally and strategically located that it is able to build strong links to existing facilities and activities.

Opportunities arise from this unusual combination. First, a Docklands development could allow

the city to be extended in a way which links the CAD to the waterfront. This might be the best way to let the city grow: to provide more space whilst enhancing Melbourne's unique qualities. Second, it provides access to large quantities of land suitable for a variety of purposes. These include housing, central city type development, open space, mixed use and institutional activities. Docklands also has the capacity to attract knowledge intensive research and investment.

Depending on the development strategy finally adopted, it may also be appropriate to build improved links between Docklands and surrounding and related areas. These include advanced high speed telecommunications services providing local, regional, national and international links, as well as physical links to the Knowledge Precinct (the area around Parkville which is home to major educational and research institutions), South/Port Technology Precinct and the campuses of the Victoria University of Technology.

This report has been prepared to assist the community to decide the best mix of uses and appropriate infrastructure to support that mix.

1.2: Objectives

The following objectives for Docklands have been used in the preparation of the Strategic Options. It should be noted, however, that the objectives themselves are open for discussion and review.

- To use the opportunity provided by the waterfront location to increase the efficiency of existing land uses and encourage new land use and other activities that:
 - strengthen Melbourne's role as a prime commercial, financial and

research centre by facilitating major new developments in an attractive waterfront environment, with strong links to institutions and activities in other parts of the city, throughout Victoria and beyond;

-develop transport and other infrastructure which improves the competitive position of Melbourne and of Victoria as a whole;

-house a large new population in central Melbourne; and

-attract people to central Melbourne for business, residence and leisure.

- To ensure that any development:
 - is the outcome of an intensive and flexible public consultation program;
 - is of the highest possible urban quality;
 - allows for growth in the CAD in a way which preserves and enhances the unique character of the existing city;
 - maximises benefits available through release of under-utilised Government land to finance basic infrastructure; and
 - is properly integrated into existing neighbourhoods.

1.3: Key Strategic Issues

There are four key strategic issues which have emerged as central to determining an appropriate development strategy for Docklands. These are:

- Land Use
- Intensity of Development
- Transport Infrastructure
- Economic Development

1.3.1 Land Use

The most important aspect of the land use decision concerns the Port.

The Port is a very important competitive strength of the Victorian economy. In the future, Victoria will rely on the efficiency of the Port to ensure that the anticipated growth in trade can be delivered.

Historically, the Port has used a lot of land; there were no alternative demands for that land. This is no longer the case. At the same time, a convergence of events - rapid improvements in information technology, the pressure for reform of the waterfront and the technological possibilities for infrastructure and investment involving the private sector - has meant that the Port is being presented with challenges and opportunities of an unparalleled kind. Of central importance in terms of Docklands is the opportunity to simultaneously achieve a substantial boost to productivity using a smaller area of land.

Whilst this trend seems clear, a more precise analysis of the implications is a significant planning task. The Port of Melbourne Authority (PMA) is currently undertaking a long-term land use study which should assist in this process.

The other vital aspects of the land use decision concern the allocation between major uses, including residential, office, retail, industrial and open space. At the heart of this issue is the trade-off between social and financial objectives and the broadly acknowledged objective of increasing the residential component of the inner city and surrounding areas.

1.3.2 Intensity of Development

The land use issue not only deals with different uses but also the intensity of development that might occur. This concerns the relationship of the newly available

land to the water - the sorts of buildings and activities that extend from the CAD to the waterfront. It is thus very important in aesthetic terms, but it also has a major influence on the economics of the development.

A related and important consideration concerns the density of residential development in Docklands. More people can be housed if residential development is of a higher density than typical of Melbourne suburbs. Density is defined by such things as the height of buildings, the amount of private and public open space, roads and the size of dwellings.

1.3.3 Transport Infrastructure

If development of Docklands is to proceed, the barrier effects created by the Spencer Street Rail Tracks, the Webb Dock Rail Line and the heavy traffic currently carried on Footscray Road must all be overcome. In addition, planning must occur to ensure an appropriate framework is provided for movement of people and vehicles through and around the area, using both private and public transport.

The Spencer Street Rail Tracks currently form a major barrier between the CAD and Docklands. The relocation of freight sheds and removal of disused tracks are fairly straightforward matters. However, any changes to passenger rail infrastructure involves quite complex logistical and technical arrangements and the possibility of significant disruption to services. Moreover, there is a very stark trade-off between preferences on urban form grounds and cost - the best options from an urban form viewpoint are generally the most expensive.

A significant opportunity also exists to redevelop Spencer Street Station as a major centre for interchange between different kinds

of transport, both existing and proposed.

Currently, Footscray Road carries a large volume of traffic, a major portion of which is trucks. Unless there is a significant change to the nature of the traffic carried on Footscray Road, potential uses on surrounding land may be adversely affected. Options include diverting and tunnelling Footscray Road and extending the proposed Western Bypass to the West Gate Freeway on the south bank of the Yarra River. Again, there is a steep trade-off between desirable and affordable solutions.

1.3.4 Economic Development

The fourth strategic issue has to do with ensuring that the best use is made of Docklands from the point of view of the long term future of the Victorian economy. The relative strengths and weaknesses of Docklands need to be identified so that its competitive advantages can be realised. Issues and candidate land uses to be considered include:

- focus for research and education;
- micro economic reform;
- promotion of trade and exports;
- knowledge intensive, service orientated industries;
- urban consolidation; and
- commercial and financial opportunities.

Decisions about these four issues will define the broad direction of the Docklands development in both urban planning and economic terms. There is, of course, a myriad of other factors which need to be considered, many of which can be discussed in developing a strategic overview, but many others of which are more appropriately considered at later stages of the process.

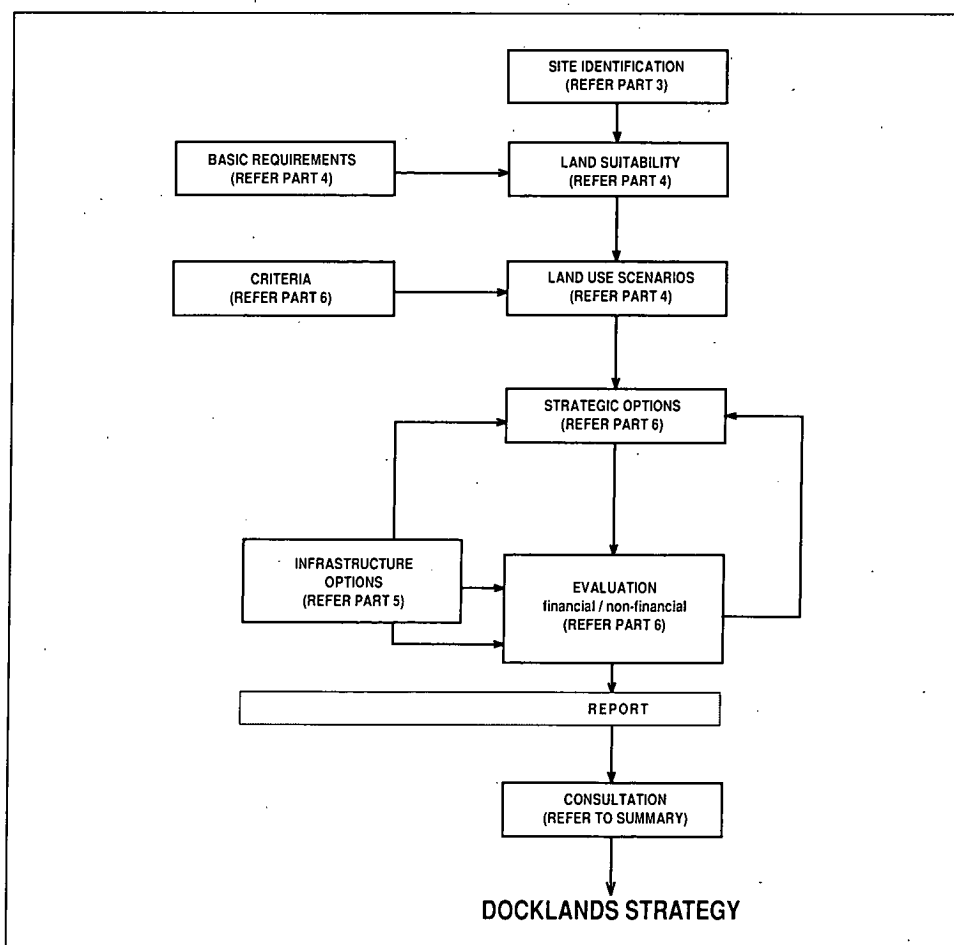
1.4: Preparing a Docklands Strategy

The process for preparing a draft strategy plan is illustrated in the flow chart at Figure 3. The approach at each stage is outlined in more detail in subsequent sections of this report.

Briefly, the process involves:-

- site identification - a description of the physical characteristics of the site, together with a summary of current and planned activities in Docklands;
- land suitability - identification of the potential uses of the site, having regard to committed uses and basic requirements;
- land use scenarios - a large number of land suitability proposals have been reduced to four land use scenarios, guided by criteria discussed in section 6;
- strategic options - are created by combining transport infrastructure with the land use scenarios. As indicated in the Figure, the process is an interactive one, involving feedback especially between the evaluation process and the development of infrastructure options;
- evaluation - this consists of both financial and non-financial evaluation;
- consultation - this report will form an important role in the consultation process.

3 Development of Docklands Strategy



Part Two: Context

This section of the report describes a range of Government policies that set the context in which development of Docklands could occur.

Economic Policies and Issues describes Government policies aimed at improving the competitiveness of the Victorian economy and their relevance to Docklands in terms of improving the efficiency of our transport systems, increasing trade and exports and Docklands' potential as a location for knowledge-based growth industries. A description of property market trends, issues related to funding of development and other projects which may impact on Docklands, is also provided.

Urban Policy summarises those aspects of existing urban policy relevant to Docklands.

Transport Policy touches on the economic significance of transport issues to development of Docklands and highlights the importance of the draft Central Area Transport Strategy which aims to divert traffic around the CAD and to reduce private traffic and increase use of public transport in inner Melbourne.

Environmental Policy notes the range of relevant environmental guidelines which will need to be kept paramount if development is to proceed.

Social Justice Policy highlights the importance of recognising that issues of equity and access are relevant to every aspect of planning for Docklands.

Part 2 Context

A number of existing Government policies are clearly related to the definition of an appropriate development strategy for Docklands. These are discussed below.

2.1: Economic Issues and Policies

2.1.1 General Economic Policies

The main emphasis of the Government's economic policies has been to improve the competitive position of the Victorian economy, through micro economic reform and promotion of trade and exports and also by moving Victoria to a knowledge-based information economy.

Micro-economic reform involves focussing on ways of improving the efficiency and productivity of particular sectors. The transport sector has been identified as being particularly important.

Docklands presents opportunities to promote micro-economic reform of both port and land-based transport services, ie rail and road. Release of land for development of Docklands is based on the Port achieving productivity improvements using a smaller land area. Correspondingly, strategies aimed at improving rail and road linkages with port operations can bring significant improvements in the efficiency of land-based freight transport. Whilst micro-economic reform of transport will be required regardless of Docklands, adoption of such strategies is both fundamental to and stimulated by its development.

More efficient and technologically advanced transport and communications infrastructure would assist in improving the competitiveness of Victorian trade and export industries generally. Just as importantly, Docklands

could become a focus for growth service industries such as information and telecommunications, media production and services, advanced transport, environmental management, education and design and innovation and so enable Victoria to capture a larger share of the growing world market for these services.

Proposed development of part of Docklands as a location for new knowledge-based activity has the potential to advance the State's technology and research objectives as part of a comprehensive and integrated approach to long-term urban and economic development. Such developments are also likely to have a significant impact on employment. First, the encouragement of knowledge-intensive, service-oriented industries is likely to boost the trend toward creating high quality employment. Second, the promotion of education and research activity closely linked with these industries will be important in terms of improving Victoria's knowledge and skills base to match the shift towards a post-industrial economy.

2.1.2 Property Market

Docklands will have a significant impact on the Melbourne property market and property development trends, particularly in the central city area. It is, therefore, important that strategies for Docklands have regard to current and future trends in the property market.

The aggregate Melbourne property market is currently experiencing a significant downturn, mirroring that of the economy as a whole. The interplay of relevant supply and demand factors has meant, however, that this decline has varied in degree across the four major sectors of the market - office, residential, retail and industrial.

The stock of office accommodation in Melbourne currently comprises some 4.84 million square metres of floor space of which approximately 50 per cent is in the CAD, 33 per cent is in the balance of the Central Region and 17 per cent is located in the remainder of the metropolitan area. Although the CAD continues to dominate Melbourne in terms of annual floorspace completions, the relative share of the CAD in total metropolitan office floorspace is gradually declining, largely at the expense of new, freestanding office developments in the middle and outer suburbs.

In recent years, all geographic sectors of the Melbourne office market have experienced both high rates of supply of new stock and high absorption rates. In the CAD, for example, absorption rates have fluctuated between 80,000 and 150,000 square metres per annum, according to Baillieu Knight Frank estimates. Vacancy rates have ranged between 3 per cent and 14 per cent over the same period.

The completion of major new office projects over the next two years is expected to coincide with a reduction in the absorption rate, flowing from a combination of pent-up demand being satisfied and underlying economic conditions. This is forecast to result in a significant oversupply of office accommodation which may be initially eased, but ultimately extended, by existing buildings being withdrawn from the market for refurbishment and re-release. Various forecasts have estimated a vacancy rate of between 13 per cent and 18 per cent until 1995. After this period, Price Waterhouse is predicting a progressive reduction in vacancy rates as supply and demand realign.

Although the suburban office market is also expected to experience a downturn, this is not

forecast to be as severe as that applying to the CAD market. Relative cost and amenity factors are expected to keep the demand for outer suburban accommodation relatively buoyant.

The downturn currently being experienced by the Melbourne residential property market is not expected to be as prolonged or severe as that being experienced in the office market. The underlying demand for housing is strong and there is no apparent oversupply of new stock at present. The more guarded expectations of investors in relation to capital gain, however, are having a significant effect on the demand for housing at the top end of the market. Overall, the Melbourne residential property market is expected to remain relatively flat over the next three years.

The strength of the retail property market is related firmly to general economic conditions and particularly to interest rate levels. This, combined with a recent marked increase in suburban retail floorspace in major centres, such as Frankston, Chadstone and Glen Waverley, and the development of significant new CAD developments, including Melbourne Central, Flinders Street (Festival Market) and Southgate, is expected to dampen the demand for additional retail floorspace.

Although the industrial property market is experiencing a downturn at present, the underlying interaction of demand and supply factors appears to be more balanced than is the case with office development. In particular, this market does not face the same situation of oversupply and there continues to be strong demand for modern factory and warehouse space to meet the needs of new industrial, storage and transport requirements.

The financial evaluation methodology discussed in Part 6 is based on this analysis of current property market trends.

2.1.3 Other Projects

Some Government and private projects will have a bearing on the development of Docklands and vice-versa. It is important, therefore, that the planning for these projects be properly considered and co-ordinated, particularly in relation to timing. In this context it is important to recognise that development of Docklands could occur over a period of many decades. These projects are shown in Figures 4 and 5 and briefly described below.

Fast Freight Train

A fast freight train between Melbourne and Sydney has important implications for the integration of freight handling between the Port and rail. With related productivity improvements, land requirements for the Port could be reduced.

Very Fast Train and Airport Rapid Transit Link

A very fast train between Melbourne and Sydney and an Airport Rapid Transit Link to Tullamarine will bring people into Docklands and create a demand for attractive destination and transfer/stopover points for travellers.

Transport Interchange

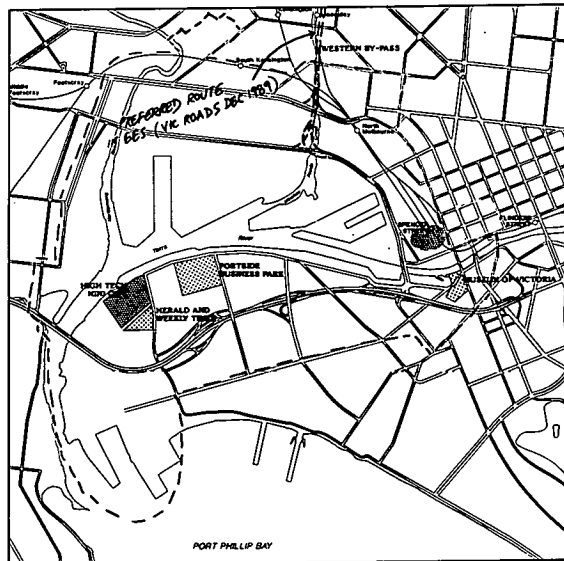
Development of Spencer Street Station as a Transport Interchange for trains, buses, trams, light rail, etc will improve access into Docklands and so enhance the area's vitality and competitive position.

Western Bypass

The proposed Western Bypass will bring increased traffic into Docklands. Management of this traffic is, therefore, crucial to amenity and access with possible solutions including a realigned

Footscray Road and an extension of the Bypass.

4 Committed and Proposed Works



5 Major Development Projects in Inner Melbourne



Portside Business Park

The Portside Business Park is currently under construction on the old General Motors-Holden site on the corner of Salmon and Lorimer

Streets, Port Melbourne. This private development comprises some 17,300 square metres of office space and 34,200 square metres of warehouse in 23 buildings on the 8.3 hectare site. It is intended to be a commercial centre for exporters, importers and major distributors, with its own system of roads and support facilities. Portside will provide on-site parking for 745 cars. Stage one, of some 25,000 square metres, is due to be completed in mid to late 1990. Stage two is expected to commence at the end of the year and be completed in mid-1992.

High Tech Mini City

A private development company has recently purchased the Hawker de Havilland site on the corner of Todd Road and Lorimer Street, Port Melbourne. To date, a concept plan for a two stage development has been drawn up. Stage one is planned for the vacant southern half of the site and may include 80,000 square metres for education and training, communications and media, manufacturing and high tech industries, laboratories and research, residential dormitories, and retail and associated businesses.

Herald and Weekly Times (HWT)

The building is a new complex on a 5.8 hectare site in Todd Road, Port Melbourne. This development will replace the HWT building in Flinders Street. The new printing presses are scheduled to be operational in 1992, and the editorial activities would shift to Port Melbourne after that.

Southbank

The Southbank Development Strategy's main objective is to encourage mixed use development on the under utilised southern bank of the Yarra River. Two large scale projects are currently underway - Southgate (74,000 square metres of office and retail space, and a 400

room hotel) and Riverside Quay (103,500 square metres of office space and 170 units)

Jolimont

A 39 hectare site will become available as decentralisation of the Jolimont railyards continues. The concept plan for redevelopment of the site includes recreation, open space, residential, commercial, hotel and civic functions to comprise a total developed floor area of over 700,000 square metres. In 1988 the Government announced the release of a 1.47 hectare parcel of land as part of stage one of the proposed development. The development brief for this parcel of land specified the development of a 1000 to 1500 space commuter car-park and up to 30,000 square metres of additional development of which 10,000 square metres must be residential.

Bayside

The Bayside project comprises 73,000 square metres of office space, a 520 berth marina, 700 private and 169 public housing units. In May 1987 Sandridge City Development Co. Pty. Ltd. was appointed as Preferred Developer. Formal documentation was recently signed with the Government to enable the project to proceed once the contamination on the site has been cleaned up to Environment Protection Authority standards.

Lynch's Bridge

The Lynch's Bridge residential project comprises two sites: a 9 hectare area located on the former Newmarket sale yards and a 40 hectare area which includes the Kensington Abbatoirs site and the former Commonwealth Army Ordnance Depot.

The first of these sites is currently being developed for the construction of 360 dwellings. Development of the second site is to include a riverside park and the construction

of between 1000 to 1300 dwellings but is contingent on the construction of the proposed Arundel Retarding Basin and purchase of the Army Depot from the Commonwealth Government.

William Angliss

The William Angliss residential project will turn the former abbatoirs in Footscray into a modern housing development with commercial and community facilities and a public open space network. The site comprises 20 hectares of land overlooking the Maribyrnong River. The abutting floodplain is being developed into a wetlands park which will be integrated with the housing development.

In 1989, development contracts were let for the construction of 113 residential units and 24 elderly persons housing units. An additional 86 homes for private sale will also be constructed. The first stage of the project was completed in late 1989 and the second stage is due for completion by 1991.

Quay West

The Quay West project involves the redevelopment of a 7.5 hectare site on the west bank of the Maribyrnong River between Hopkins and Napier Streets, Footscray for mixed use purposes. The proposed development includes office space, residential apartments, restaurants, a gallery, a cinema complex, shops, a boat harbour and open space. The first stage of the project may commence early in 1991.

Museum of Victoria

The Southbank Museum project is currently still in the design development stage. However, works are underway to consolidate the Clarendon Street site with demolition and service relocation works in progress. The Museum will have a gross floor space of 41,000

square metres with 13,000 square metres being available for exhibition purposes.

2.1.4 Funding Issues

To facilitate and encourage the development of Docklands, significant investment in infrastructure will be required. It is neither possible nor appropriate for the Victorian Government to be the sole provider of this investment.

Development must be demand led. It will be up to both the public and private sectors to grasp the challenges and opportunities offered by Docklands. A Task Force, recently established by the Treasurer, will assist in facilitating infrastructure projects which could in full, or in part, be privately funded.

Strategic investments, particularly those which improve the area's accessibility and amenity will be of paramount importance. The level and timing of these investments must await an investigation currently underway to determine the underlying demand for Docklands. While consideration of Docklands issues will be coloured by current economic and property market conditions, the long-term potential of Docklands must also be recognised. Ultimately, an implementation plan is needed, but one which is flexible and responsive to market forces.

The Government is committed to urban consolidation. Investment in Docklands could significantly reduce the call on Government funds elsewhere. This is particularly true of residential development in outer urban areas. Identifying the scale of resultant resource savings is a complex task and work is underway on an appropriate economic impact analysis.

While it may be tempting to offer development incentives in the form of tax concessions and the like,

revenue foregone is the equivalent of expenditure incurred. It may be better for Government to target its assistance to specific economic and infrastructure projects under industry programs administered by the Department of Industry. Another area where seeding of development could occur is in the delivery of public sector office accommodation.

Commonwealth Government funding may be available in areas where programs have been announced or can be anticipated. These include urban renewal, micro-economic reform and collaborative research.

2.2: Urban Policy

The Government has taken an integrated approach to urban policy. Urban policy has set new directions for the physical planning of Melbourne in the information age and identified opportunities for the physical transformation of central Melbourne to create new relationships between the central city, the river, and the bay.

Urban policy also emphasises the importance of encouraging urban consolidation, including medium density housing in inner areas and releasing surplus Government land for residential development. Principles of choice and affordability are also stressed. Docklands represents a major land resource with the potential to contribute significantly to urban consolidation objectives.

The development in Docklands of new technologies such as communications can also influence the structure and relationships of

urban areas on the metropolitan fringe and in provincial areas.

2.3: Transport Policy

Issues relating to micro-economic reform of the transport system, including rail and port reform, and overcoming the road and rail barriers between Docklands and the CAD are the dominant transport issues and are discussed elsewhere in this report.

The other major transport policy issue is the draft Central Area Transport Strategy (CATS). Issues canvassed in CATS such as the diversion of traffic around the CAD and potential transport measures designed to encourage a shift away from private vehicles towards public transport are of fundamental importance to Docklands.

These issues are also central to options for redevelopment of Spencer Street Station as a major Transport Interchange.

2.4: Environmental Policy

Docklands development will need to be consistent with the Government's Conservation and Greenhouse Strategies, and take heed of Environment Protection Authority and other Government requirements regarding hazardous materials and site contamination.

Of particular importance is the creation of an energy efficient development, the need to provide a range of open spaces, minimise pollution, respect heritage areas and enhance the built environment. Protection of the waterways will be a priority. Transport and housing strategies are also of great importance in environmental terms.

2.5: Social Justice Policy

Finally, but just as importantly, Docklands will need to be developed in a manner consistent with the Government's Social Justice Strategy.

Planning for Docklands will need to take account of the Strategy's objectives. Principles of social justice impact on nearly every aspect of the planning process and are critical to such issues as provision of employment, housing and transport, integration of Docklands with surrounding areas and, indeed, the process by which a development strategy is produced and implemented.

One example of the impact of social justice principles on planning for Docklands relates to the provision of public transport and the importance of recognising the needs of different users. The provision of varied housing types (families, single people, older people) is another area where there are clear implications in terms of social justice.

Part Three: Land Availability in Docklands

First, this section describes the existing physical conditions of the area.

Next, the long term role of the Port of Melbourne and the rail

system are discussed.

Finally, the time at which different parcels of land within the Core Area could become available is described.

Part Three: Land Availability in Docklands

3.1: Existing Conditions

3.1.1 The Greater Docklands Study Area

Historically, much of the Study Area was low-lying swamp bisected by the meandering lower reaches of the Yarra River. The site of the original settlement of Melbourne was the point where a natural weir separated tidal salt water from fresh river water, and a mooring basin in front of the former Customs House in Flinders Street was Melbourne's first harbour.

As trade and shipping grew, wharves developed on both sides of the Yarra downstream of the growing town. Although new settlements sprang up at Williamstown and Footscray, the intervening, unattractive land remained undeveloped. Today, the poor soil conditions and the pattern of early development are reflected in the low intensity of use of the land and the predominant activities of port, rail and associated

businesses. The Study Area is characterised by its very flat topography, a legacy of its swampy estuarine nature, with only slight rises towards North Melbourne, Kensington and Footscray. The highest ground in the Study Area is at the edge of the CAD, near to the Flagstaff Gardens. Here, on a hill some thirty-five metres above sea level, signals were sent during Melbourne's early years to ships moored at Williamstown.

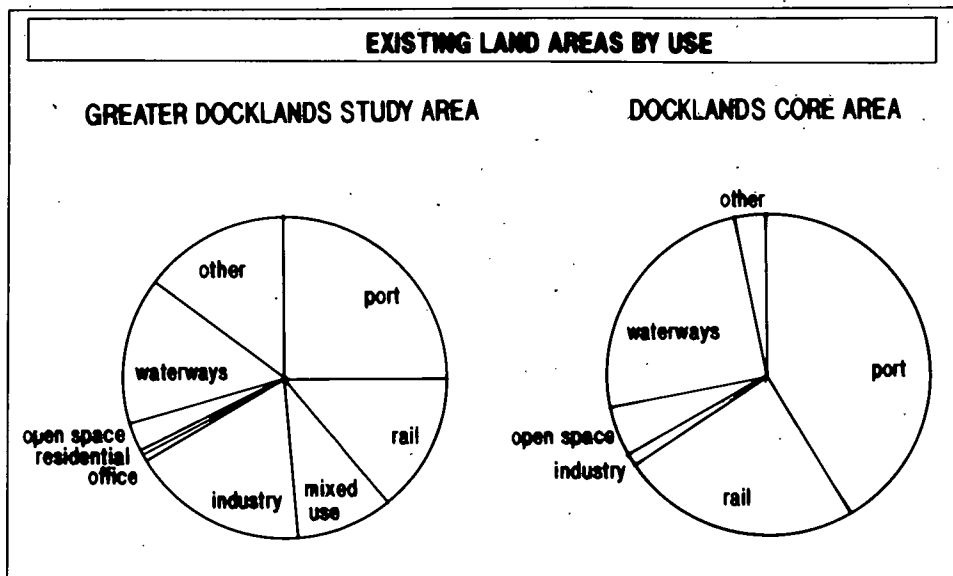
3.1.2 Land Use within and around the Study Area

3.1.2.1 Generalised Land Uses

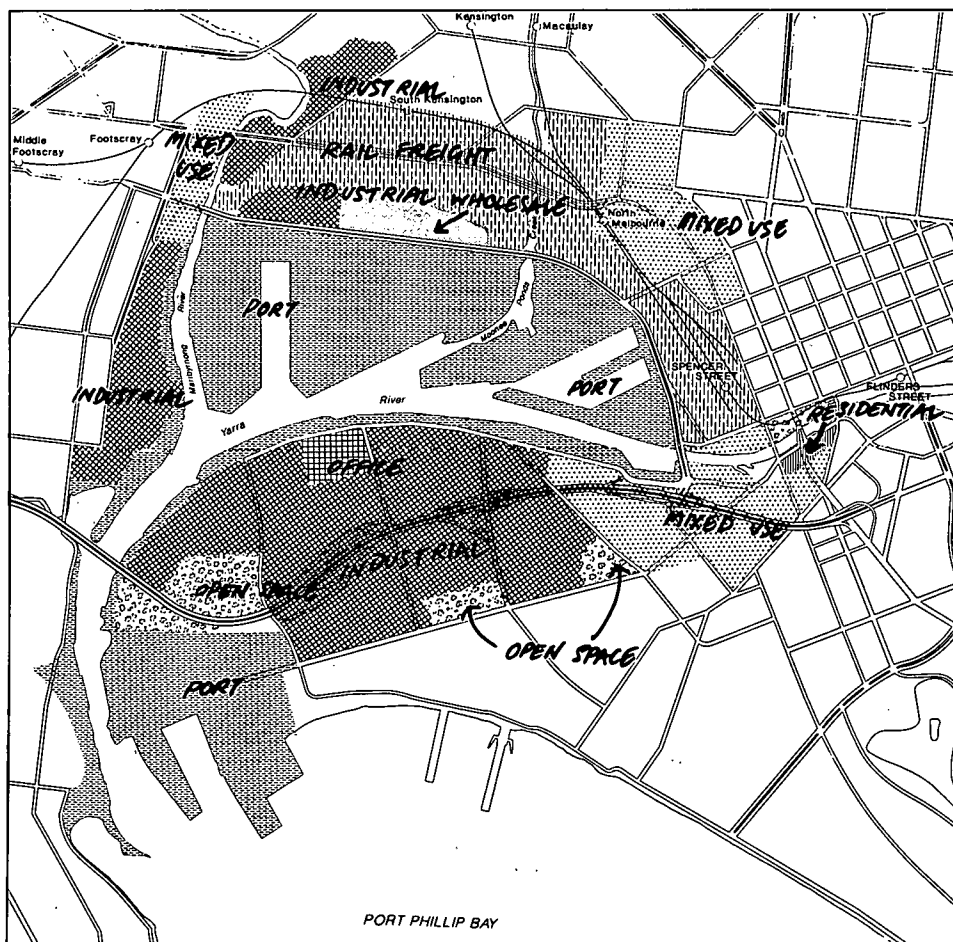
The major land use in the Study Area is freight and transport, particularly port, rail freight terminals and associated private freight handling and shipping agents. Together, these activities occupy about 810 hectares, or some 40 per cent of the Study Area (refer Table 3.1)

Table 3.1

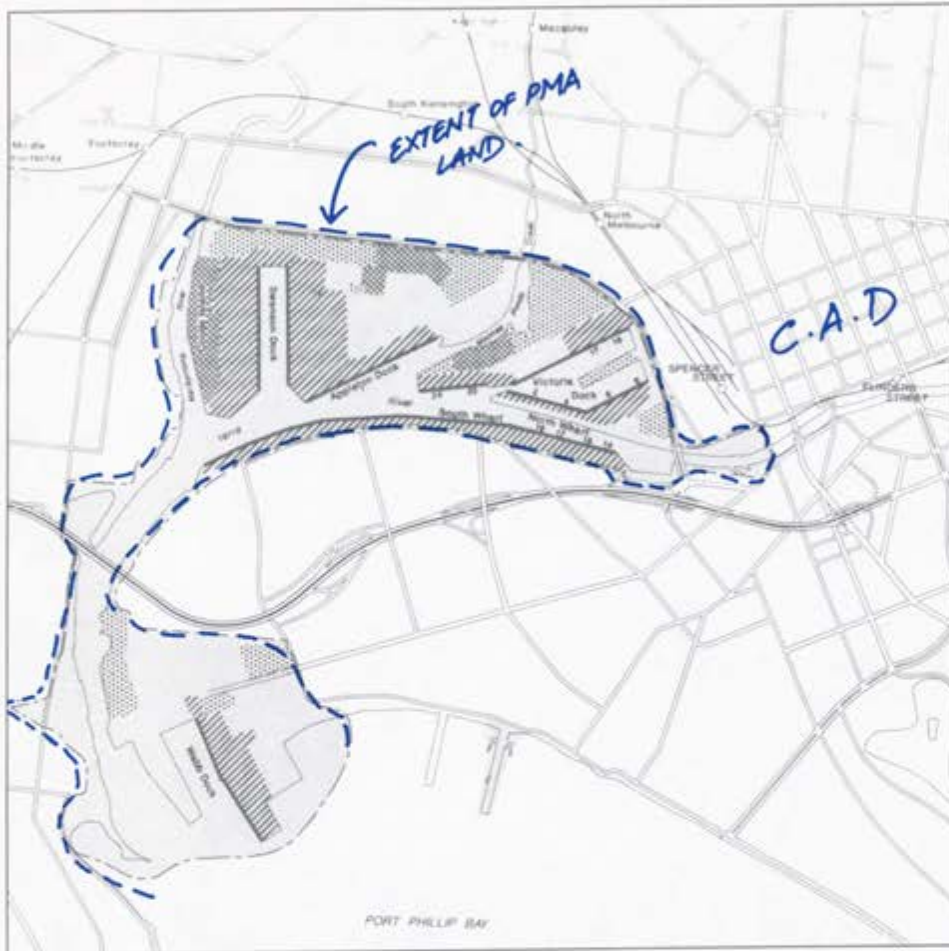
Greater Docklands		Core area
Port	520	120
Rail	290	70
Mixed use	200	-
Industry	370	3
Office	15	-
Residential	8	-
(proposed)		
Open space	65	15
Waterways	305	73
Other	302	9
(including roads)		
Total	2075	290



6 Existing Land Use



7 Key Port Facilities and Land Areas



Other uses are typically inner suburban, manufacturing, warehousing, commercial, residential and retail as well as community facilities such as schools and open space.

Figure 6 shows generalised land uses. Surrounding the central part of the Study Area, which is devoted to freight and transport activities, are a number of discrete residential or mixed use areas, and the CAD.

3.1.2.2 Port-related Land Use

Much of the Study Area lies on land currently used for port activities. The Port is the largest container port in the southern hemisphere and is Australia's

major general cargo port. The Port plays a significant role in Victoria's economy in terms of trade, transport and employment.

The PMA is responsible for providing berths and facilities for the movement of cargo through the Port. Private operators use these facilities, providing their own labour and technology to load, unload and transport both overseas and coastal trade cargo.

Figure 7 shows the land areas and key berthing facilities.

The Docklands Core Area is centred on Victoria Dock, and includes North and South Wharves to the south of Victoria Dock, and

the area along the banks of Moonee Ponds Creek to the north of Victoria Dock.

The port facilities at South Wharf and at the southern side of Victoria Dock are approaching the end of their economic lives and are regarded as not suitable for redevelopment as port facilities. Thus, these areas will eventually become available for non-port uses as the facilities are relocated over the next twenty years.

South Wharf is currently used for general cargo. The Tasmania and King Island coastal operations are located at 14-15 South Wharf. Berths at South Wharf 17-19 are used for the timber trade.

North Wharf is predominantly used for the mooring and maintenance of tourist and pleasure vessels. The only trade operation at North Wharf, a bulk cement facility at berth Number 9, is shortly to be relocated to a new facility at the far western end of South Wharf.

Victoria Dock has several general cargo berths and two modern container berths. General cargo berths on the south side of Victoria Dock include the trans-Tasman and Tasmanian operations at 5-6 Victoria Dock and steel trade at 2-4 Victoria Dock.

The land north of Victoria Dock, and south of Moonee Ponds Creek is leased to private operators for a variety of port-related operations including storing, stuffing and unstuffing, and cleaning of containers. Other uses include the PMA workshops, facilities for the Port Police, and import/export motor vehicle storage. A new motor vehicle storage area was completed recently and a detailing facility is currently under construction. PMA workshop extensions are due to be completed shortly.

Immediately adjacent to the west side of the Core Area is Appleton Dock which has dry bulk and general cargo facilities. The PMA plans to develop these berths to provide multi-purpose berths capable of being dedicated as a major overseas container terminal to supplement Swanson Dock, which is already the major centre for container traffic in Melbourne. Swanson Dock, just west of Appleton Dock, provides eight modern berths with nine container cranes.

Within the Study Area are located several other general and bulk cargo facilities including the Coode Island liquid bulk storage facility beside West Swanson Dock. Webb Dock is located at the mouth of the Yarra and comprises two modern container berths and two general cargo berths. Webb Dock offers the potential for up to seven new berths.

3.1.2.3 Rail related Land Use

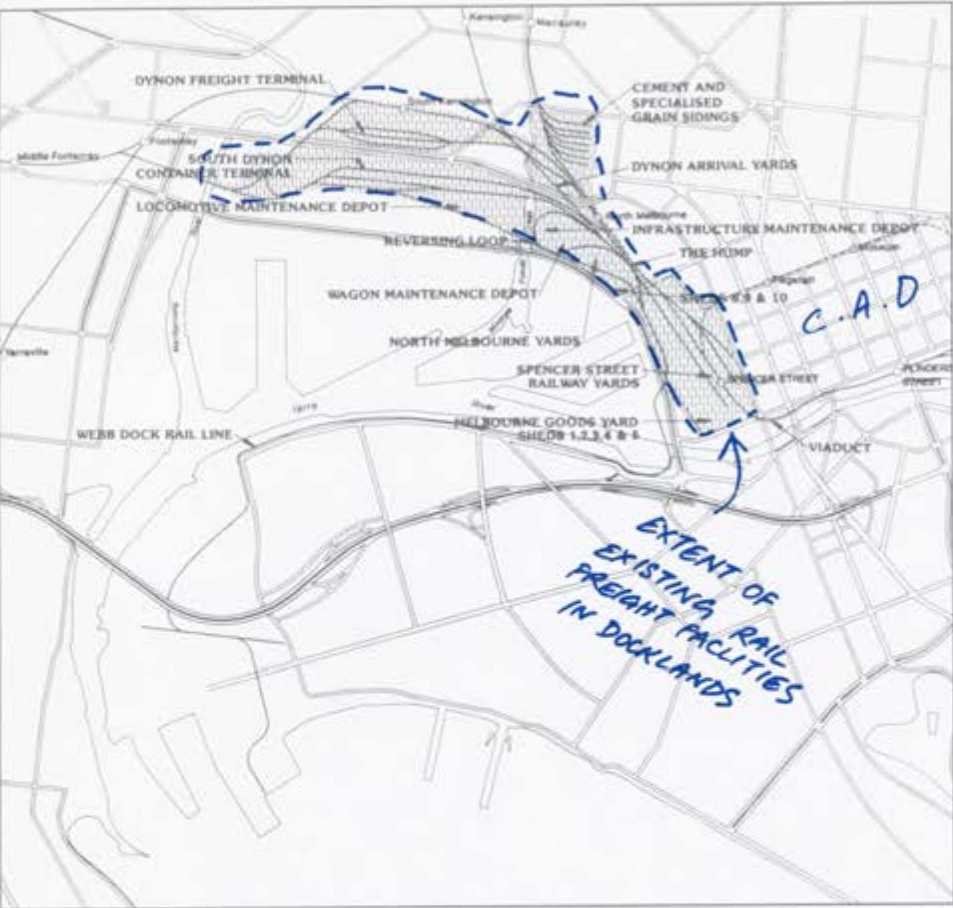
The extent of rail related land uses is shown in Figure 8.

The eastern part of the Docklands Core Area lies on railway land currently operated by the Public Transport Corporation (PTC). Some of the area is redundant or underutilised for rail purposes.

Further east is Spencer Street Railway Station where country Victorian and interstate passenger services terminate and through which suburban passenger services pass. Spencer Street Station is accessed by the rail viaduct from Flinders Street Station at the south and by various lines to the north to the South Dynon Container Terminal, the Dynon Freight Terminal and to northern and western suburbs via North Melbourne.

In the North Melbourne Rail Yards, north of the Core Area, the

8 Rail Related Land Uses



Wagon Maintenance Depot and Infrastructure Maintenance Depot are located within the Reversing

Loop. Plans to relocate the Wagon Maintenance Depot to Tottenham are currently under review. Also in the North Melbourne Yards is The Hump, an obsolete piece of railway technology which feeds the now redundant sidings in the Spencer Street Rail Yards.

Further north, adjacent to Laurens Street, the PTC operates bulk cement and specialised grain sidings which service the central Melbourne area.

To the northwest of the Core Area, the PTC operates the South Dynon Container Terminal which provides

9 Generalised Land Ownership



rail transport of containers to and from the Port. Adjacent to South Dynon is the Locomotive Maintenance Depot.

The Webb Dock Rail Line is a broad gauge line that connects Webb Dock to the South Dynon Container Terminal. Its current alignment takes it along the south bank of the Yarra, through the Spencer Street and Melbourne Yards and across Moonee Ponds Creek into South Dynon. The line carries 8 per cent of Webb Dock's container traffic and trains run once a day. The lack of standard gauge connection to Webb Dock restricts the number of containers moved by rail to South Dynon from Webb Dock.

3.1.3 Land Ownership

Over 80 per cent of the Study Area is publicly owned. The whole of the Core Area with the sole exception of the old railways administration building in Spencer Street is publicly owned. Figure 9 shows generalised land ownership.

3.1.4 Roads and Traffic

The Study Area is serviced by a sparse skeleton of arterial roads which, while adequate for current activities, is incomplete in terms of providing for proper road access to and past the Area. This lack of a comprehensive arterial road network, particularly in the north-south direction has resulted from the intervention of port and rail developments in the Area. Figure 10 shows the arterial road network servicing the area and gives current traffic volumes.

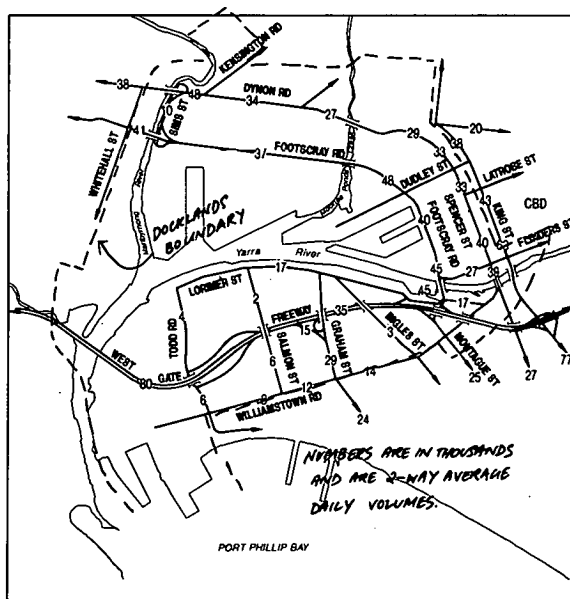
The Area suffers from the wide east-west spacing of arterial roads: some four kilometres between Dudley Street, adjacent to Victoria Dock, and Whitehall Street in Footscray. Footscray Road and Spencer Street are the only north-south through-routes in the Study Area. King Street, just east of the Study Area, is a major north-south route through the CAD.

On the north side of the Yarra, primary arterials Dynon Road and Footscray Road provide the only east-west through and access routes. Both are major freight routes, and Footscray Road is an over-dimensional route. Some 35 per cent of Footscray Road traffic is heavy vehicles. Dudley Street, in West Melbourne, is a major outlet from the Core Area.

South of the Yarra River, the only east-west through-route is the West Gate Freeway which links the Geelong Road and south-western suburbs to South Melbourne, from where arterial roads distribute traffic to the CAD and southern and eastern suburbs.

East-west access to Port Melbourne, South Melbourne and Webb Dock is provided through Lorimer Street and Williamstown Road as secondary arterials. Williamstown Road and, to a lesser

10 Current Traffic Volumes



extent, Lorimer Street, are major freight routes.

North-south links between Lorimer Street and Williamstown Road are provided by Todd Road, Salmon Street, Graham Street, Ingles Street and Montague Street. Todd, Graham and Montague Streets link also to the West Gate Freeway. Montague Street crosses the Yarra at Charles Grimes Bridge which connects directly into Footscray Road.

3.1.5 Passenger Public Transport

Passenger public transport routes are shown in Figure 11. Three suburban passenger train lines pass through the Study Area: the Upfield line, the Broadmeadows line and the Footscray line. The Footscray line feeds St. Albans, Williamstown and Geelong. The three passenger stations within the Study Area are at South Kensington, North Melbourne and Spencer Street.

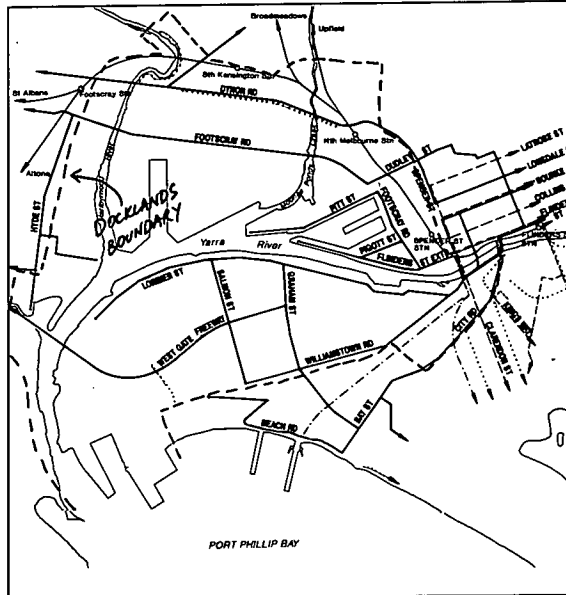
Spencer Street Station is a major passenger rail link, providing a terminus for interstate and Victorian country services, and a city station for suburban lines.

The Study Area is not serviced by tram or light rail with the exception of an area south of the CAD. Several tram and light rail services terminate at Spencer Street.

Road based public transport is provided by several bus services in the Study Area. The PTC and private operators run services to, from and through Footscray and Port Melbourne, providing public transport links to the west.

Figure 11 also shows existing bicycle paths within the Study Area. These include paths along Dynon Road, the banks of the Maribyrnong River near Lynch's Bridge, through South Melbourne and along St. Kilda Road.

11 Existing Movement Systems



3.1.6 Current Planning Provisions and Controls

The Study Area encompasses land in four municipalities - Footscray, Melbourne, Port Melbourne and South Melbourne. There are five planning schemes for the land in the Study Area - one for each of the local government areas, and a further planning scheme for the Port of Melbourne which is excluded from municipal control. The Minister for Planning and Urban Growth is the Responsible Authority for administering and enforcing the Port of Melbourne Planning Scheme, as well as three other specific areas adjacent to the Docklands Study Area: Southbank, Bayside and the Central City. The respective municipal councils are the Responsible Authorities for the planning schemes that encompass their respective local government areas. Figure 12 shows the boundaries of planning schemes in the Study Area.

With the exception of small residential pockets in Footscray, North and West Melbourne and Southbank, the zonings of the land within the Study Area reflect the historical development of the area for port and railway purposes and related industrial uses.

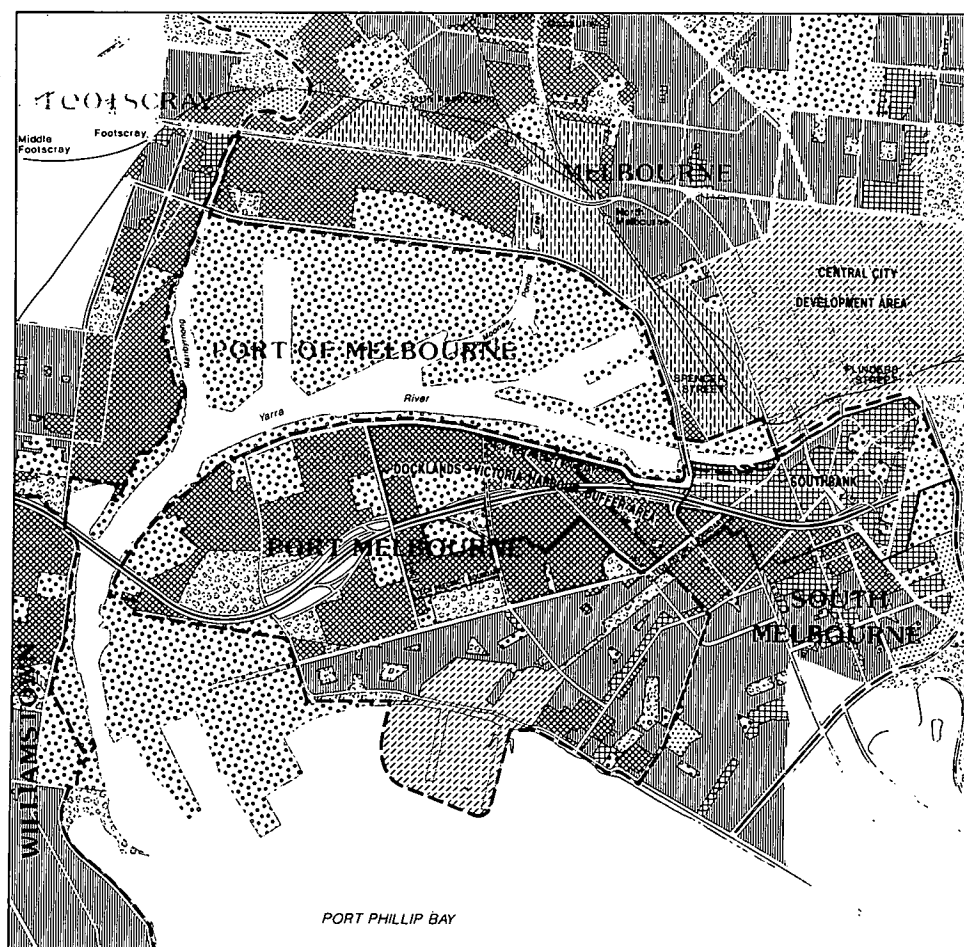
Most of the land in the Port of Melbourne Planning Scheme is reserved for port purposes. The Scheme allows this land to be used for port purposes without a permit. A wide range of other uses can be developed subject to obtaining a permit. Similarly, land reserved for railway purposes in the other planning schemes can be used for such purposes without a permit. A wide range of other uses can be

developed on railway land subject to a permit from the Responsible Authority.

North of the Yarra and west of Moonee Ponds Creek, the land is zoned predominantly for transport related industry: port purposes at Swanson and Appleton Docks, and railway purposes at Dynon freight yards and South Dynon railyards. Further to the north are the residential areas of Kensington and other light and general industry zoned land.

East of Moonee Ponds Creek and north of the Yarra, the Area includes: the World Trade Centre and Victoria Dock port facilities - reserved for port purposes; Spencer Street Station and

12 Planning Scheme Boundaries & Land Use Zoning



railyards; and the Melbourne Yards, North Melbourne Station and Laurens Street rail sidings - all reserved for railway purposes.

West of the Maribyrnong and Yarra Rivers, the land is zoned for general industry and port uses, with residential land adjacent to the west of this. The Footscray Planning Scheme also encourages the development of a mix of residential and commercial uses along the Maribyrnong River where Hopkins Street and Napier Street cross (Footscray Mixed Use Zone) to enhance the entry to and image of the nearby Footscray District Centre and the western suburbs.

In the north-east corner of the Study Area the land is mostly zoned Central Melbourne - Residential and Service which seeks to encourage high density housing as well as new small office and industrial activities.

The planning controls for land in this area were reviewed by the Melbourne City Council as part of the review of its planning scheme which followed the adoption of the Strategy Plan in 1985. The proposed amendment to the planning scheme (known as RL5) has been abandoned by the Minister for Planning and Urban Growth after receiving the report of the panel which heard public submissions on the proposed changes.

In the south-east of the Study Area is Southbank. Recent amendments to the South Melbourne Planning Scheme have altered the zonings in Southbank to encourage redevelopment of the precinct for a range of uses including residential, commercial, arts, entertainment and tourist-related activities. The Minister for Planning and Urban Growth is the Responsible Authority for administering and enforcing the planning controls in Southbank,

except for minor uses for which the South Melbourne City Council is the Responsible Authority.

The remainder of the Study Area south of the Yarra is zoned predominantly for general industry and port purposes, with some sites set aside for public open space and State and Commonwealth Government purposes, eg SEC workshops, and the CSIRO research laboratory.

This area also includes the South/Port Technology Precinct. Planning controls in the Port Melbourne and South Melbourne Planning Scheme seek to encourage the development of new technology-based enterprises within the Precinct. The nature of these controls and the boundary of the Precinct are being reviewed. It is proposed that the Precinct be expanded to encompass extensive areas of land west of Graham Street, Port Melbourne, which are becoming available for redevelopment, and that more detailed controls be introduced which better facilitate development of technology-based enterprises.

A 'Docklands - Victoria Harbour Buffer Area' has also been introduced into the Port Melbourne and South Melbourne Planning Schemes to provide additional control of development within one kilometre of Victoria Harbour. The control requires that a permit be obtained for most uses and development within the buffer area and that these applications be referred to the Minister for Planning and Urban Growth for consideration. This requirement ensures that uses and developments are not established which may have a potential detrimental effect on the redevelopment of Victoria Harbour.

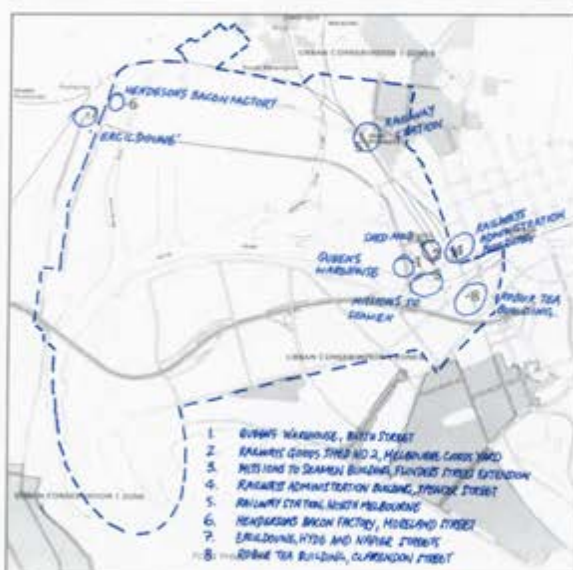
3.1.7 Heritage and Conservation

The Study Area contains a variety of places, structures and areas of heritage and conservation significance.

Places included in the Register of Historic Buildings or Register of Government Buildings, and shown on Figure 13, are:

- Queens Warehouse, Blyth Street
- Railways Goods Shed No. 2, Melbourne Goods Yard
- Missions to Seamen Building, Flinders Street Extension
- Railways Administration Building, Spencer Street
- Railway Station, North Melbourne
- Hendersons Bacon Factory, Moreland Street
- Ercildoune, Corner Hyde and Napier Streets
- Robur Tea Building, Clarendon Street

13 Places of Major Heritage Significance



The composite architectural and heritage value of the North and West Melbourne Urban Conservation Area is also acknowledged as being significant.

3.1.8 Ground Conditions

3.1.8.1 Soil Conditions

The Docklands topography can be described generally as flat and low-lying. Around the east and north east edges of the Study Area the ground surface rises up, forming a gentle scarp and a boundary to the Yarra River delta.

Throughout the area, Silurian mudstone forms a rock base some 20 to 50 m below the surface. The geology overlying this is predominantly Coode Island Silt to the north of the Yarra, shallow deposits of sand over Coode Island Silt to the south of the Yarra, and basalt with a covering of firmer clays around the boundaries along Spencer Street to the east and Hyde Street to the west.

The Coode Island Silt is generally 10 to 20 m thick, masked by a shallow layer of imported fill which has been placed as the area was developed.

The main features of the ground conditions in the core area which will influence its redevelopment are:

- the low strength of the Coode Island Silt;
- the high settlement characteristics of the Coode Island Silt;
- the depth to suitable ground for piling; and
- the low-lying ground surface and the shallow depth to ground water. Multistorey buildings above two storeys, bridges, and other major structures located over Coode Island Silts, will need to be piled. Difficulties may arise from

Table 3.3

Medium Rise Commercial Building

No. of Storeys	Location (St. Kilda Road)	Docklands (Coode Island Silt)
5	106.25	111.30
10	103.62	105.69
15	101.07	103.34
20	100.00	102.13

Table 3.4

Medium Rise Residential Building

No. of Storeys	Location (St. Kilda Road)	Docklands (Coode Island Silt)
10	102.47	104.75
15	100.91	102.67
20	100.00	101.43

Table 3.5

Low Rise Residential Building

No. of Storeys	Location (St. Kilda Road)	Docklands (Coode Island Silt)
2	101.84	112.91
5	100.00	107.81

Table 3.6

Clearspan Industrial Building

No. of Storeys	Location ("Normal" ground)	Docklands (Coode Island Silt)
1	100.00	124.66

NB. "Normal" ground is that encountered in industrial areas which does not require special foundation design to overcome bad bearing shortfall. Hence ground slab is supported directly on the ground.

3.1.8.2 Flood Levels

Large parts of the Study Area are low-lying and subject to flooding. These are shown on Figure 15.

These areas include land on either side of Moonee Ponds Creek. South of Dynon Road the only areas significantly affected are the railway reversing loop and the wetlands areas at the mouth of the Moonee Ponds Creek.

Areas prone to flooding along the Maribyrnong River include the former Army Ordnance Depot, former abattoir land near Lynch's Bridge, land near Sims Street and the Quay West development in Footscray. Construction of the Arundel Retarding Basin on the Maribyrnong at Keilor would alleviate this flooding, by significantly reducing the 100 year flood level, and improve the area's suitability for redevelopment.

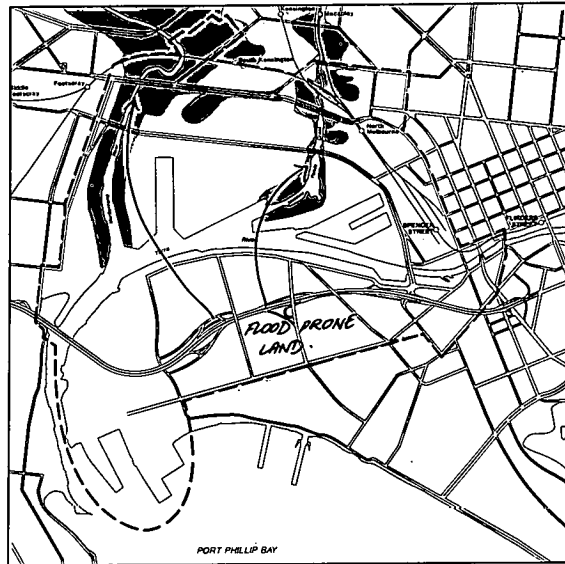
3.1.8.3 Contamination and Hazardous Materials

Parts of the Study Area are listed on the Environmental Protection Authority (EPA) register of contaminated sites.

A preliminary investigation of ground contamination has been conducted over most of the Core Area. With the exception of two sites, contamination in the area is generally of a manageable level. The sites of two former gasworks have been found to be highly contaminated and cleanup will have to occur for redevelopment to proceed. Future land use restrictions on these sites will be based on the standard of cleanup.

Contamination elsewhere in the Study Area has been reviewed, based on historical data, current land usage and knowledge of industrial practice. Areas of potential significant contamination include part of the industrial development in Whitehall Street,

15 Flood Prone Land



Yarraville, the Coode Island liquid bulk chemical storage area and a number of industries in South Melbourne and Port Melbourne.

Other industrial sites are potentially affected with low levels of contaminants. The degree of cleanup effort required at all these sites will depend on intended land use.

The area south of Footscray Road may be contaminated with low levels of metals and organics and mixed wastes imported with the dredged fill used to reclaim this land, with pockets of higher levels of contamination.

Clean-up technology appropriate to the contaminants and to the future land use, although very costly, is available. Local and overseas experts have proposed to the Victorian Government's Major Projects Unit a number of suitable methods for cleanup of the nearby Bayside site in Port Melbourne and one of the gasworks sites in West Melbourne. These methods range from on-site cleansing of the soil, with contaminants destroyed off-site, to on-site bacterial neutralisation of the contaminants without disturbing the soil, and to

wholesale removal of contaminated soil and replacement with new, clean fill. The methods selected will need to meet EPA requirements.

Bulk liquids, including vegetable oils and other flammable materials, are stored at Coode Island, an area of land adjacent to West Swanson Dock and serviced from a berth at the mouth of the Maribrynong River.

The PMA is aware of community concerns regarding storage of these materials. The PMA and a Ministerial Task Force on Hazardous Chemicals are both currently reviewing the location of this land use, including an investigation of possible alternative sites. If the storage facilities were relocated, other port-related activities, including an expansion of back-up land to West Swanson Dock, are most likely to occupy this land.

Other sites, in or near to the Study Area, where hazardous materials are stored and handled include:

- petroleum installations at Spotswood;
- Mobil's petroleum products distribution facility at Yarraville;
- ICI's chemical distribution facility at Yarraville;
- Pivot fertilizer plant at Yarraville;
- cement import storage and handling facilities at 26 and 33 South Wharf and 9 North Wharf;
- briquette, char and coal product exports from Appleton Dock E.

The EPA prescribes buffer (separation) distances for industrial emissions between these industrial land uses and sensitive nearby uses such as housing, schools, hospitals and other community facilities.

The Strategic Options described later in this document take into

account the EPA buffer distances for industrial emissions to ensure that sensitive new land uses, particularly housing, are located outside the buffer zones. Before any new development can be undertaken, the Minister for Planning and Urban Growth will consider the need for an Environment Effects Statement (EES) which would include consideration of the effects of nearby contaminated, or otherwise hazardous, sites. The Minister may not always consider an EES necessary in cases where the planning and/or works approval processes will adequately cover environmental and social impacts. All these statutory processes provide opportunities for public comment.

3.2: Port and Rail Future

The potential of Docklands has focused attention on land in the railyards and port areas and in so doing has introduced a potential conflict in land use. For the first time for many years, serious consideration is being given to the question of the most appropriate long-term use for land in the Docklands area.

A number of dimensions of this work are familiar - the anticipated trade growth, and the allocation between ports, for instance. But there are a number of new dimensions which offer very exciting possibilities, including the opportunity to invest in high technology equipment and practices with the capacity to increase significantly the level of port efficiency.

In making judgements about the Port's requirement for land, it is imperative to recognise the fundamental importance of the Port to the economic well-being of the State. To introduce inefficiencies by unnecessarily squeezing the Port would be as undesirable as the other

extreme of failing to capitalise on the potential of land which might be transformed from port to other purposes.

3.2.1 Port of Melbourne

The PMA is currently developing a "Land Use Plan" which has as its objective:

"to ensure that appropriate port land is available to meet the long-term requirements of sea-borne cargo trade to and from Victoria".

This Plan will investigate the needs of containerised, break bulk, bulk liquid and dry bulk cargoes, together with trade growth projections over the next 20 years and the appropriate allocation of future trade between Victorian ports.

The Plan will replace the PMA's "Forward Development Plan" of 1973 and subsequent refinements. The latest revision of the Forward Development Plan was completed in September 1989 to account for possible Olympics relocation and substantial increases in trade growth. Trade growth has averaged about 2 per cent per annum since 1978, but was 10 per cent and 15 per cent in 1987-88 and 1988-89 respectively. The PMA forecasts an average trade growth of 4 per cent per annum over the next 10 years.

Based on an assumption of a 42 per cent increase in the productivity of container handling over the next twenty year period, the 1989 Plan concludes that construction of five new container berths is required. However, there is scope for considerably greater productivity improvements in that period and this may have a very significant impact on the requirement for new berths and on the PMA's capital program. For example, a doubling of productivity over the next twenty years would remove the need to invest in new container berths before 2009.

The PMA also anticipates the need for 10 break bulk berths over the next 20 years to replace existing berths in Victoria Dock and on South Wharf.

On the supply side, Webb (7), Swanson (2) and Appleton (2) Docks have the capacity to contain 11 new berths. In addition, the PMA has identified opportunities for further container berths by

- construction of modern berths between Todd Road and the West Gate Bridge;
- further reclamation of Webb Dock to the south and east into Hobson's Bay;
- converting the current use of Appleton Docks E and F from briquettes and char to alternative trades.

The location of existing, planned and potential berth sites is shown on Figure 16.

The Port of Melbourne is entering a very exciting period in its development involving fundamental changes in methods of operation affecting labour, capital and information systems of the Port and the relationship between the Port and road and rail infrastructure. That this is happening at a time when alternative high value uses are emerging for the port land makes consideration of this issue all the more timely.

What is required then, is a detailed, integrated study of the Port and its transport inter-relationships, having regard to:

- the anticipated volume and mix of trade, including the allocation between the Port of Melbourne and other Victorian Ports;
- technological developments affecting the relationship between trade and berth and storage requirements;

- future developments in information technology and its impact on the Port;
- the general pace of waterfront reform;
- increasing the private sector involvement in the Port; and
- the future interrelationships between the Port and road and rail transport, including the possible impact of off-port storage.

It should be noted that a number of studies undertaken recently will provide valuable input to this proposed large study and will reduce considerably both the cost and

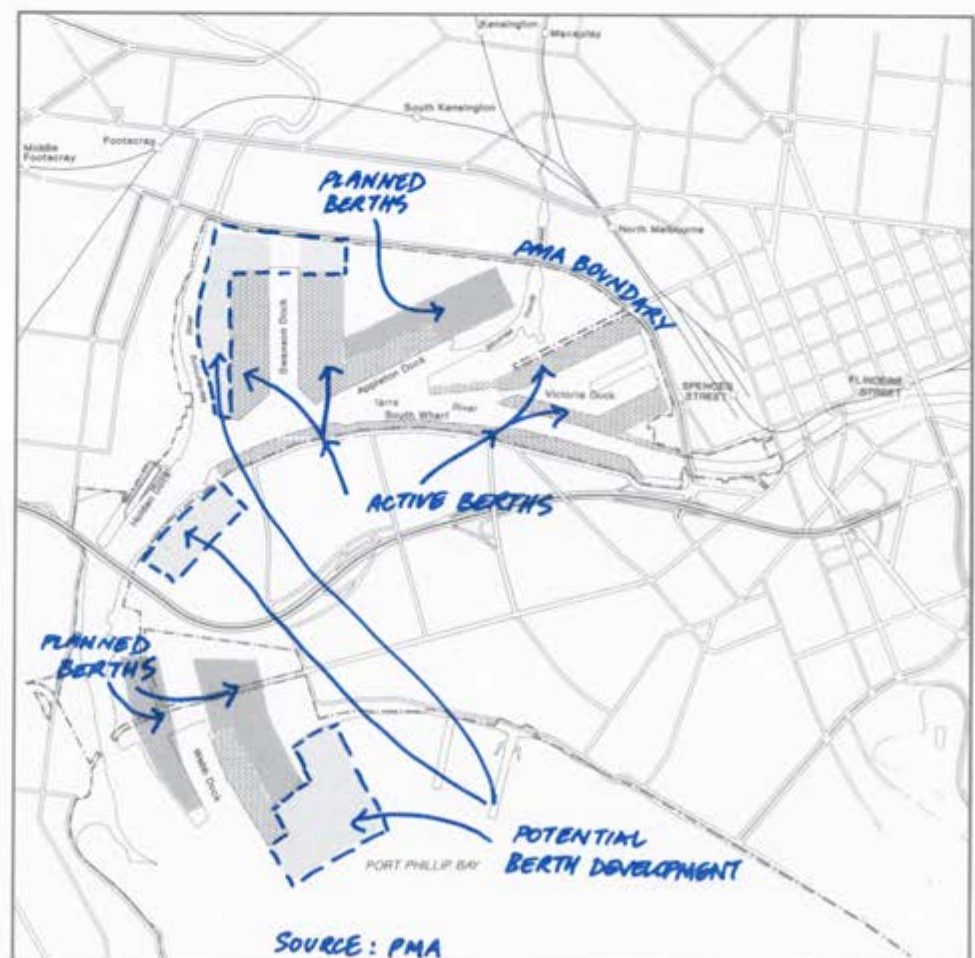
duration of that work. The PMA's Land Use Plan will be particularly significant in this context.

3.2.2 Rail

The PTC is considering the redevelopment of Spencer Street Station and the relocation of the Webb Dock Rail Line, which are discussed in detail in Sections 5.2.2, 5.2.3 and 5.2.3 respectively.

The South Dynon Container Terminal was identified in 1988 as the most appropriate site for development of a container terminal that could handle projected growth in freight carriage.

16 Existing, Planned and Potential Berth Sites



In the short term, the South Dynon Container Terminal will be progressively expanded to handle projected growth in freight carriage. It is anticipated that by around 2005 its capacity will have increased from 120,000 twenty foot equivalent units (TEUs) per year to 650,000 TEUs.

Current port-rail access is via the Webb Dock Rail Line and a number of specific sidings into Appleton and Swanson Docks. With the increase in capacity of the South Dynon Container Terminal the sidings into Appleton and Swanson Docks will be removed. It is proposed that integration between these Docks and South Dynon will be by Internal Transfer Vehicles using a new direct road connection. Computerised container handling systems will improve efficiency of freight handling.

Once the South Dynon Container Terminal has reached its 650,000 TEUs per year capacity, a review by the PMA and the PTC will be undertaken to determine whether South Dynon should be expanded further or a separate facility built south of Footscray Road for port purposes.

3.3: Land Release in the Core Area

Figure 17 divides the Core Area into a number of areas according to the order of their potential release, each of which is discussed below.

Area 1: Central Pier

The Central Pier of Victoria Dock and the two berths immediately adjacent, parallel to Footscray Road, are generally in poor condition and have no remaining economic life for commercial port operations. The berths are used for mooring of pleasure craft and some fishing vessels and the sheds there are used for lay up and storage. This area is

available immediately for redevelopment.

The area occupied by Sheds 6 and 7 in the strip of railway land on the east side of Footscray Road is also immediately available as the sheds are used irregularly for storage.

Further north, the area occupied by Sheds 8, 9 and 10 on the corner of Footscray Road and Dudley Street is potentially available immediately.

These three areas could be effectively cleared by late 1991, releasing a total of some 10 hectares.

Area 2: Railway Yards

The sidings to the south of Dudley Street and west of the suburban rail lines of Spencer Street Station were once serviced by The Hump and are now largely redundant. In the south-west corner of this area the only significant uses are APM's paper warehouse in Shed 4 and the PTC's fast track and parcels facilities in Sheds 2 and 3. Both uses can be relocated, APM's lease expiring in October 1991. Shed 2 is historically significant.

To clear the western side of the Spencer Street Yards requires the relocation of fast track and parcels and the removal of the rail tracks fed by The Hump. This work can be completed by mid-1993. An area of approximately 20 hectares would be released.

Constraints on early development in this area are the possible duplication of Footscray Road to the east of the present alignment, and the sewer and gas main easement consequently required on the existing Footscray Road alignment. The timing of the extension of any of the CAD east-west streets, such as Collins Street, may impose a further constraint on development in this area. Another constraint is the route of the Webb Dock Rail Line, currently running through the

Spencer Street railyards. The options for the relocation of this line are discussed in Section 5.2.3.

North of Sheds 8, 9 and 10, the railyard currently used for assembling freight trains to and from the docks will be redundant once the spurs servicing the docks are closed as part of improvements to the South Dynon Container Terminal. This area potentially extends as far as the south side of the locomotive reversing loop and as far east as The Hump, and could be available in 1993.

The triangle of land on the corner of Footscray Road and Flinders Street Extension is currently occupied by warehouses and open

space and, with the exception of one historic building, could be made available immediately.

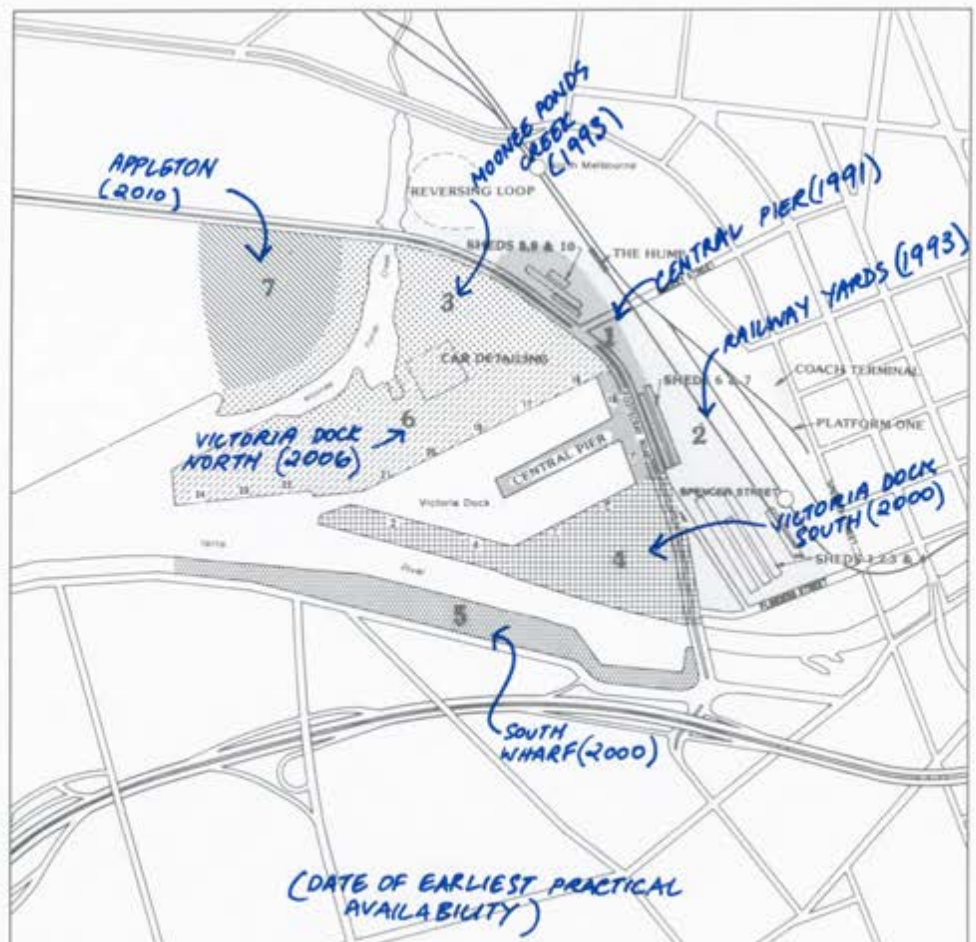
A narrow area fronting Spencer Street could be made available by relocating Platform One and the Coach Terminal further west.

Area 3: Moonee Ponds Creek

The open space areas flanking Moonee Ponds Creek are available immediately for improvement. This open space area extends to the rail line in the north-west and as far downstream as development of Appleton Dock will allow.

The area east of the creek, and north of the car detailing facility, comprises seventeen lots leased by

17 Land Release Areas



the PMA to private port operators and users. These leases vary in term and expiry but, with the exception of three leases which expire in 1999, 2004 and 2005, all leases expire before 1992.

Non-renewal of early leases is feasible with compensation unlikely to be necessary. Lease-holders' capital investments in the sites revert to the PMA when the leases expire. Early termination of the longer leases may require some compensation for the tenants to cover relocation and the loss of capital invested in prematurely vacated sites.

It is feasible to clear the seventeen lots, an area of about 15 hectares, by late 1992. Approximately 9 hectares is available almost immediately.

Initially, this area would suffer poor access and amenity. Access would be restricted to existing Footscray Road and Dudley Street. This could be substantially overcome by providing a new road access off Footscray Road into the north of the site. The area would remain somewhat isolated due to the barrier effect of Victoria Dock's northern berths which would continue to operate south of Dudley Street. Nevertheless, a substantial site, with water frontage on Moonee Ponds Creek, could be released for redevelopment from 1993 onwards.

Area 4: Victoria Dock South

The area comprising North Wharf and the south side of Victoria Dock was part of the site proposed for the Olympic Village. This area is currently operated as commercial port facilities. To vacate the area, alternative berth locations were identified at Webb Dock and Appleton Dock. This new berth construction work and site clearance has been planned comprehensively and can be completed by 1994.

Without the imperatives of the Olympics, the PMA believes that release of Victoria Dock South for

non-port use should be delayed until the end of the useful lives of the berths, a period which varies from berth to berth, but which would extend beyond the year 2000.

Area 5: South Wharf

South Wharf was also planned to become part of the Olympic Village, with its berths being replaced by new facilities at Webb Dock and Appleton Dock. The PMA would prefer to retain South Wharf for port purposes without the Olympic Games. The remaining useful life of the berths varies and is as much as 15 years in one case.

Area 6: Victoria Dock North

Victoria Dock North comprises three berth areas: 16-17, 19-21 and 22-24, and the adjacent back-up land south of Dudley Street.

Victoria Dock 16-17 is a modern, commercial, general cargo and roll on - roll off container berth. It has an economic life of up to 30 years. Early vacation of this site would disadvantage the PMA. However, given that it is nestled between two sites that are immediately available (Victoria Dock 19-21 and Area 3, above) earlier redevelopment may be justified.

Victoria Dock 19-21 is currently used only for mooring of the Alma Doepel and non-commercial fishing vessels and could be made available for redevelopment immediately. However, given its dislocation from other available sites, its redevelopment may be better delayed until its neighbouring sites are developed.

Victoria Dock 22-24 is closely associated with the new car detailing facility north of Dudley Street and new, adjacent, paved carparking areas. These facilities must be relocated as one.

To vacate Area 6 probably requires the construction of new berth facilities elsewhere. The

earliest that Victoria Dock North could be reasonably available for redevelopment would be about 2006. It is at this time that the whole triangular area bounded by Victoria Dock, Footscray Road and Moonee Ponds Creek could be developed into a uniform and pleasant character with improved accessibility and amenity.

Area 7: Appleton

The area south of Footscray Road, north-west of Moonee Ponds Creek and east of existing Appleton Dock is currently earmarked by the PMA for an extension of Appleton Dock. This would involve dredging two new berths, to be known as Appleton F and G, into the mouth of the Moonee Ponds Creek.

To fully release Area 7, the leases in the area around the intersection of Appleton Dock Road and Footscray Road would have to be terminated or allowed to expire. Resumption of these leases need not occur until after other areas to the east have been developed; that is, beyond about 2010 or 2015. In the meantime, however, the open space can be developed along Moonee Ponds Creek provided that berths F and G are not required.

Part Four: Land Use

This section contains information relevant to determining appropriate new land uses for Docklands.

First, the requirements of different land uses or activities are described, for example, the different needs of industrial and residential areas in terms of what other activities are located nearby.

Next, a discussion of some of the issues affecting residential development is provided. It should

be noted that housing locations have been identified throughout the Study Area, not just in the Core which is the focus for most other development.

Finally, four land use Scenarios are proposed that represent different points on a continuum ranging from high density, city centre style development at one end, to parkland at the other. Different amounts of housing within the Core are included in each Scenario.

PLANNING AND EPA LIBRARY

Part Four: Land Use

4.1 Land Suitability

4.1.1 Introduction

A fundamental consideration in determining a strategy for Docklands is the choice and distribution of suitable activities and land uses in the area. Eleven general land use categories have been considered and each is discussed below.

Selection of the suitable locations for these various land use categories is based on general planning principles, an understanding of the basic requirements of each land use, and an understanding of the existing activities, land uses, land tenure and current land use planning in the area. A series of eleven sketch plans indicates locations identified as suitable for the various land use categories.

The choice of locations has been narrowed to those areas regarded as most suitable. There are considerable areas of overlap. Consideration of areas most suitable, rather than generally suitable, helps simplify the evaluation of possibilities. Other sites beyond the boundaries of those areas shown may also be appropriate, although not as clearly suitable.

4.1.2 Port Operations and Support Facilities

Ports require deep water frontage, preferably at least 15 metres deep, for the establishment of berth faces. Container berths should be about 300 metres long and require large areas of back-up land.

Use of publicly owned land is regarded as an advantage for these facilities, since they are controlled by a public authority.

Large seagoing cargo vessels require approximately 50 metres height clearance, so berth locations are restricted by lower-level bridges beyond which ships cannot pass.

Ports require a high level of access to land transport, both road and rail. Thus, port facilities must be close to the heads of national rail trunk routes and be serviced by an adequate network of arterial roads.

It is desirable that sufficient land to accommodate container packing and storage operations and transport depots is located nearby.





4.1.3 Marinas and Moorings

While marinas and moorings require water frontage, this need not be as deep as for commercial port requirements. These water frontages should be located so that the passage of vessels to and fro has the minimum adverse effect on major shipping movements, while recognising that some waterways are, by necessity, shared. Low bridges may constrain access to marinas but this depends on the nature of the vessel to be moored.

Marinas and moorings require only sufficient back-up land to provide for maintenance work, launching facilities, amenities and carparking. Adequate road access is important.

Marinas can be attractive adjuncts to residential, leisure and entertainment, and open space land uses.



4.1.4 Rail Freight

Rail freight terminals require access to the existing rail network, particularly national trunk routes, as they are a vital part of the network.

Freight trains can be up to one and a half kilometres long so require long, straight loading sidings. Also, since track grades should not exceed about one per cent, relatively flat land is required with level entry and exit approaches.

Rail terminals require ready access to road transport, particularly heavy freight routes, and the port facilities.

Publicly owned land is desirable for these facilities.

4.1.5 Commercial

Commercial development requires good exposure, easy access to roads, public transport, and possibly carparking (depending on carparking policies to be adopted).

Commercial development should be located in areas where higher building densities can be tolerated. In turn, commercial developments can tolerate more expensive land.

Ready access to modern telecommunications infrastructure is vital here.



4.1.6 Industrial

Industrial development requires land value that is consistent with function - high or premium value sites generally cannot be afforded.

This land must be serviced with a high degree of infrastructure, both transport and services. Industries are heavy users of power and water and additionally need good access and close proximity to the arterial road and freeway network.

Access to public transport is important also for employees and clients.

Some heavy industries, by the nature of their activities, may require large, separate parcels of land to create a buffer which minimises disadvantages to the surrounding people and environment. Noisy or odorous industries, for instance, require such a buffer. Buffer distances are defined by the EPA. Refer to "Recommended Buffer Distances For Industrial Residual Air Emissions".





4.1.7 Residential

Residential areas require a clean, safe environment, removed from heavy traffic and heavy industries. Ground contaminants should be minimal, at least within internationally acceptable limits, and residential development should not be encouraged adjacent to hazardous sites.

Residential development requires convenient access to community services and facilities (such as schools, clinics, hospitals and so on), to district retail centres, and to other land use areas such as open space and entertainment.

Housing requires good road access for private vehicles on quiet streets that link to a proximate arterial network. Public transport is an important support service to residential areas, particularly in providing ready access to key employment centres.

Comprehensive infrastructure servicing, that is, sewers, fresh water, gas and electricity is a fundamental requirement.



4.1.8 Retail

Retail development requires a high degree of passing traffic that generates potential trade. This high exposure is best complemented by a vibrant environment.

Retail areas require good access for customers through public transport, roads and carparking provision. Good road access is also required for commercial delivery vehicles.

4.1.9 Leisure and Entertainment

Leisure, entertainment and recreational developments require convenient accessibility by both public and private transport. Carparking areas are desirable.

Developments require concentration to form distinctive areas of diverse but interrelated activities. Advantage should be taken of local assets such as views and physical features. Retail development can be a complementary adjunct.



4.1.10 Education and Institutions

Educational and institutional activities require convenient access to the CAD, together with a tranquil environment, possibly within easy reach of open space. Close proximity to short-term residential accommodation is desirable. Opportunity to expand and develop in the future must be provided.

Educational sites (in particular) and institutional sites should be well serviced by public transport.

Sites must allow also easy tapping into sophisticated telecommunications infrastructure.





4.1.11 Research and Development

Since research and development activities tie in closely with industrial land uses, co-location is highly desirable. Convenient access to educational and institutional activities is also desirable.

Sophisticated telecommunications are important to Research and Development work so access to the appropriate infrastructure networks is vital.



4.1.12 Open Space

Land suitable for open space is that which has potential to be developed into pleasant, spacious, relaxed areas which complement their surroundings and provide relief from other land development. It should be noted that it is potential that is important, not current aesthetic appeal. Waterfront and wetland areas are ideal, for instance.

Open space areas should take advantage of views and vistas and natural physical features, and can be for passive or active use and of formal or informal character.

Designated areas should form part of the city's open space network as linear links or major nodes. The value of such spaces as pedestrian and cycle routes is important.

4.2 Residential Development

This section deals with issues related to residential development within the Study Area, not just the Core Area which is the focus of the land use Scenarios discussed in the next section (4.3).

Whatever strategy is adopted for Docklands, a significant degree of housing will be included. The type of housing finally agreed will depend largely on the need to:

- provide an appropriate range of residential densities, tenures and housing types;
- ensure that new residential opportunities are socially, economically and physically viable;
- determine and provide for an appropriate social mix;
- ensure a high level of integration with existing residential areas;
- provide for a staged development of residential areas in response to demand; and
- provide appropriate buffers between residential development and port, rail, road and industrial uses.

Many areas within the Study Area could be considered for potential residential use. Some areas would not be considered appropriate because of their proximity to major roads or industrial or port activity. Six locations with potential for housing are shown in Figure 18. These locations are:

- various sites within the Docklands Core;
- Lynch's Bridge/Kensington;
- Maribyrnong;
- Southbank;
- North and West Melbourne; and
- Port and South Melbourne.

As Figure 18 illustrates, some of these areas are appropriate for residential development mixed with other uses, whilst others could be redeveloped primarily for residential purposes.

As much of the land is Government-owned, there is a clear opportunity to ensure a range of housing options, including a significant degree of public and private rental and affordable housing. It is suggested that up to 10 per cent of the total housing on Government land could be public housing.

The opportunity also exists (particularly in the Core Area which does not join any existing residential areas) to provide new and innovative housing types, especially well-designed medium and high density housing. The provision of higher density housing is considered a priority in terms of ensuring Docklands is developed in a manner consistent with the principles of urban consolidation.

A significant degree of flexibility in development controls is needed relating to:

- density;
- minimum lot sizes;
- building heights;
- site coverage;
- car parking; and
- private open space provision.

All residential areas in Docklands should include multi-unit development, row housing and townhouses. There is a need for more "as of right" residential development to promote such housing types rather than subjecting development to lengthy permit processes. Development controls in residential areas should reflect these objectives.

Residential development on privately owned land can be encouraged by allowing transfer of development rights (especially in relation to office development) and by allowing density bonuses for residential development. This mechanism enables developers of housing to obtain a predetermined density bonus for office development in an appropriate office zone.

Overall, it will be important to target residential development to broad market segments, with regard to the population characteristics of surrounding areas, to achieve market viability. At the same time, new residential development could contribute to ensuring the mixed social character of inner areas is retained.

Actual population size will depend on land areas set aside for housing, social mix, support facilities and, more importantly, dwelling type. It should be noted that high dwelling densities are often achieved at the expense of the size of households, ie more single or two person households in place of families. Overall, it is considered that between about 6,000 and 9,500 dwellings could be accommodated in the Study Area for a population of up to 25,000 people. Up to 40 per cent of the residential potential could be accommodated within the Core Area. Table 4.1 below illustrates the residential potential of each of the Land Use Scenarios.

18 Potential Residential Areas

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Melbourne Docklands: Strategic Options

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18 Potential Residential Areas

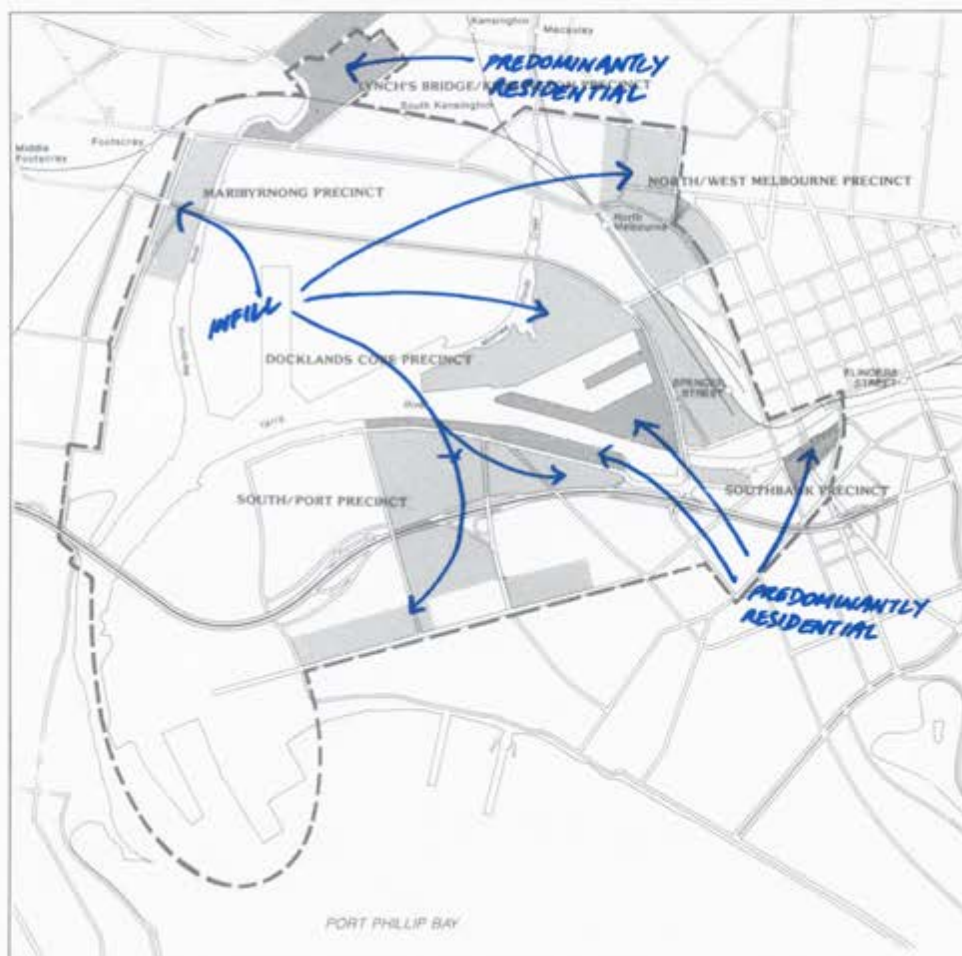


Table 4.1

Residential Dwelling Potential**- Land Use Scenarios**

	Core Area	Non Core Area	Total
Scenario 1	2,700	4,750	7,450
Scenario 2	3,300	5,700	9,000
Scenario 3	3,900	5,700	9,600
Scenario 4	250	5,700	5,950

Assumes that one third of mixed use land is devoted to residential use.

Assumes an average dwelling density of 67 dwellings per hectare in the core and 50 dwellings per hectare outside the core.

At present, there are only two areas of known contamination of land within the residential precincts identified. These sites will need to be cleaned up prior to redevelopment. Detailed site testing will be required to determine the location and extent of any other contamination of land earmarked for housing. Any contamination must be cleaned up to satisfy Environment Protection Authority standards before sites are rezoned.

Residential areas will also need to be planned with appropriate buffers protecting them from industrial and port uses.

4.3: Land Use Scenarios

The key variables in the physical planning of Docklands are intensity of development, land use mix and infrastructure levels. For purposes of illustration, four land use Scenarios are now briefly outlined. These Scenarios describe different densities and activity mixes within the Core Area. Later in this document, and after discussion of a range of alternatives for physical infrastructure, they are matched together with the required

infrastructure and presented as Strategic Options for consideration in the public consultation process. These Scenarios are both broad and flexible, while the Options overlay them with a particular infrastructure combination for illustrative and evaluative purposes.

The planning study for Docklands included consideration of many different development and land use scenarios. These Scenarios generally related to the Core Area which has the greatest potential for change.

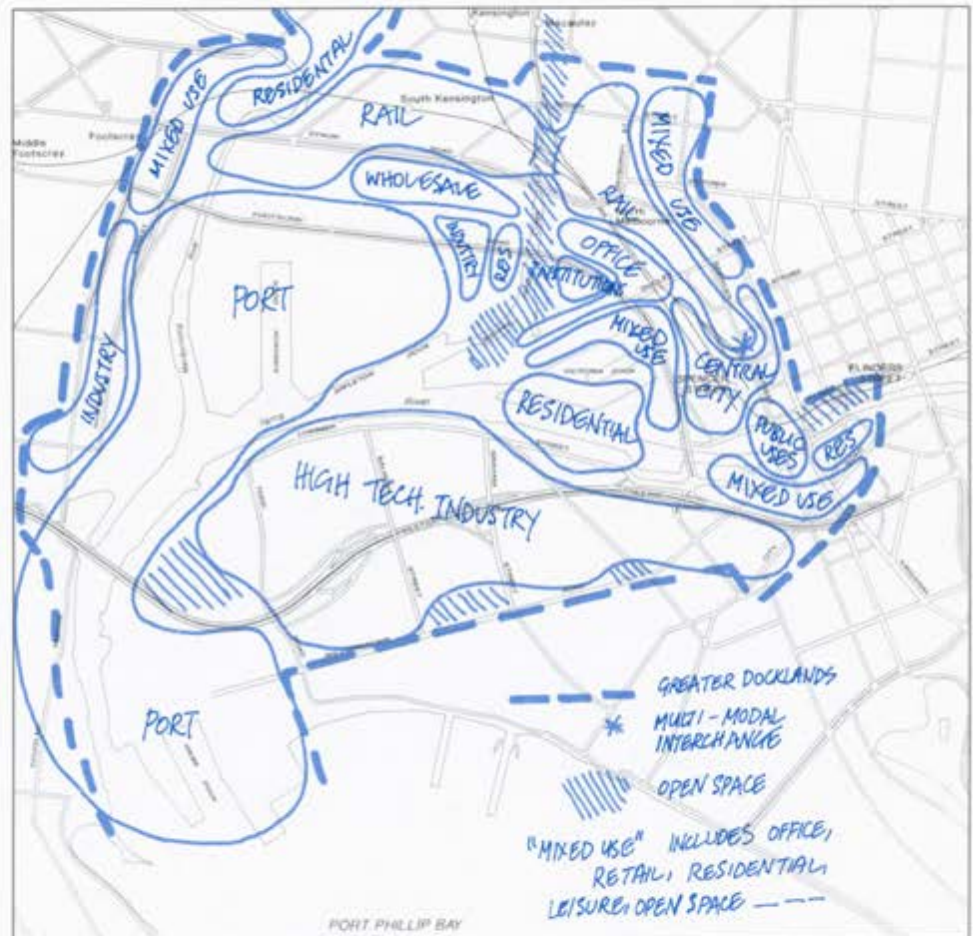
Many alternatives and variations were proposed. It was decided, however, that the Scenarios adopted for purposes of consultation should be financially and physically achievable.

This process resulted in the four land use Scenarios presented below. Within the Core Area, all the Scenarios incorporate redevelopment of Spencer Street Station, sites for institutional and research activities and open space along the Moonee Ponds Creek. Scenarios 1, 2 and 3 include land for port-related industrial use and significant residential areas.

Beyond the Core Area, the Scenarios are generally similar, with port, rail and high technology industry being the main uses. Residential development is proposed in the north-west of the Study Area and within part of the South/Port Technology Precinct south of the Yarra (except in Scenario 1).

Broadly speaking, the land use Scenarios present a range of uses from high density, largely commercial use in Scenario 1 through to provision of a major area

of parkland in Scenario 4. Scenarios 2 and 3 represent different variations along this scale and, importantly, provide larger areas for residential development within the Core, particularly in Scenario 3.



Scenario 1 - Commercial Emphasis

The central city character of the CAD, represented by medium to high-rise office buildings with retail or service activities at ground level, extends towards Victoria Dock. More office space extends along Footscray Road and north of

Victoria Dock. Over half of the 2.6 million square metres of floorspace in the Core Area would be office, while only 16 per cent would be residential. A mix of office, retail, entertainment and residential uses would face the river and the docks.



Scenario 2 - Mixed Land Use

Overall floorspace is 1.7 million square metres with central city and office uses accounting for about 40 per cent of the total, and residential accounting for about 29 per cent.

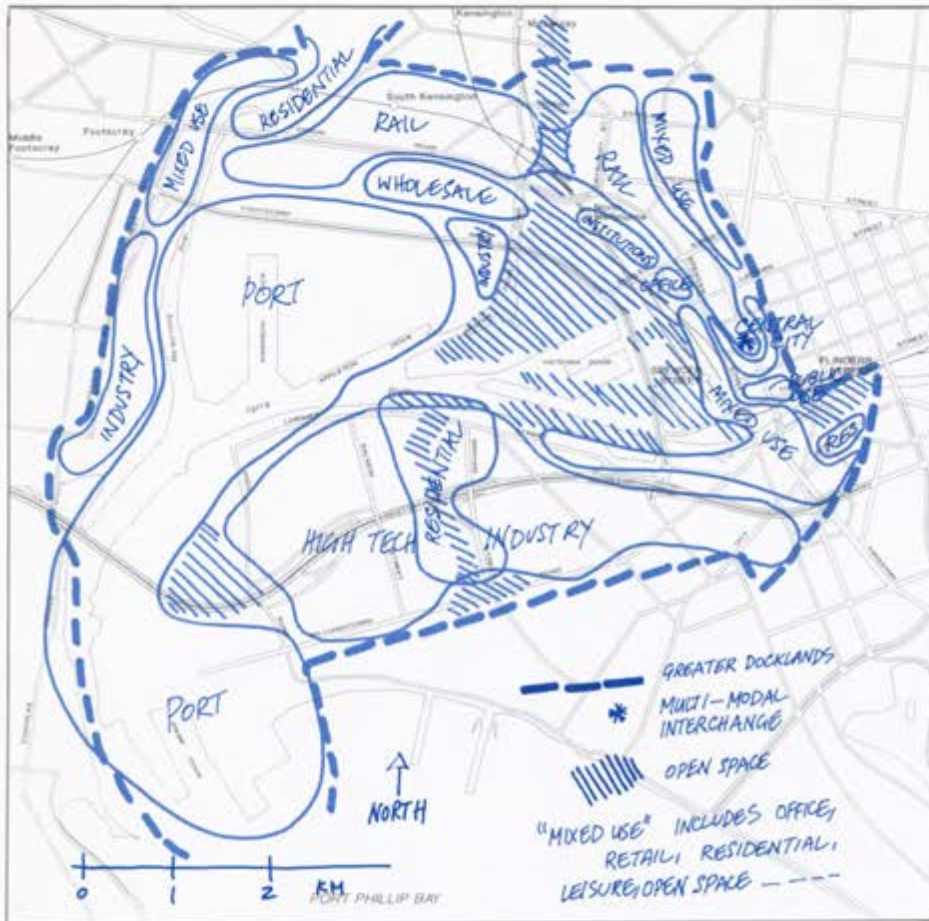
There would be a more even spread of floorspace across the other land uses. Waterfront areas would be predominantly for residential or mixed use activities.



Scenario 3 - Residential Emphasis

While the total floorspace is comparable to Scenario 2, residential space is increased to over a third of the total and would be the predominant waterfront land use.

Building heights and the character of the Core Area would be similar to typical suburban areas, with mostly low-rise buildings of less than four storeys.



Scenario 4 - Open Space Emphasis

Total Core Area floorspace is 855,000 square metres, one third of that for Scenario 1. Up to 40 per cent of this would be office and related uses close to the existing CAD. The majority of the Core Area is developed as open space. This Scenario gives to the western edge of central Melbourne a large, water-oriented parkland of the size of the established parks and gardens to the city's north, east and south. No industrial and very limited residential uses are included.

A number of other issues should be noted in considering these land use Scenarios.

Scenarios 1, 2 and 3 all assume an extensive public transport network aimed at maximising use of public transport, bicycles and pedestrian

areas. New transport infrastructure, in particular roadways, is nevertheless required to prevent creation of traffic problems through developing Docklands. New infrastructure requirements are discussed in following sections.

It is also assumed that development would be controlled by strict environmental standards concerning issues such as energy usage, waste management and, of course, transport. It is anticipated that precise guidelines will be developed as the preferred land use strategy becomes clearer.

Finally, development will also need to comply with Environment Protection Authority and other Government requirements regarding site contamination and location of hazardous materials.

The differences between the land use Scenarios are highlighted in Table 4.2, which contains a detailed breakdown of the land use in both the Core Area and the remainder of the Study Area. The table highlights:

- the declining proportion of land use devoted to central city development between Scenarios 1 and Scenarios 2 and 3;
- the increased emphasis on residential land use in Scenario 3 and to a lesser extent Scenario 2; and
- the dominant role of open space in Scenario 4.

This changing mix between the Scenarios is shown graphically in the pie charts.

Table 4.3 provides a similar comparison between the Scenarios, but here the emphasis is on floor space, rather than land area. This comparison is also presented graphically in pie charts in Table 4.5. As can be seen from these Tables charts, contrast between the Scenarios is more pronounced on this basis. For example, the quantity of floor space implicit in Scenario 1 is over 50 per cent greater than the floorspace in Scenario 3, due mainly to the significantly greater emphasis on central city and other office development in the former. Not surprisingly the floorspace created in the Core Area is lowest in Scenario 4, being only 30 per cent of the level of Scenario 1.

Finally, Table 4.4 focuses on the residential component of each of the Scenarios. The heavy residential emphasis of Scenarios 2 and 3 is apparent from the Table, with 29 per cent and 35 per cent of the total floorspace respectively devoted to residential. Table 4.3 also contains some indicative dwelling numbers for each of the Scenarios based on medium density development.

These range from only 250 dwellings in Scenario 4 to about 3900 dwellings in Scenario 3, the latter implying a new inner city population of up to 10,000 in the Core Area. As discussed above, there are also significant opportunities for residential development outside the Core Area - refer also to Table 4.1.

The transportation, telecommunications and services infrastructure required by these Scenarios must be appropriate to the intensity of development and land uses presented. These physical infrastructure elements are overlain on these Scenarios in Part 6 after the various issues affecting the infrastructure are discussed in detail in Part 5.

Table 4.2

Greater Docklands Study Area - Land Use Areas - hectares (1)

Land Use Core Area	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Central City (C.C.)	20.2	11.3	11.3	4.4
Office	12.5	12.5	7.5	5.8
Mixed Use	15.5	6.6	4.0	13.4
Inst./Educ./Exhib.	19.0	23.6	19.0	12.5
Transport I'change	3.2	3.2	3.2	3.2
Industrial	9.5	9.5	9.5	-
Residential	47.1	60.2	72.5	-
Airrights-C.C.	7.7	7.7	7.7	8.5
-Transport I'change	3.8	3.8	3.8	3.8
Open Space	15.6	15.6	15.6	120
Water	73	73	73	73
Other(2)	71	71	71	54
Sub Total	298	298	298	298
Non Core Area				
Central City	-	-	-	-
Office	-	-	-	-
Mixed Use	107	82	82	82
Inst./Educ./Exhib.	-	-	-	-
Industrial	404	373	373	373
Residential	76	107	107	107
Rail Freight	146	146	146	146
Port	417	417	417	417
Open Space	67	102	102	102
Water	232	232	232	232
Other(2)	328	318	318	318
Sub total	1777	1777	1777	1777
TOTAL	2075	2075	2075	2075

(1) one hectare is equivalent to 10,000 square metres. The table relates to gross area ie. before allowance for local open space and local roads.

(2) includes roads, road reserves, rail reserves, etc.

Table 4.3

Docklands Core Area Floor Space Areas - 000 square metres (1)

Land Use	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Central City	1209	575	575	222
Office	106	106	64	148
Mixed Use	237	106	69	151
Inst./Educ./Exhib.	403	201	161	171
Transport T'change	163	163	163	163
Industrial	81	81	81	-
Residential	362	473	577	-
TOTAL	2561	1705	1690	855

(1) The areas in this table are calculated by applying assumed plot ratios to net developable land areas ie. after adjustment for local open space and local roads. A 15% adjustment factor is assumed. Floor space associated with potential air-rights development over Spencer Street is excluded.

Table 4.4

Docklands Core Area Residential Comparison

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Residential: Total floor space (%) (1)	16%	29%	35%	4%
Indicative number of dwellings (2)	2700	3300	3900	250

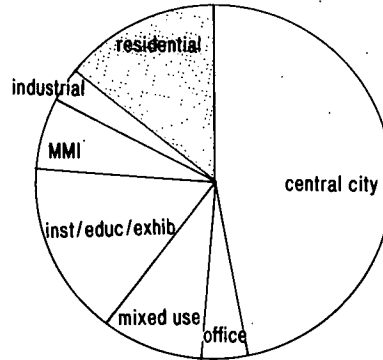
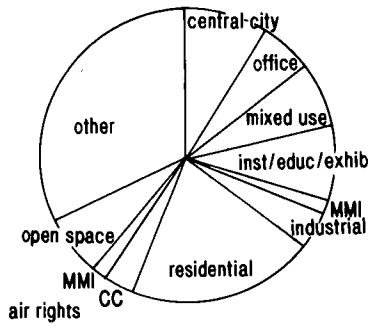
(1) Assumes that one third of mixed use land is devoted to residential and that residential building has an average plot ratio of 1:1.

(2) Assumes an average dwelling density of 67 dwellings per hectare (net).

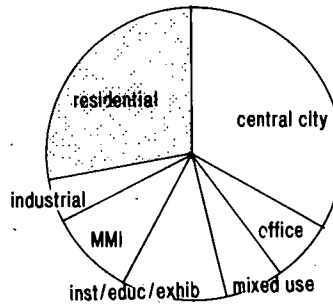
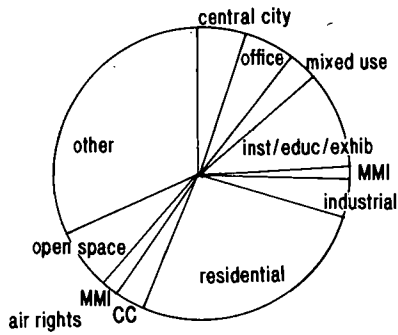
LAND USE AREAS

FLOOR SPACE AREAS

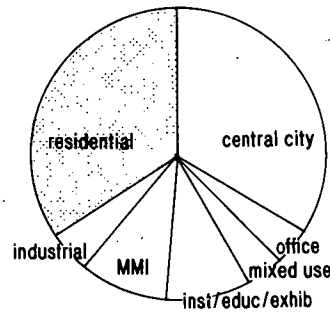
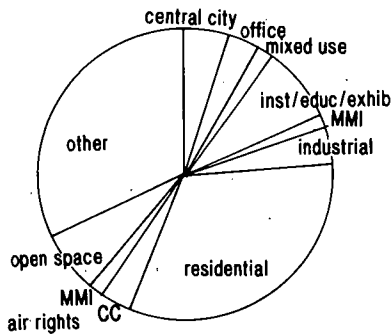
Option 1



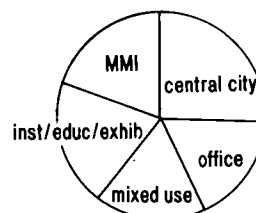
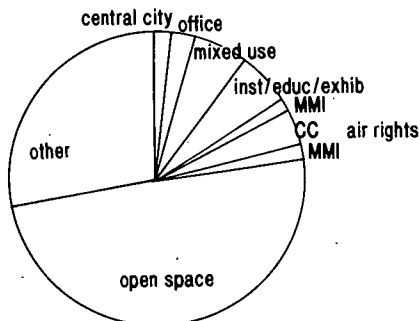
Option 2



Option 3



Option 4



Note: the area of the circle is proportional to floorspace area.

Part Five: Physical Infrastructure

The bulk of this section deals with transport issues which are considered by the DTF to be critical to determining a development strategy.

Four key issues are raised and possibilities for addressing them canvassed. These are:

- provision of a safe, efficient, accessible and reliable public transport system;
- management of north-south traffic;
- overcoming the barrier created by the Spencer Street Station and Rail Yards;
- overcoming the barrier created by the Webb Dock Rail Line.

Discussion of other important issues in terms of linking Docklands to surrounding areas follows. These include links between Docklands and the CAD, the inner north and the west, the possibility of creating a north-south transportation corridor and, finally, the need to ensure good rail links between the port and the South Dynon freight yards.

The opportunities for providing advanced telecommunications infrastructure are described next.

Finally, general services provision (gas, electricity, sewerage, water, etc) is described.

Part Five: Physical Infrastructure

5.1: Public Transport

Provision of efficient and effective public transport systems to, from and within the Docklands Core is important in minimising the use of private vehicles, linking Docklands into the existing public transport system and moving people within the area.

The proximity of Spencer Street Station to the Core reinforces its role as a public transport hub for Docklands, surrounding areas and Melbourne as a whole.

Existing tram and light rail services that travel along or terminate near Spencer Street are suitable candidates for extension into the Docklands Core. Tram routes along Collins Street and LaTrobe Street are ideal in this respect. Tram links could also be created to adjacent areas such as Southbank.

Consideration has been given in the past to a tram route along Footscray Road linking the Footscray District Centre to central Melbourne. The viability of this route is improved by Docklands development and it could become an important east-west link.

Buses are an efficient, economical and flexible public transport mode readily superimposed on the existing public transport network.

Trams, buses and taxis are public transport modes that rely on the road network. They are easier and cheaper to introduce than new heavy rail which requires a dedicated corridor and widely spaced stations. It is for this reason that heavy emphasis has been placed on road networks in the following discussion of transport infrastructure.

Other innovative forms of public transport could be introduced into Docklands development: water taxis

linking activities located on the newly developed waterfrontages, people movers and other escalator systems. State-of-the-art technology should be considered.

Provision for bicycles and pedestrians is vital both in terms of providing access to other modes of transport and as alternatives to other modes. Safe, sheltered and attractive pedestrian links can be readily incorporated. Dedicated bicycle paths terminating at conveniently located bicycle parking stations and buildings with appropriate provision for bicycles and cyclists (somewhere to store the bicycle and shower/change facilities) can and ought to be encouraged. Appropriate routes will be dictated by the land use pattern finally agreed upon.

5.2: Key Transportation Linkages

Many alternatives exist for the configuration of physical linkages into and through Docklands. These alternatives relate to freeways, arterial roads, secondary roads and rail lines. The movement of people and freight must be efficient from a transport operational perspective but at the same time sympathetic to the development objectives of Docklands.

Three transportation issues are critical to the physical planning of Docklands. These are:

- the management of north-south through-traffic, generally using Footscray Road at present but also affecting Spencer Street, King Street and other routes;
- the means by which the physical and psychological barrier of the Spencer Street Rail Tracks and Station can be overcome to improve the sense of proximity of Docklands to the CAD; and

- the future location of the Webb Dock Rail Line, particularly between Lorimer Street and the South Dynon Container Terminal.

5.2.1 Management of North-South Through-Traffic

Up to 48,000 vehicles, over a third of which are trucks, now use Footscray Road each day. By the year 2001, up to 81,000 vehicles per day are expected, assuming the Western Bypass is constructed between Tullamarine Freeway and Footscray Road. Footscray Road will therefore severely limit the development of Docklands and adversely affect the area's amenity.

Ideally, because of its waterfront location, it is now considered preferable to remove through-traffic from Footscray Road and to downgrade it to a local access road only. This would be consistent with the draft Central Area Transport Strategy (CATS). A similar outcome for King and Spencer Streets would also be desirable. Vic Roads also now believe that a greater number of vehicles than originally

anticipated (especially trucks) will want to bypass the CAD.

Several schemes to reduce through-traffic on Footscray Road and King and Spencer Streets have, therefore, been considered and are discussed below. These schemes are not necessarily alternatives. Each scheme may be needed, but at a different time. For example, proposals to construct a new north-south road within the railyards (the Footscray Road duplication) could commence immediately without affecting commercial port operations and act as the through-route in the short term before being downgraded to a local access function if the Western Bypass extension is constructed. The existing Footscray Road could then become a waterfront boulevard carrying largely local traffic.

Western Bypass Extension

Planning for the proposed Western Bypass includes a possible future extension from Footscray Road to the West Gate Freeway (refer Figure 23). A tee intersection is envisaged at the West Gate Freeway to prevent access of through-traffic to the bayside suburbs. If the extension was in place by 2001, the number of vehicles using Footscray Road would drop to approximately current levels, but with a lesser proportion of trucks.

A key issue is how to cross the Yarra in a way that does not disrupt port activities. A high level bridge with a clearance similar to the West Gate Bridge, could not be connected to the West Gate Freeway without unacceptably steep grades. A low level bridge would prevent commercial port operations and the movement of large leisure craft east of the crossing unless an opening bridge was constructed. The periodic opening of such a bridge would interrupt the traffic flow and

23 Western Bypass Extension Options



would not be compatible with a freeway function. A low level bridge is estimated to cost \$180 million.

A tunnel under the Yarra River would allow port operations to continue and would avoid any negative impact on traffic flow or amenity effects associated with a bridge. A tunnel would be very difficult and therefore expensive to build (estimated at \$500 million) through the Coode Island silt, and would be difficult to connect to the West Gate Freeway from its low point under the Yarra.

Therefore, the least cost solution is to construct a low to medium level bridge after the port has been relocated downstream.

The costs indicated for the extension assume a freeway-to-freeway intersection at the West Gate Freeway. This could entail a large and very costly land take. A lower order intersection may be more cost effective but would consequently cause sub-optimal traffic flow.

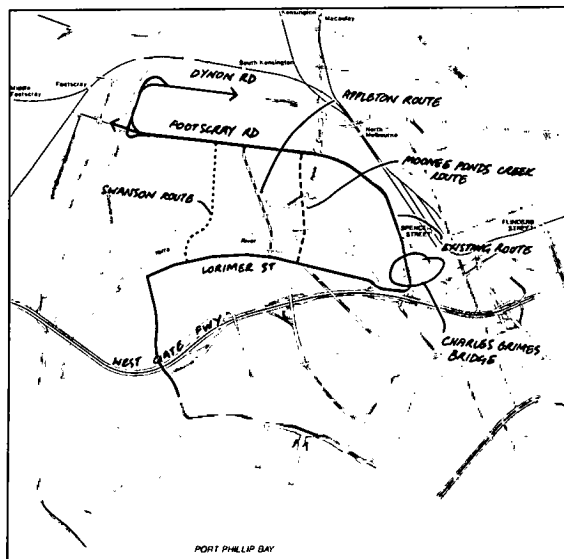
The alternative westerly alignment of the extension shown in Figure 23 avoids the lower reaches of the Moonee Ponds Creek and thus provides greater opportunity to develop the area, primarily for open space, commercial and residential purposes. Such an alignment however, would prevent the extension of Appleton Dock.

North-South Arterial Road

An additional north-south arterial road from Footscray Road to Lorimer Street would provide improved linkage between Swanson and Appleton Docks and Webb Dock and so reduce the local port traffic on the part of Footscray Road through the Docklands core area. The new road would also provide an opportunity for direct local access between Docklands and the South/Port Technology Precinct.

The new road would not warrant a high level bridge so, unless an opening bridge was constructed, the low level bridge would mark the western extremity of commercial port operations. Alternative alignments for the north-south arterial road are illustrated in Figure 24. Its estimated cost is \$27 million. It is possible that the freeway and arterial functions could be combined into one river crossing.

24 North-South Arterial Road Link Options



Footscray Road Duplication

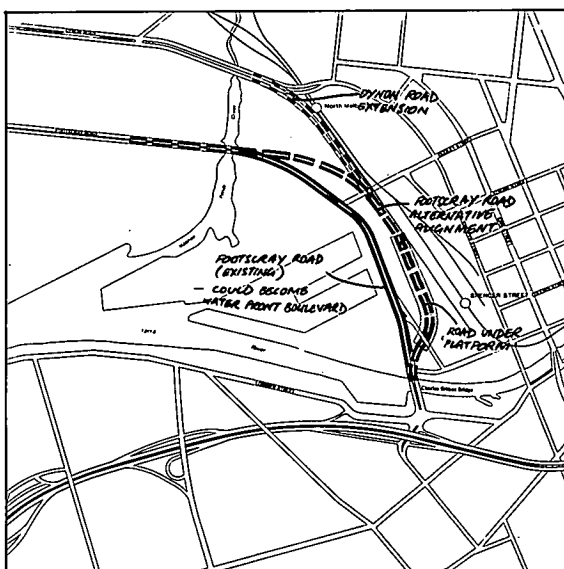
The creation of a new alignment for Footscray Road, the Footscray Road duplication, would improve the amenity of the waterfront area but would not reduce the number of vehicles passing through the Core Area.

A cut-and-cover tunnel could be constructed immediately east of Footscray Road at an estimated cost of \$215 million. This would enable through-traffic to be carried underground, while local traffic could be carried above. Alternatively, the duplication could be constructed at grade adjacent to the rail corridor before sweeping

back to the Charles Grimes Bridge. This would cost an estimated \$50 million. A local access road could also be constructed on the platform above if the east-west streets were extended over the duplication. The duplication would then cost an estimated \$193 million.

An alignment of the duplication is shown on Figure 25.

25 Possible routes to and from Charles Grimes Bridge



Dynon Road Extension

This involves linking Dynon Road to the Footscray Road duplication near Dudley Street (refer to Figure 25) at an estimated cost of \$90 million. This link would reduce through traffic on Spencer Street.

Vic Roads, in consultation with the DTF, will investigate these schemes further. The investigation will take into account engineering feasibility, cost, environmental and visual effects, traffic performance and traffic effects on surrounding areas and roads. The results are expected to be available by March 1991.

5.2.2 Spencer Street Station and Rail Tracks

At present, the Spencer Street Rail Tracks and Station constitute a significant barrier between the CAD and land leading down to the waterfront. If Docklands is to be developed in a way which promotes linkages between the CAD and the Victoria Dock area, this barrier will need to be overcome.

A number of schemes for the redevelopment of Spencer Street Station and Rail Tracks were considered in the context of removing this barrier as part of the development of Docklands. Each of the schemes outlined below has a significant impact in terms of cost, construction time and urban amenity. Further, there tends to be a stark trade-off between urban form and cost: the most attractive schemes tend to be the most expensive.

The cost provided for each scheme is an estimate.

Scheme 1 - Status quo (\$Nil)

The Station remains in its current location. None of the east-west streets - Collins, Bourke, Lonsdale and LaTrobe - are extended. Costs are, therefore, zero.

The redundant freight rail yards area would be developed in isolation from the CAD. While this is physically feasible, the opportunity to physically link the CAD with the waterfront would be lost. The absence of a direct connection with the Victoria Dock residential area could also adversely affect land values. In addition, the traffic generated by development would place great strain upon the capacity of existing east-west links - Dudley and Flinders Streets.

Scheme 2 - Leave Spencer Street Station but extend Collins Street (\$45 M)

The Station remains in its current location. At a cost of \$45 M, Collins Street is elevated over the tracks rising to a maximum point some six metres above its present level at Spencer Street. The gradient is steep but not greater than that which occurs in Collins Street between Swanston and Russell Streets. The railyards area and waterfront are physically linked with the CAD. Early development along the Collins Street extension would be required to avoid the appearance of a flyover.

Scheme 3 - Lower Spencer Street Station (part) (\$250 M)

The Station's suburban platforms are rebuilt to the north-west. The rail tracks ramp down from the existing viaducts at Flinders Street to the new platforms which are some four metres lower than at present. This enables Bourke Street to be extended and Collins Street to be extended at a lower gradient, rising to a maximum point some three metres above its present level at Spencer Street. This maximum point is some three metres lower than that required if the Station was not lowered (refer Scheme 2). Collins and Bourke Street extensions would physically link the CAD with the waterfront. Less elevated structures would reduce the visual impact of the extensions but the cost and construction time of six years are significant.

Scheme 4 - Elevate Spencer Street Station (part) (\$280 M)

The Station's suburban platforms are rebuilt to the south. The rail tracks rise from the existing viaduct at Flinders Street to the new platforms above an extended Collins Street. While Collins Street can be extended at grade, Bourke Street

cannot be extended at all because the tracks ramp down north of the new station. A significant physical barrier is created between the CAD and the railyards area and waterfront. The cost and construction period of seven years are also significant.

Scheme 5 - Relocate Spencer Street Station (part) (\$390 M)

The Station's country platforms are rebuilt to the west. This enables higher value land along Spencer Street to be released for development. Collins and Bourke Streets can be extended but elevation is required over the railtracks. For Collins Street the elevation is the same as for Scheme 2.

Scheme 6 - Relocate and lower Spencer Street Station (\$495 M)

The Station's suburban and country platforms are rebuilt to the west. (This is a combination of Schemes 3 and 5). The rail tracks ramp down from the existing viaduct at Flinders Street to the new platforms and are sufficiently below grade to enable all the east-west streets - Collins, Bourke, Lonsdale and LaTrobe - to be extended at close to existing grade.

The railyards area would be clearly linked with the CAD and the CAD's relationship with the waterfront maximised. In addition, higher value land along Spencer Street is released for development. The cost and construction period of 9 years are significant.

Scheme 7 - Underground Tracks from Flinders Street and lower Spencer Street Station (\$860 M)

The Station's suburban platforms are rebuilt to the north-west. The rail tracks ramp down from the western end of Flinders Street Station into tunnels passing under King, Spencer and Flinders Streets.

These tunnels would replace the viaduct and would require the demolition of Queens Bridge and the construction of a new Yarra Bridge to align with William Street.

The tracks are sufficiently below grade to enable Collins and Bourke Streets to be extended at grade. The railyards area would be clearly linked with the CAD and the CAD's relationship with the waterfront maximised. In addition, substantial improvements to amenity would be made between the two stations by removing the visual intrusion of the viaduct. The Yarra River is opened up to the CAD. The cost and construction period of 10 years are significant. Higher land values emanating from the improved amenity would not be sufficient to recoup costs.

5.2.3 New Transport Interchange

The existing passenger terminal at Spencer Street Station provides some transport interchange functions. There is provision for passengers to transfer between urban rail, non-urban rail and road coach services. In addition, the Station is conveniently located with respect to the tram and light rail services in Spencer, Collins and Bourke Streets.

Any redevelopment of the Station should take into account the opportunity to create a major new transport interchange. A transport interchange which provides an enhanced range of interconnections and other transport services would significantly increase the attractiveness of Docklands and the western end of the existing CAD, particularly if the Very Fast Train and the Rapid Transit Link were to proceed.

The physical schemes for developing of a new interchange as part of the redevelopment of the

Spencer Street railyards are discussed below.

Scheme A - Transport Interchange over existing Station (\$370 M)

The Transport Interchange with a Bourke Street axis is developed over the existing platforms and tracks as an addendum to Schemes 1 and 2 above (refer Figure 26).

Construction occurs over a period of six years and a cost penalty is assumed to cover the risk associated with maintaining a continuous operation of the existing system. Parallel platforms facilitate transfers between transport modes. The depth of unconstrained land fronting Spencer Street is limited by the existing platforms. Extension of the east-west streets can be undertaken independently of the Transport Interchange. This enables the release of land to be flexible and demand-led. A variation of this Scheme involves repositioning the Transport Interchange half a block to the south. This would have the advantage of providing a continuous built form along Collins Street and so negate the flyover effect. It would leave a vacuum on the Bourke Street axis unless the existing platforms were moved to the south to enable Bourke Street to be extended.

Scheme B - Transport Interchange over relocated and lowered Station (\$858 M)

The Transport Interchange is developed in a north-south linear fashion over platforms and tracks relocated to the west and lowered, as in Scheme 6 above (refer Figure 26). Construction occurs over a period of 10 years and is largely independent of the existing system. Linear platforms introduce the disadvantage of increased distances between transport modes.

The depth of unconstrained land fronting Spencer Street is significantly increased. By placing the platforms in a linear arrangement under and adjacent to a north-south road the land available for development is maximised. Extension of the east-west streets cannot be undertaken until after the Transport Interchange is constructed, although staging would enable extensions to be brought forward by a couple of years. Temporary access could be provided. The release of land is not as flexible as under Scheme A and is largely dependent upon a commitment to proceed with the Transport Interchange.

The Transport Interchange is moved more than one city block

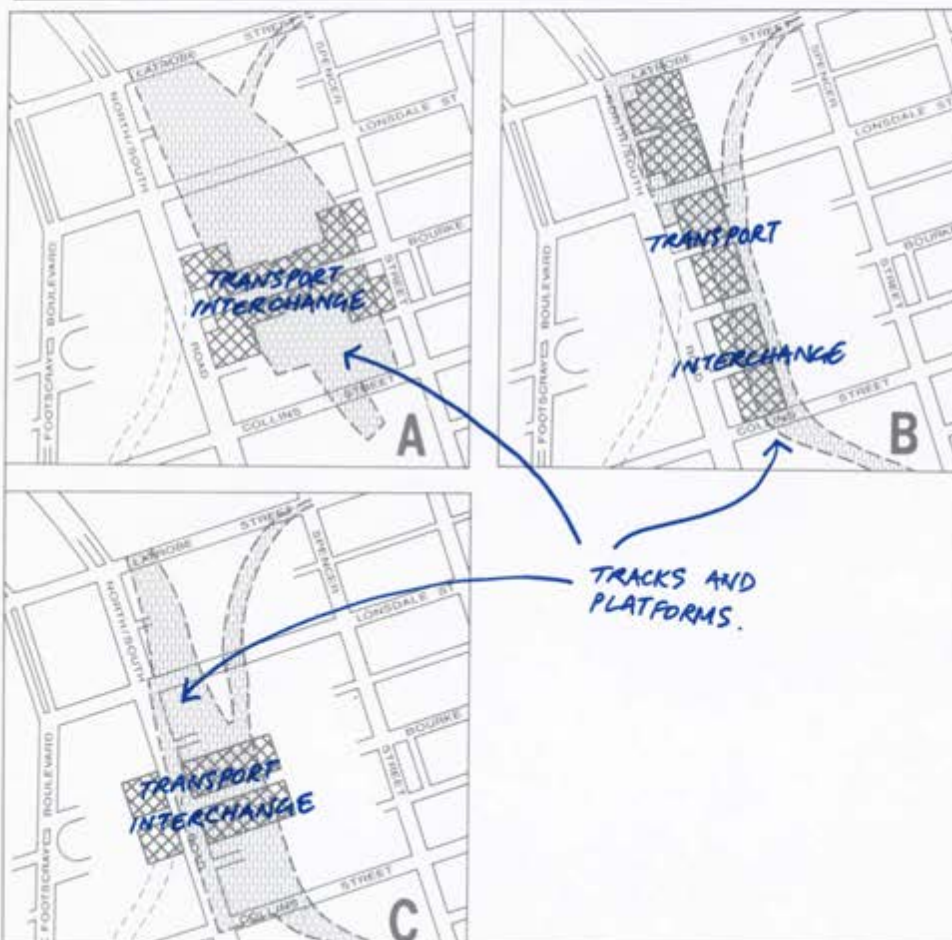
away from the CAD but is consequently closer to the waterfront and associated development.

Scheme C - Transport Interchange over relocated Station (\$844 M)

This scheme is very similar to Scheme B except that the new platforms are parallel to each other (refer Figure 26). This allows the development of the Transport Interchange in a similar form as Scheme A on the Bourke Street axis, but further to the west. Passenger transfers between transport modes are improved but disadvantages of construction cost and land release timing are incurred.

East-west street extensions have a lower elevation than extensions under Schemes A and B.

26 Spencer Street Rail Tracks and Station



A promising variation of this scheme involves relocating Platform 1 only. This would aid transport operations by removing the need for Sydney trains to cross over the suburban tracks and, for a cost of \$8 M, release sufficient land to enable development to occur on Spencer Street between Lonsdale and Bourke Streets. It also locates the Sydney line adjacent to the likely corridor of the VFT if it proceeds.

The line could be relocated to the west incorporating a new Yarra River crossing at an estimated cost of \$20 - 30 million.

Both options above would benefit from an elevated Footscray Road north of Swanson Dock which would give freight traffic direct access

[illegible]

between South Dynon Container Terminal and the Port.

5.3: Other Transportation Linkages

There are several other forms of physical linkage into and through Docklands that are not critical to the strategic planning of the area. Nevertheless, these linkages are desirable because they have an impact on the general amenity of Docklands. They are discussed below.

5.3.1 North-South Transportation Corridor

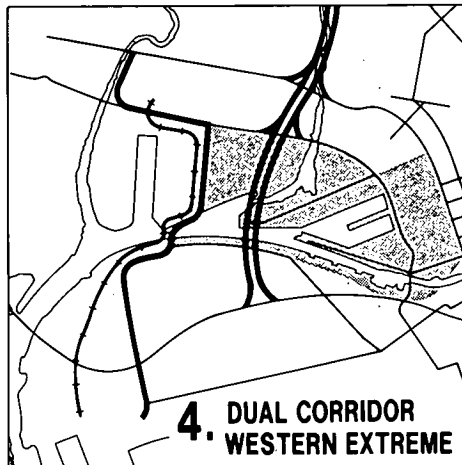
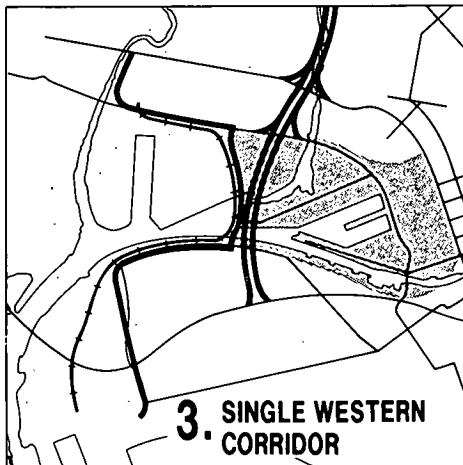
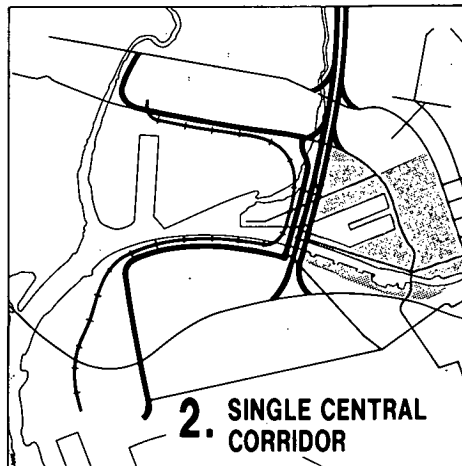
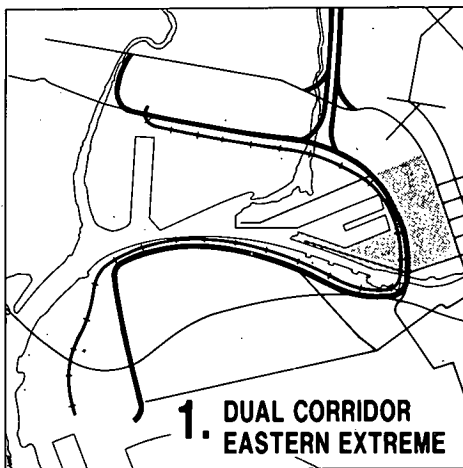
As discussed above, significant

north-south transport linkages can be provided through the Docklands area: freeway, freight rail and arterial road. There is obvious merit in locating these linkages adjacent to one another where possible in a single north-south transportation corridor, particularly where they cross the Yarra River.

Such a corridor is illustrated in Figure 28. This corridor in effect would mark the boundary between port development to the west and non-port development to the east, with all the benefits and difficulties discussed in Section 5.2.

A single corridor suggests opportunities to combine structures at the Yarra River crossing. One

28 North-South Transportation Corridor



possibility is a Western Bypass crossing providing, say, 15m clearance which would allow medium-sized vessels and yachts to pass under. The same structure could support road and rail lift spans with, say, 5m clearance in the closed position, and up to 15m clearance in the open position. In such a scheme the arterial road and Webb Dock rail would be directly under the Bypass.

5.3.2 Links to CAD and inner north

Docklands is currently served by a limited number of road links to the CAD and surroundings. These are generally adequate given existing land uses and traffic demands, but it is clear that redevelopment of the Core Area, the introduction of more intensive urban activity and the construction of the Western Bypass will necessitate increased road capacities.

While a high level of public transport use is a cornerstone of the Docklands redevelopment, additional traffic volumes will be created, requiring additional access roads. The existing road connections to the CAD and the inner north, Flinders Street Extension and Dudley Street, will be inadequate both in terms of capacity and amenity.

Several factors influence the character and location of new access roads into the Docklands Core. These include:

- the need for more direct access between Docklands and the Knowledge Precinct centred around the teaching and research institutions and medical facilities in Parkville and Carlton, particularly as these knowledge-based activities are likely to be important functions within Docklands;
- the need for additional direct movement routes from the

existing CAD to Docklands, particularly for public transport and pedestrians; and

- the strong grid pattern of the CAD streets and the vistas that exist from it towards Victoria Dock, which should be preserved and enhanced.

To meet these needs, Collins, Lonsdale and LaTrobe Streets in the CAD and, possibly, another from the north-east, are all appropriate candidates for consideration for extension into the Core Area. Bourke Street is probably inappropriate as a vehicular access between the CAD and Docklands as discussed in Section 5.2.2.

While variations in the form of the new street network west of Spencer Street could be explored, the principle of continuing the CAD's east-west streets has many compelling factors in its favour. These factors include the direct linking of the city to the river and harbour, the vistas, the adherence to a highly accessible grid network, the acceptance of the existing grid as a hallmark of central Melbourne to be strengthened and the ease of provision of services and public transport and of property development.

Extension of streets from the CAD and the inner north (with the possible exception of Collins Street depending upon the approach to the Spencer Street railyards) will require bridging over the railway tracks and, possibly, over the Footscray Road duplication, taking advantage of the scarp which gives Spencer Street and Railway Place significant elevation above Victoria Dock. Such bridging will require the buildings on either side of the extended streets to be built side-by-side to simulate a natural continuation of the existing streets.

5.3.3 Links to the West

Only three roads link Docklands to the western suburbs. There is little or no scope to provide an additional east-west route, so any development in Docklands will add to the traffic flows currently using these routes.

Dynon Road links to Hopkins Street which in turn connects to Barkly Street and Droop Street which feed respectively Geelong Road and Ballarat Road. Hopkins, Barkly and Droop Streets are secondary arterial roads, intersecting in the heart of the Footscray District Centre.

Footscray Road feeds Napier Street and Buckley Street, a primary arterial route passing through the southern fringes of the District Centre to Geelong Road and Sunshine Road.

Because they provide important connections between Docklands and the west, Dynon and Footscray Roads require careful consideration in development of Docklands, which will include:

- improving amenity and access between the west and Docklands without adversely affecting Footscray's district centre;
- providing a pleasant and attractive boulevard that welcomes users to the Docklands, rather than a route that creates a barrier between the west and Docklands; and
- maintaining the existing important freight carrying functions of the roads.

The impact of port and rail access across Footscray Road is discussed in Section 5.3.4.

The third link is the West Gate Freeway. This will prove to be an even more important link as Docklands is developed over future years.

5.3.4 Port-Rail Interface

Access from the Swanson and Appleton Dock port area to the South Dynon Container Terminal is currently by rail from a number of specific sidings in the docks.

In the short term, the South Dynon Container Terminal will be progressively expanded to handle projected growth in freight carriage. It is anticipated that by around 2005 its capacity will have increased from 120,000 twenty foot equivalent units (TEUs) per year to 650,000 TEUs.

Current port-rail access is via the Webb Dock Rail Line and a number of specific sidings into Appleton and Swanson Docks. With the increase in capacity of the South Dynon Container Terminal the sidings into Appleton and Swanson Docks will be removed. It is proposed that integration between these Docks and South Dynon will be by Internal Transfer Vehicles using a new direct road connection. Computerised container handling systems will improve efficiency of freight handling.

Once the South Dynon Container Terminal has reached its 650,000 TEUs per year capacity, a review by the PMA and the PTC will be undertaken to determine whether South Dynon should be expanded further or a separate facility built south of Footscray Road for port purposes.

Another way of improving port to rail access across Footscray Road is to provide grade separation of Footscray Road traffic from port traffic.

Construction of Footscray Road as a flyover between Sims Street and the Melbourne Wholesale Fruit and Vegetable Market on an alignment just north of existing Footscray Road provides this grade separation and allows the existing road to

function during construction. Direct port to rail terminal road movements and a new route for the Webb Dock Rail Line can both pass under the new flyover. East and west bound traffic on Footscray Road is unimpeded. Such a flyover is estimated to cost about \$25 million.

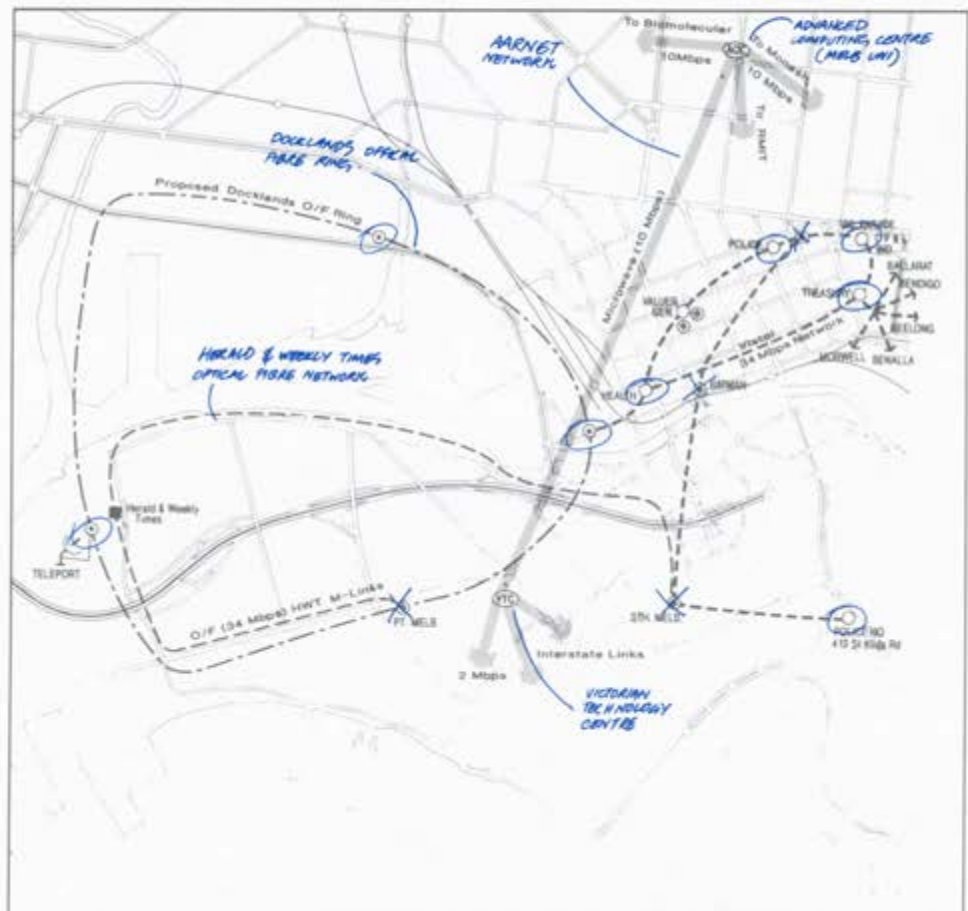
Detailed examination of the more northern alignment, while accommodating a rising rail grade, may provide the opportunity to extend Swanson Dock to the north. This would provide two new container berths. Preliminary work has shown this extension to be worthy of more detailed investigation in terms of construction, shipping movements, additional berth length required and berth back-up area availability.

5.4: Telecommunications Linkages

The basic topology of proposed Docklands telecommunications network described in 7.3.1 (Figure 29) allows for links with the Australian Academic and Research Network (AARNet), Victorian State Government Telecommunications (VISTEL), and the Telecom public network, along with known demands for private fibre optic circuits for the new location of the Herald and Weekly Times.

In addition, the following linkages would be available to information and communications dependent organisations in the area:

29 Telecommunications linkages



- Co-location with other leading computer organisations and close proximity to supercomputing facilities, namely the Cray-YMP and likely IBM 3090. These facilities would also have on-line access to the linked networks of AARNet, CSIRO and Strategic Research Foundation institutes.
- Access to a teleport facility giving direct satellite links to Japan, USA and Europe and to the global switched network. This facility would provide international telecommunications to Docklands located organisations and could be extended to the CAD.
- Advanced network linkages and services within Docklands, including a FASTPAC (QPSX) Ring Main, constituting a Metropolitan Area Network (MAN) for the interconnection of customer Local Area Networks (LANs) and extension of Wide Area Networks (WANs).
- The Docklands public network could also be interconnected with the Victorian Government VISTEL network which has broadband connections to eighteen Victorian regional centres. VISTEL is expanding its own video conference facilities and, as a permitted value-added service (VAS), this could be made available for use by private sector organisations, on a time-charge basis without the need for permanent connections, with dispersed regional sales and service organisations.

Docklands telecommunications facilities could be extended to neighbouring areas in a number of ways.

The CAD could be connected to the Docklands fibre optics network by fibres along the Collins Street extension. Business in the CAD could then have access to all the facilities of the Docklands network

and establish high capacity links to Docklands institutions and businesses. The existence of a teleport nearby in Docklands would enable economic access (refer 7.3.2) to overseas destinations.

Similarly, a telematics service (refer 7.3.1) in the Docklands could be extended progressively to homes in surrounding suburbs, providing both community information and service of a more commercial nature, and minimising the contrast between the information access for Docklands residents and their neighbours.

5.5: Services Infrastructure

No substantial additional infrastructure to provide services to Docklands development is anticipated. In general, major headworks are currently adequate or readily improved.

Water Supply

The central Melbourne area receives its water supply from the MMBW Preston system fed by the Silvan Storage Reservoir which in turn is supplied by the Upper Yarra (O'Shannassy Reservoir) catchment. This water supply system has adequate existing spare capacity to accommodate Docklands development. Depending on the nature, type and density of development, water pumping facilities may be required to maintain adequate water pressures.

Drainage

As drainage provisions are already in place, development can be easily accommodated without incurring substantial additional capital costs.

Sewerage

The CAD and the Core Area are serviced by the Western Sewerage System. The principal element of this system is the section of Hobson's Bay main that drains to

the metropolitan farm (in Werribee) via the Brooklyn Pumping Station, and those local catchments directly connected to the North-Yarra main and Brooklyn Trunk Sewer. This catchment is fully serviced and forms the nucleus of the sewerage system. A major sewer trunk is located along Footscray Road, between Dudley Street and Flinders Street.

The Western Sewerage System is the oldest metropolitan system (80 to 90 years) and the Melbourne Metropolitan Board of Works (MMBW) is currently working towards renewing it. The System could incorporate Docklands development through ongoing system renewal.

Electricity, Gas and Telephone

The CAD, Port and rail areas are well supplied with these services and new development will extend them incrementally. As substation and exchange capacities are approached new facilities can be developed.

Part Six: Strategic Options

This section presents the four Strategic Options that have been developed to assist the public to assess the best uses for Docklands.

The Strategic Options combine the land use Scenarios described in Part 4 with a transport network based on the discussion in Part 5. Options 1, 2 and 3 incorporate the same transport network and Option 4, which focuses mainly on parkland, incorporates a simpler transport network.

The Strategic Options presented demonstrate four possibilities that

are regarded by the DTF as being physically and financially sound. They are not, however, the only options possible. Other options may emerge from the consultation.

Finally, it should be made clear that more work needs to be completed before a conclusive evaluation of these four (or any other) options can be made. The DTF believes, however, that the evaluation work presented is useful in demonstrating the basic strengths and weaknesses of the four Strategic Options.

Part Six: Strategic Options

6.1: Description of the Options

The scenarios introduced in Section 4.3 present different intensities of development and patterns of land use. Physical infrastructure appropriate to the level and type of development, based on the issues discussed in Section 5, is required for each land use scenario.

Four Strategic Options, which combine the four land use Scenarios with an appropriate road network and associated infrastructure, have been developed for purposes of illustration and are described below. Initially, the same infrastructure is assumed for Options 1, 2 and 3 to form a basis for comparison of financial performance. Variations on this infrastructure are introduced later for Option 2, to test financial and traffic impacts. (At this early stage, Option 2 has been deemed to best meet all financial and non-financial evaluation criteria and has therefore been used as the base case for the testing of variations in section 6.6 of the report.)

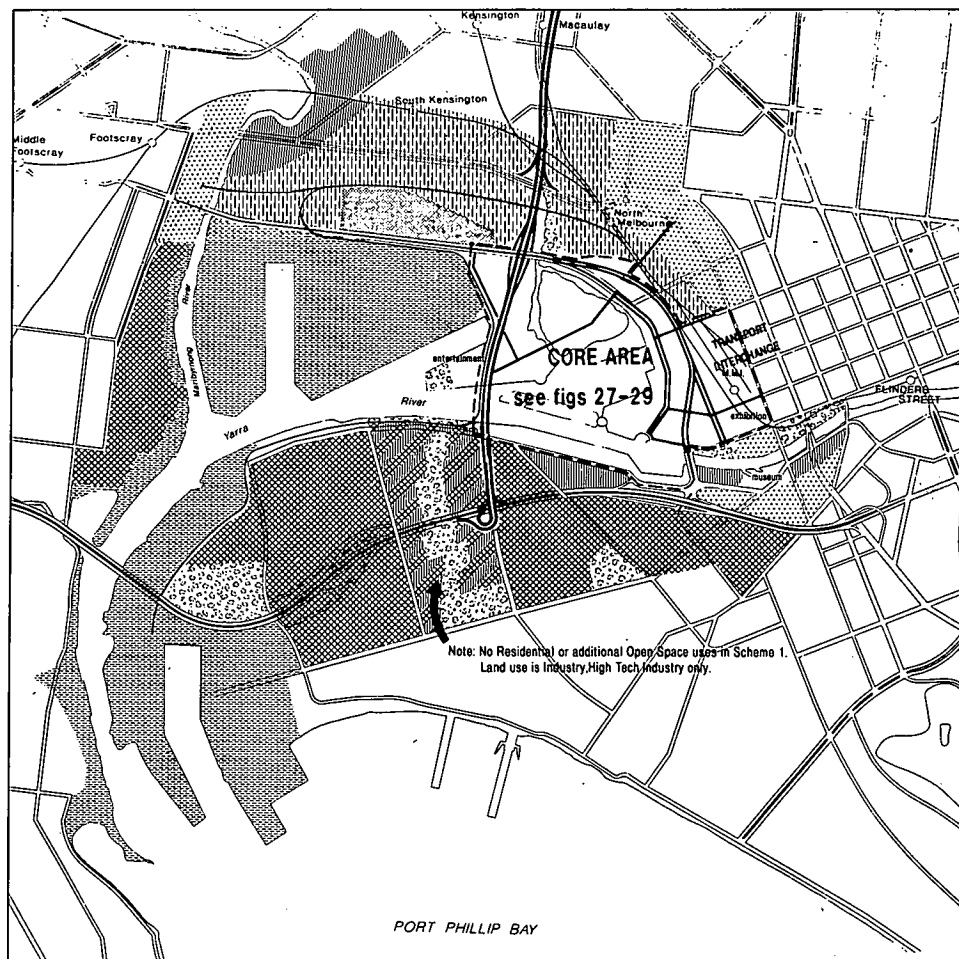
A simpler infrastructure network is assumed for Option 4. The specific road network is indicative of one appropriate to anticipated traffic and road-based public transport requirements. It may be that not all links are necessary but they are included to demonstrate a maximum extent of road network, and for identifying maximum infrastructure costs.

6.1.1 Road Network and Infrastructure Options 1, 2 and 3.

The assumed base caseroad network and associated infrastructure has the following features:

- freight rail yards, to Charles Grimes Bridge. This road (called the Footscray Road duplication) could become the primary through-route, in the short-term, assuming the Western Bypass is extended to the West Gate Freeway;
- the existing Footscray Road could become a quieter waterfront boulevard carrying only local traffic. It could be realigned to the west past Victoria Dock to accommodate an at-grade intersection with the extension of Collins Street;
- Collins and Latrobe Streets could be extended over the passenger rail tracks down to form at-grade intersections with the Footscray Road duplication and waterfront boulevard respectively. Further extensions would occur only when dictated by market demand but traffic considerations require at least one additional east-west street;
- ramps would provide a link between the Footscray Road duplication and LaTrobe Street to relieve the pressure which would otherwise be placed on Dudley Street and Flinders Street, and to provide direct access into the north-west sector of the CBD;
- a transport interchange, with a Collins Street frontage, could extend from Spencer Street to the Footscray Road duplication;
- the Western Bypass could be extended southwards, from Footscray Road across the river to a junction with the West Gate Freeway at Graham Street. This cross-river link could also serve as a connection between Footscray Road and Port Melbourne for local traffic;
- the Webb Dock Rail Line could cross the Yarra River adjacent to the Western Bypass extension; and
- Footscray Road could be bypassed from just east of Moonee Ponds Creek, through the redundant

30 Strategic Options 1, 2, 3 and 4 (outside Core Area)



REFERENCE

	Mixed Use		Industry, High Tech Industry
	Residential		Rail Freight
	Open Space		Wholesale
	Port		Core Area Boundary
	New Major Roads		

- the transportation corridor created by the Western Bypass extension and the Webb Dock Rail Line would mark the western boundary of the Docklands redevelopment area and the eastern boundary of port-related land uses. This corridor would be constructed after the Port has been relocated from Victoria Dock.

Option 4

The road network and associated infrastructure assumed for Option 4 has the following features:

- Footscray Road could retain its existing function as the primary through-route. In the longer term, an extension of the Western Bypass to the West Gate Freeway would relieve traffic and volumes on Footscray Road;
- a local, north-south road could be constructed within the Core Area, east of Footscray Road;
- Collins and Latrobe Streets could be extended over the passenger rail tracks down to at-grade intersections with the new north-south local road and Footscray Road;
- A transport interchange with a Collins Street frontage could extend from Spencer Street to the new north-south local road;
- otherwise, Option 4 is the same as Options 1, 2 and 3.

The diagrams at Figures 31, 32, 33 and 34 show the land use and infrastructure for Options 1, 2, 3 and 4. These diagrams are focused only on the Core Area as a means of conveying most graphically the variations proposed to the land use. Figure 30, therefore, is provided to illustrate land use outside the Core Area, which remains mostly the same for the four Options.

6.1.2 Urban Design Considerations

A number of urban design factors

contribute to the physical form of the four Options. While an unlimited range of alternatives is possible, strong urban design precedents influence the Core Area, and a number of opportunities exist for road network and land form design which are appropriate to the site.

The precedents include:

- the rigid form of the CAD grid, particularly of the east-west streets;
- the traditional grid pattern of inner Melbourne, of streets of regular width and spacing and without a clear hierarchy;
- the vistas framed by buildings along major streets creating distant views, often to landmark structures; and
- the Victorian tradition of formal and informal open spaces particularly focused on a river or ornamental lake.

Allied to these precedents are opportunities provided by the site.

These opportunities include:

- the focal nature of Victoria Dock: the potential to enclose a body of water on three sides by higher ground or higher structures, forming an amphitheatre of activity and interest;
- the proximity of the CAD: the one chance for Melbourne to develop an innovative and lively counterpoint to its business heart, one which will attract new residents, workers and students, as well as visitors from this city and others; and
- the expanse of open water so close to the city centre: a unique attribute and one which can be capitalised on for the long-term benefit of Victorians whether as a visual or active resource, but certainly as one which should add a new dimension to the inner city.

The first three Options described below share a common road network and structural form. This common basis is the outcome of a process of identifying a road network and land parcel layout which accommodates projected traffic demands. It responds positively to the precedents and opportunities outlined above, and demonstrates that the potential for a variety of land uses, activities and characters exists on the site. It is not the only solution, however, and alternatives are considered later.

Each Option concentrates on urban development in the area between the rail tracks and Victoria Dock. This is where activity will be most intense where the city will link to the water. A spine of pedestrian-oriented activity will link a vibrant, mixed use area around the waterfront to the CAD via the Transport Interchange. Along this spine retail uses should be encouraged.

Options 1, 2 and 3 propose the same treatment for the proposed Olympic Village site, consisting mainly of housing, with small areas of open space, mixed use and office development.

Ancillary office space spreads generally along the north-south streets, providing an activity and visual contrast to the two flanking precincts: the residential areas of north and south wharves and the campus areas towards Moonee Ponds Creek.

Melbourne's heritage of waterfront open space continues with the creation in all Options of a major parkland centred on the estuary of Moonee Ponds Creek. This estuary is turned, from its present ignominious entry into Appleton Dock, towards Victoria Dock in the form of two navigable canals which create new water frontages for development of various types.

The entire Core Area terminates in the west at the possible alignment of the Western Bypass extension to the West Gate Freeway. This would be an elevated structure (similar to the West Gate Freeway in South Melbourne), although at its crossing of the Yarra River, a bridge of high sculptural and engineering quality, and providing a waterway clearance of about twelve metres, would be introduced.

Each Option includes varying amounts of several broad land use types, with intensities of development represented by differing plot ratios (the ratio between site area and permissible floor space).

Differing plot ratios and a mix of intensities of development both imply a variety of built forms of buildings. As the quality of the streetscape and the amenity of public spaces become more important community considerations, so too do the size, shape and bulk of individual buildings and their contribution to the urban environment.

Each Option will have different built forms, with Option 1, because of its higher plot ratios, having taller buildings and more dense developments than the other Options. Buildings of up to 20 storeys would occur, but the majority would be 10 to 12 storeys and often built right up to the street frontage with similar parapet heights, thereby creating "urban rooms" of each street block or around treed squares.

Options 2 and 3, with progressively lower plot ratios, would have buildings predominantly of 6 to 8 and 3 to 4 storeys respectively.

In all cases, buildings would reflect strong building envelope guidelines which would influence

the form and architectural style of townscape to a greater extent than has been the practice in central Melbourne.

Each Option includes the potential for comprehensive movement by means other than the private car. The central city's tram network would extend along Flinders, Collins and LaTrobe Streets into and through the Core Area with connections towards Footscray, North Melbourne and the south. Ease of pedestrian and bicycle circulation would be a priority, particularly as Docklands is intended to attract people whose work, leisure and home are all in close proximity. Water-based public transport has the potential to become a viable reality.

While further detailed planning work is yet to be done, the framework is in place to ensure that a series of urban environments can be created, all of which have a high degree of physical amenity for their inhabitants within spaces and precincts of architectural and functional vitality.

6.1.3 The Options

The land use proposed for each of the four Strategic Options is discussed below.

OPTION 1: High Intensity, Commercial Emphasis

Option 1, described diagrammatically in Figure 31, has the highest densities of development.

Central city functions (characterised by a predominance of offices, with complementary retail,

service and entertainment uses) face Spencer Street, Bourke Street and the Footscray Road duplication. Plot ratios are in the range 8:1 or 10:1, comparable with the CAD at present, that is, buildings between 10 and 40 storeys. These high density uses are well-served by the road network and public transport.

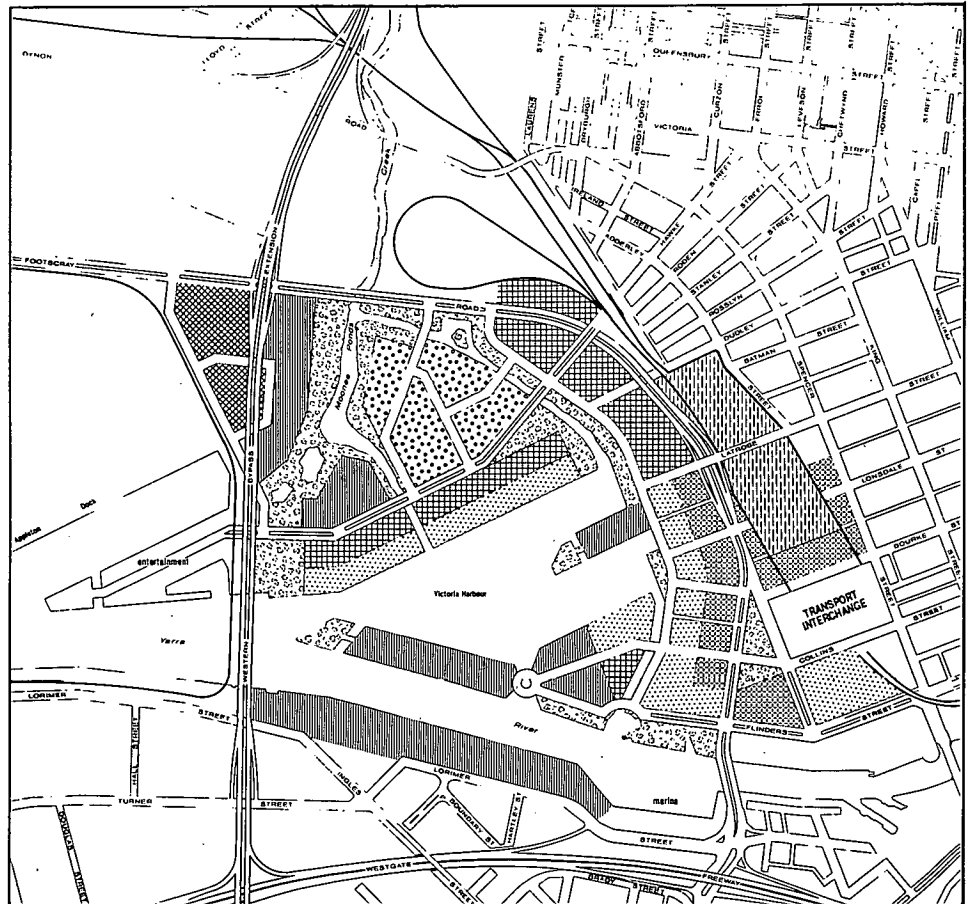
Between the central city development and Victoria Dock is an area of mixed use, where office, residential and retail uses would occur in about equal proportions. A plot ratio of up to 6:1, yielding buildings of some 8 to 10 storeys in height, is envisaged.

The Victoria Dock precinct has a heavy residential element supplemented by offices and retail development.

South of the Collins Street extension a large site, which includes the historic rail freight Shed No. 2, is designated for exhibition or related purposes, possibly associated with the adjacent World Congress Centre. To its west is a site for office development. Although a plot ratio of 6:1 is assumed, a medium to high-rise landmark building could be located here.

North of the LaTrobe Street extension, a zone exclusively for office development extends along Footscray Road towards Moonee Ponds Creek, in a style of development comparable with North and West Melbourne with a plot ratio 1:1. This area overlooks the canals and campus area south of

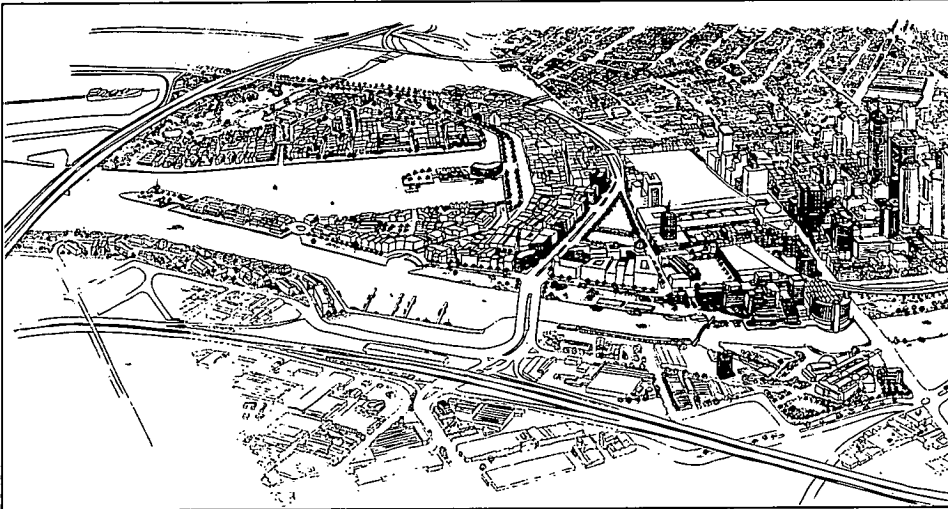
31 Strategic Option 1: Core Area



REFERENCE

	Central City		Institutions, Education etc
	Mixed Use		Industry, High Tech Industry
	Office		Open Space
	Residential		Rail

35 View from the south 1



the Moonee Ponds Creek open space area.

The main land use variation between Option 1 and the other Options is the inclusion of office and mixed use activities along the north side of Victoria Dock. A strip of mixed use development faces the water's edge, having a plot ratio of 3:1, yielding buildings of 5 to 7 storeys, behind which offices are sited with a plot ratio of 6:1, yielding buildings of 8 to 10 storeys.

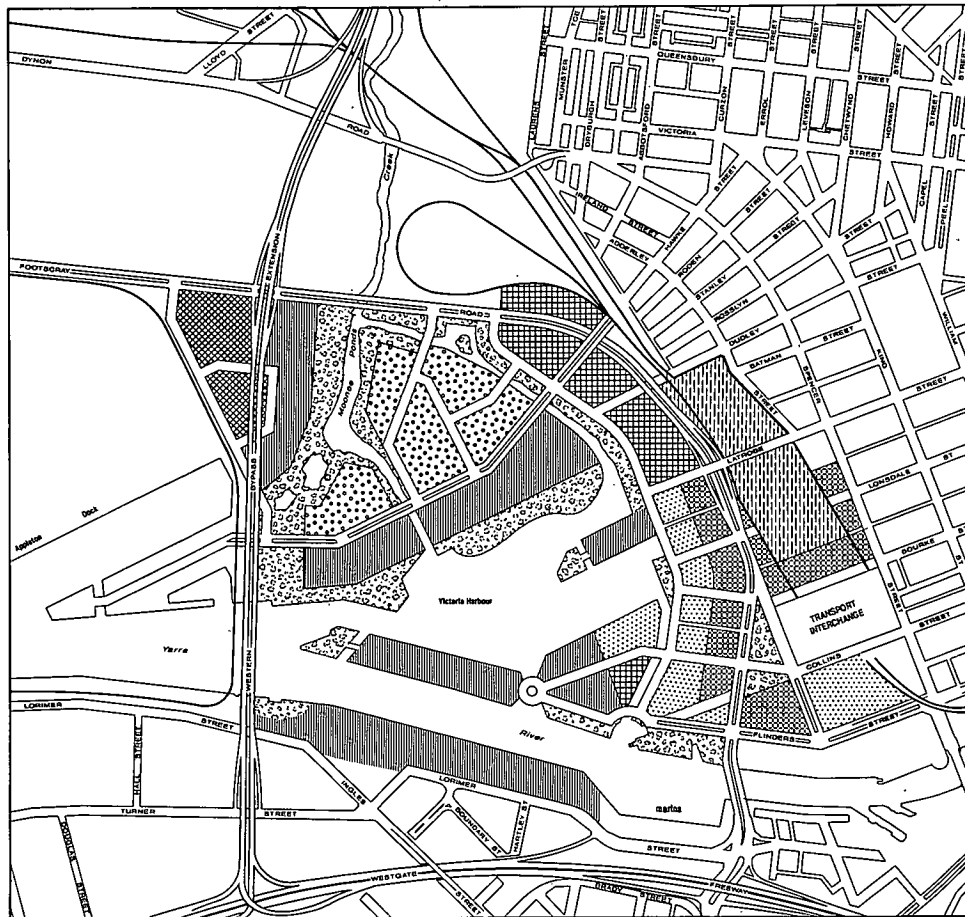
A large site facing an open space area along Moonee Ponds Creek is

allocated for campus style development: educational, institutional or research activities in a low-rise parkland environment. Average plot ratio would be 3:1.

Also facing this large water-oriented open space are three sites designated for residential use, with a potential yield of up to 500 dwelling units.

To the west of the Western Bypass extension and adjacent to the Appleton Dock back-up land, two sites are available for industrial use.

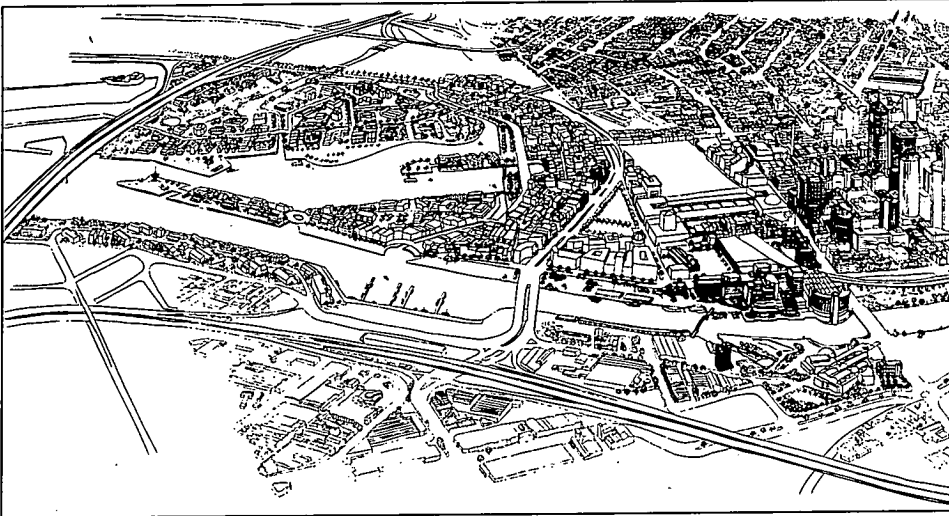
32 Strategic Option 2: Core Area



REFERENCE

	Central City		Institutions, Education etc
	Mixed Use		Industry, High Tech Industry
	Office		Rail
	Residential		Open Space

36 View from the south 2



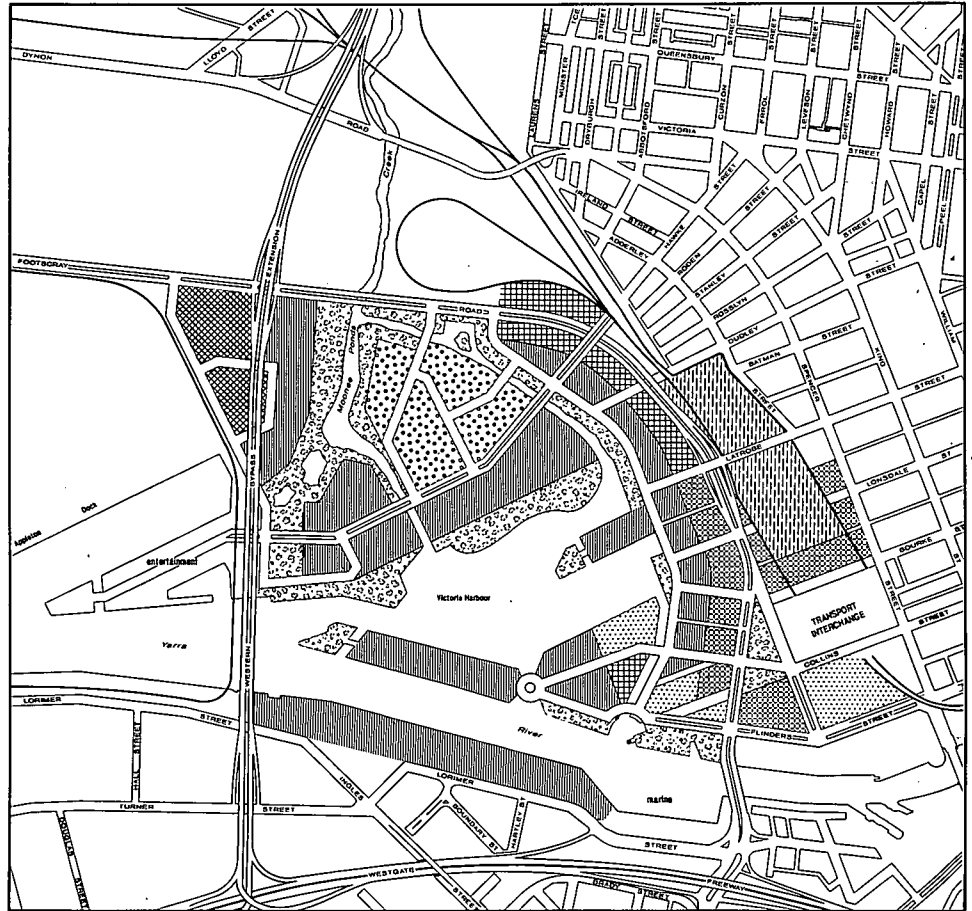
OPTION 2: Medium Density, Mixed Development

Option 2, which is outlined at Figure 32, places emphasis on mixed use and residential development with a lower overall intensity than Option 1. The general configuration of land use is similar to Option 1.

The differences between this Option and Option 1 are as follows:

- the plot ratios for central city functions and mixed uses are lowered to 6:1 and 3:1 respectively;
- in North Victoria Dock, residential uses replace central city functions and mixed uses; and
- a larger campus area but at a lower plot ratio of 1:1.

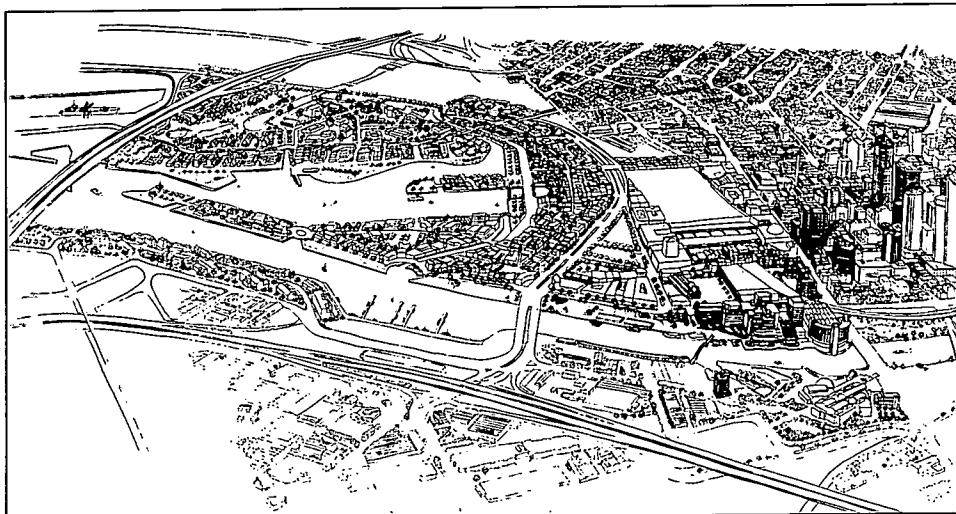
33 Strategic Option 3: Core Area



REFERENCE

	Central City		Institutions, Education etc
	Mixed Use		Industry, High Tech Industry
	Office		Rail
	Residential		Open Space

37 View from the south 3



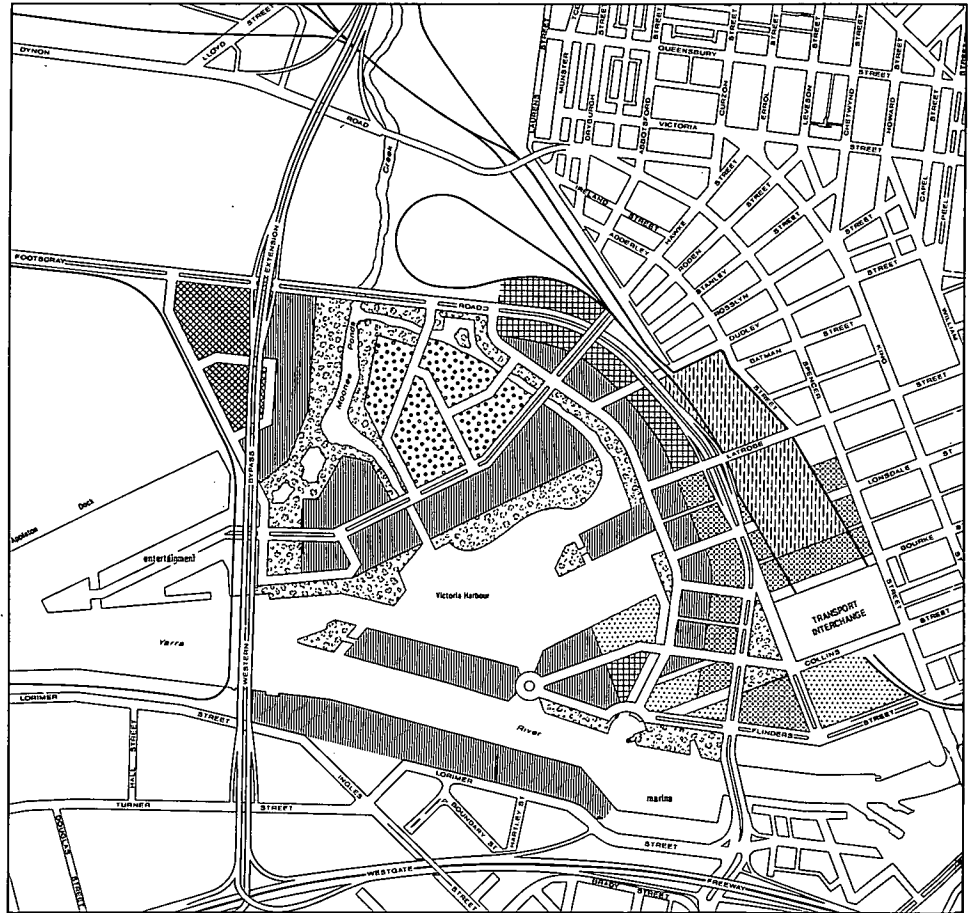
OPTION 3: Medium Density, Residential Emphasis

Option 3 shown in Figure 33 is designed to have a character more typical of inner suburban Melbourne than the central city or its fringes.

The difference between this Option and Option 1 are as follows:

- the plot ratio for central city functions is lowered to 6:1;
- the mixed use along Footscray Road is replaced by residential use;
- north of LaTrobe Street, office use on land facing Footscray Road is replaced by residential use; and
- in North Victoria Dock, residential uses replace central city functions and mixed uses.

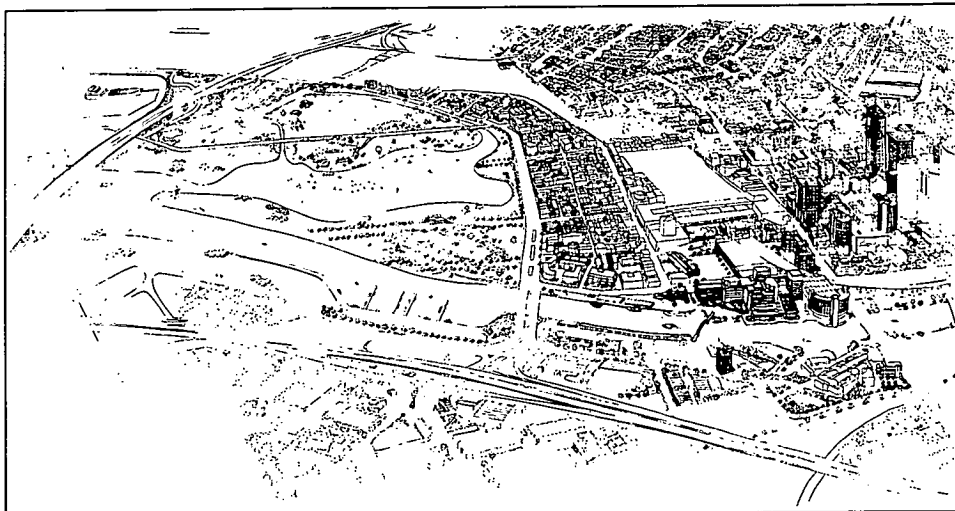
34 Strategic Option 4: Core Area



REFERENCE

	Central City		Institutions, Education etc
	Mixed Use		Industry, High Tech Industry
	Office		Rail
	Residential		Open Space

38 View from the south 4



OPTION 4: Low Density, Open Space Emphasis

In Option 4, illustrated in Figure 34, all land west of Footscray Road is redeveloped as a major area of open space, focused on Victoria Dock and the Moonee Ponds Creek wetlands. This new central park complements Melbourne's historical tradition of large, well established open spaces to the north, east and south, such as Royal Park and the King's Domain.

East of Footscray Road, the general land use configuration is similar to the other Options, with plot ratios of 6:1 and 3:1 for central city functions and mixed uses respectively.

North of LaTrobe Street, a medium density campus area is flanked by office development with a low plot ratio of 1:1.

6.2: Financial Evaluation

The financial evaluation process has been conducted in relation to the Core Area only and is designed to compare the cash flow generated from the sale of land with the infrastructure costs incurred in making the land available.

In making this comparison it is important to allow for the different timing of costs and revenues. Typically, costs are incurred prior to revenue being received and this should be reflected in the analysis. The results are calculated using a computer-based discounted cash flow model. The methodology employed is summarised in Figure 39.

The driving force is the demand for floor space, which in turn determines the demand for land. The relationship between floor space and land area is known as the plot ratio. The demand for land and land values together determine the revenue stream. As indicated in Figure 39, both the plot ratio and market conditions (the demand for floor space) have a bearing on land values.

In undertaking this analysis it is very important to distinguish between the end uses for the floor space. The office, retail and residential markets are all quite different, as are typical land values for each type.

On the supply side, the timing of land release is dependent upon the infrastructure program - the availability of roads, public transport and services. Taken together, the timing of land availability and the land use scenario determine the supply of land by type. The rate of expenditure on infrastructure can be varied to avoid the emergence of excess supply of, or demand for, land of each broad type.

Having identified the likely costs and revenues for each Option over time, it is then possible to calculate the surplus funds available at the end of each year, or alternatively the funds required to be injected into the project (the difference between costs and revenues).

These net cash flows for each year are then discounted to indicate the equivalent current day (1990) value at a real (ie. after inflation) discount rate of 4 per cent.

The net present value is the measure of financial performance used to compare the Options.

6.2.1 Assumptions

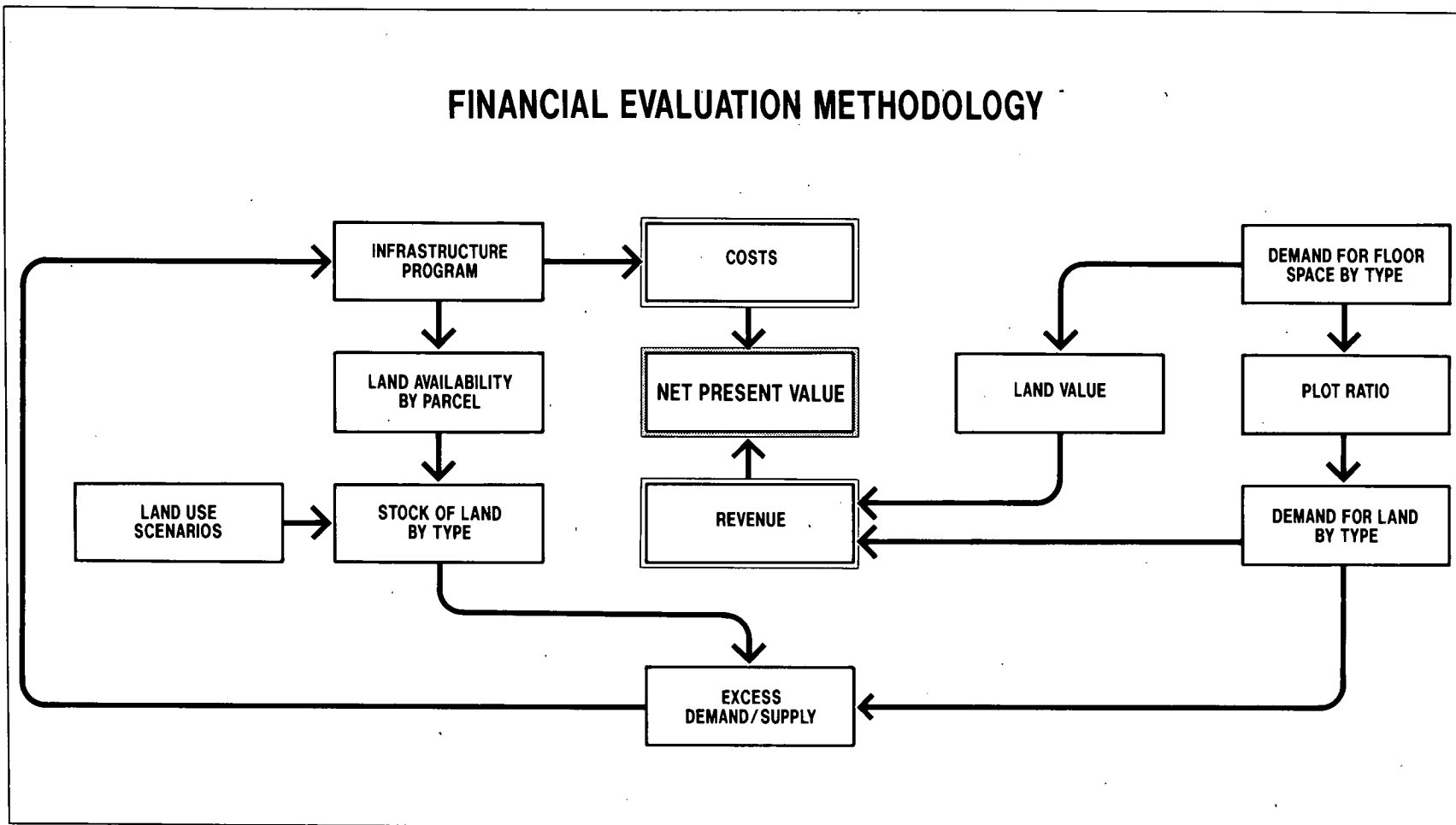
The assumptions relating to the financial analysis are as follows:

- All costs and revenues are in 1990 dollars.
- Net developable land area has been estimated by taking the gross land area and deducting 15 per cent for local open space and local roads. Arterial roads have already been excluded from the land budget.
- Land Values

Average land values are based on previous sales where possible. In the case of central city office use, which would include retail, entertainment and carparking uses, an average value of \$3,500 per square metre has been adopted. Where plot ratios are higher than 6:1, a premium has been assumed of \$250 per square metre.

Mixed use areas are assumed to comprise a combination of offices (comparable with St. Kilda Road or Southbank), retailing (being a mix of highway retail, service retail and speciality shops) and residential (mainly multi-unit development), in equal proportions. An average land value of \$1,500 to \$2,000 per square metre is assumed for the office component, which is similar to

39 Financial Evaluation Methodology



Southbank and St. Kilda Road land values. An average of \$1,000 per square metre is assumed for the retail component which is higher than could be expected for highway retail areas but less than for specialty shopping. An average of \$500 per square metre is assumed for the residential component, which is similar to Port Melbourne and South Melbourne values.

In the case of other office uses at a low plot ratio (one), it is assumed these are typical of North and West Melbourne and Carlton office development at values of around \$1,250 per square metre.

In the case of office/warehouse use, an average value of \$350 per square metre is assumed which is similar to the South/Port Technology Precinct.

In the case of the exhibition use, an average value of \$500 per square metre is assumed, although this would include a commercial car parking component and some retailing.

In the case of the educational/institutional uses an average value of \$250 per square metre is assumed which is a nominal amount but takes into account the large area involved.

Air rights are assumed to have nil value, as a result of the high cost of decking to create development sites.

All land values adopted assume normal market conditions. It is expected that these conditions will return by the mid 1990s, when the first land parcels are assumed to be released.

Demand for Land

The annual land take-up has been derived as follows:

CAD offices/retail - estimated annual floor space absorption is 25 per cent of the historical annual absorption rate for the CAD of

100,000 square metres. At a plot ratio of 6:1 this equates to around 4,000 square metres of land per annum being released, or one to two development sites. In Option 1, where a higher density and therefore higher potential floorspace is involved, a reduced land absorption rate of 3,500 square metres of land per annum, is adopted.

Mixed Use Residential - 30,000 square metres is assumed to be absorbed each year. Based on an average lot size of 150 square metres this equates to 200 lots per annum. With dwelling commencements in the inner area at around 650 units per annum, this would represent around 30 per cent of the existing market. This is considered to be achievable given the unique location of Docklands, in particular its proximity of access to the CAD and water outlook.

Mixed Use Retail - (including Victoria Dock retailing) an absorption rate of 5000 square metres per annum equates to around 5-6 convenience shopping/highway retail sites per annum, or around 15 specialist/service retail sites.

Mixed Use Office - (including Victoria Dock offices) this is assumed to be typical of St. Kilda Road and Southbank office development. The estimated take-up is assumed to be 25 per cent of the historical annual floor space absorption rate for St. Kilda Road, of around 10,000 square metres. This equates to around 3,500 square metres of land per annum being released based on a plot ratio of 3:1 (as for Option 2) In Options where plot ratios are slightly higher or lower and therefore floorspace potential is higher or lower, then the land absorption rate is adjusted accordingly. This would be around 4 or 5 development sites per year. It is considered that this is a

conservative estimate given that St Kilda Road is almost fully developed and there are only limited good development opportunities remaining in Southbank.

Exhibition - this land is estimated to be absorbed over a 3 year period, and assumes that there will be staged construction of a major facility.

Education - this land is assumed to be developed over 5-10 years for a major educational institution.

Office/warehouse - this land is assumed to be similar to the South/Port Technology Precinct or parts of North/West Melbourne. The estimated take-up of 5,000 square metres of land per annum is equivalent to 2-3 development sites.

Office - smaller scale offices at a plot ratio of one are typical of North and West Melbourne office development. The take-up rate for land of 3,000 square metres per annum is equivalent to around 4 - 6 small office sites.

Residential - as for Mixed Use Residential Land.

All the land take-up rates assume normal market conditions. It is expected that these conditions will return by the mid 1990s, prior to the time when the first land parcels are assumed to be released.

Transport Interchange

Costs and revenues associated with the Transport Interchange have been excluded.

Construction Costs

Construction costs are assumed to be spread evenly throughout the construction period. Infrastructure costs identified are only those directly attributable to the Docklands redevelopment. Other infrastructure may be provided within the areas that have a wider

benefit, eg Western Bypass. Infrastructure cost estimates have been obtained from relevant Government agencies.

Base costs have been loaded to allow for design costs (10 per cent) and contingencies (20 per cent).

Financing and Tax

The cash flow analysis takes no account of taxation or financing.

Local Services

Sales revenues are based on the purchaser being responsible for provision of services reticulation from trunk systems and general amenity improvements.

6.2.2 Comparison of Strategic Options

Table 6.1 below summarises the revenue, cost and net present value estimates for Strategic Options 1, 2, 3 and 4. As discussed earlier, the main difference between the first three Options relates to intensity of land use; infrastructure expenditure is constant. Thus the major differences between Options 1, 2, and 3 concern estimated revenues, which are about 40 per cent greater in Option 1 than in Option 3. However, the gap between the Options is significantly less marked on a discounted cash flow basis. This reflects the fact that much of the additional revenue generated under Option 1 is received well into the future (post 2019) and therefore has a significantly lower present value.

As noted above, Option 4 is quite different, both in terms of land use (type and intensity) and infrastructure requirements. These two features are clearly illustrated in Table 6.1 and result in significantly lower estimates for both revenue and outlays.

Overall, Options 1, 2 and 3 are shown to be financially viable, in terms of demonstrating positive net

present value using a 4 per cent real discount rate. Apart from meeting this criterion, it is useful to examine the peak cash exposure of each Option, in other words, the maximum amount of funding that would be required at any one time. This is a useful measure of risk. Options 1, 2 and 3 all have a peak cash exposure of around \$234 million whilst Option 4 has a substantially lower cash exposure (reflecting the smaller degree of infrastructure work) of \$144 million.

Table 6.1

Financial Evaluation of Options

\$million, 1990 prices

	Revenue	Costs	Net Present Value (4%)
Option 1	1186	541	127
Option 2	862	541	74
Option 3	827	541	66
Option 4	351	371	-11

In undertaking this sort of financial analysis, based on a number of assumptions, it is useful to examine the impact of changes in the most important assumptions, in this case the assumed land values and the cost of infrastructure. The sensitivity of the results to changes in these assumptions is illustrated in Table 6.2. The Table indicates that for Option 2, if projected land values were 10 per cent lower than anticipated in the base case, the net present value of the development would fall by about \$42 million, from \$74 million to \$32 million. On the other hand, if costs were reduced by 10 per cent there would be a positive impact of \$35 million. It should be noted that the impact

on the net present value would be of an identical magnitude if land values and costs were respectively 10 per cent higher.

Table 6.2

Sensitivity of Options

Net Present Value (4%)
\$million, 1990 prices

	Opt. 1	Opt. 2	Opt. 3	Opt. 4
Base Case (from Table 6.1)	127	74	66	-11
Costs reduced by 10%	162	109	101	14
Revenues reduced by 10%	79	32	25	-34

The impact of using a higher real discount rate has also been examined. In the case of Option 2, using a 6 per cent real discount rate (rather than 4 per cent used in Tables 6.1 and 6.2) would result in the net present value declining by \$55 million from \$74 million to \$19 million.

The Options are most sensitive to changes in the discount rate. In terms of costs and revenues, the impact on net present value is greater when reducing revenues than reducing costs. Nevertheless, Table 6.2 shows that Options 1, 2 and 3 remain viable even if costs are increased by 10 per cent or revenues reduced by 10 per cent.

Table 6.3, at the end of this section, shows the detailed cash flow analysis for one Option, Option 2. A similar analysis has been undertaken for all of the Options.

6.3: Traffic Analysis

The type and intensity of land use in the Core Area will impact upon the transportation needs of the area. These needs have been investigated for each of the Strategic Options. Several broad conclusions can be drawn and these are outlined below. It is also worth noting that whilst most of the discussion and sensitivity analysis has been focused on Option 2, the same broad conclusions apply to Option 1 and 3.

The Western Bypass could be extended early to the West Gate Freeway in order to relieve traffic volumes on the Footscray Road duplication, Spencer Street and King Street. The Footscray Road duplication, connecting to Charles Grimes Bridge, will not be an adequate alternative to the Western Bypass extension in the medium or long term. This is because the capacities of the intersections of the Footscray Road duplication with Flinders Street Extension, and Spencer Street with Flinders and Collins Streets are quickly exceeded, because of the shared through and local access functions of the duplication.

Extension of the Bypass will keep long term traffic volumes in Footscray Road duplication down to about the same as Footscray Road currently carries, but with a lesser proportion of trucks. The Footscray Road duplication, however, does reduce volumes significantly on the waterfront boulevard created on the existing alignment of Footscray Road. In the long term, volumes there are likely to be less than those currently on Batman Avenue between Swanston Street and Swan Street.

Dudley Street is a key element of the road network linking the Docklands core to the north-west.

Although the volumes of traffic generated by Option 3 will be approximately 90 to 95 per cent of volumes for Option 2, the broad conclusions above will hold. The need for a Western Bypass extension will not be significantly delayed because the connection of the Western Bypass to Footscray Road, the implementation of CATS and the normal, but growing, level of traffic on Footscray Road is enough to justify the extension.

The traffic volumes generated in Option 1 are likely to be significantly greater than in Option 2 and will require a more extensive local and arterial road network to achieve the same level of traffic efficiency.

The road network envisaged in Option 4 would result in a steady build up of traffic in Footscray Road (along the waterfront, since there is no duplication of Footscray Road in Option 4) until the Western Bypass is constructed. This increased volume is acceptable only because of the open space style of development in the vicinity of Footscray Road.

6.4: Non-Financial Evaluation

The foregoing financial analysis of the four Strategic Options has some inherent limitations, the most significant being that it is impossible to include all of the relevant considerations; some factors are simply too difficult to measure or value. Options which perform better on financial criteria may be less desirable on social, environmental, urban design or other non-financial criteria.

This section provides an illustrative assessment of the Options against various non-financial criteria. This assessment is

confined to the Core Area only. The criteria used in this assessment are not intended to be comprehensive; public consultation and further planning work will identify other criteria and refine the assessments.

Criterion 1: Minimises overshadowing of water and open spaces

Option 4 performs best against this criterion as it involves no overshadowing. Options 1, 2 and 3 would all result in some overshadowing in Victoria Dock South. Option 1 performs worst because it would result also in overshadowing of Victoria Dock North.

Criterion 2: Preservation of important views and vistas

Option 1 would perform worst against this criterion because it could result in a wall of buildings along the Footscray Road duplication which could obstruct views from the North-East and the CAD. Option 4 would maximise views in and out of Docklands because of lower building heights, and open space west of Footscray Road.

Criterion 3: Compatibility of land uses with the physical characteristics of adjacent areas including the CAD

Options 1, 2 and 3 include housing next to industrial areas which could be incompatible. Option 4 includes parkland which would provide an effective buffer zone between the Port area and the CAD extension.

All Options are compatible with the CAD because they involve replication of CAD type uses in the fringe area west of Spencer Street.

Criterion 4: Provides physical linkages with surrounding areas

All Options provide linkages to the CAD, and a new downstream link across the river.

Criterion 5: Maximises public use of and access to the waterfront

Option 4 provides maximum access to the waterfront but potentially lacks a focus of activity capable of attracting people to the area.

Option 1 has potential to provide public access, although public use will depend on the types of activity encouraged.

Options 2 and 3 are similar to Option 1 except that the residential use of Victoria Dock North may constrain use of this area by the wider community.

Criterion 6: Respects the city grid pattern

In Options 1, 2 and 3 the city grid pattern is replicated and modified so that the east-west streets of the grid, with the exception of LaTrobe Street, turn and cross the Footscray Road duplication at right angles to focus on Victoria Dock.

In Option 4, the city grid is maintained to Footscray Road.

Criterion 7: Effect on road traffic capacity

Under Options 1, 2 and 3, the proposed road network is capable of accommodating the projected traffic demand. However, the higher intensity of development under Option 1 indicates that there would be less spare capacity than under Options 2 and 3.

Under Option 4, the proposed road network is capable of accommodating the projected traffic demand.

Criterion 8: Effect on amenity of traffic generated

Under Option 4, low levels of amenity would occur along Footscray road. This would be partially compensated for by the extensive open space available under this Option.

Under Options 1, 2 and 3, low levels of amenity would occur along the Footscray Road duplication but this would enable a significant improvement in the level of amenity along the waterfront and existing Footscray Road.

For all Options, amenity would improve with the construction of the proposed Western Bypass extension to the West Gate Freeway by reducing through traffic and, in particular, trucks.

Criterion 9: Maximises public transport usage

All Options have the same potential to maximise public transport usage.

Criterion 10: Maximises activity out of business hours

Options 1 and 2 would generate relatively high levels of out of hours activity because they provide greater opportunities for tourism and leisure related developments.

Option 3 would maximise out of hours activity through the provision of a relatively higher level of housing.

Option 4 would encourage passive recreation on weekends, although some active recreation and other leisure and entertainment facilities could be provided.

Criterion 11: Compatibility of activity mix

Option 1 would require careful attention to the potential conflict between office development and housing in Victoria Dock North.

The residential and campus activities proposed for Victoria Dock North under Options 2 and 3 are highly compatible.

Compatibility in the Victoria Dock South area of Options 1, 2 and 3 is dependent upon the relationship between the tourism/leisure and residential functions in particular.

The land use mix is compatible under Option 4.

Criterion 12: Maximises provision of open space

Options 1, 2 and 3 are very similar except that under Options 2 and 3 the campus area of Victoria Dock North is developed at a lower density than under Option 1 and therefore would have a stronger sense of open space.

Option 4 maximises the provision of open space.

All Options would include a number of small open spaces of an urban character within the developed areas.

Criterion 13: Maximises housing.

The potential housing yields for each of the Options is provided in the following table. Table 6.4 shows that Option 3 provides the largest amount of housing

Table 6.4

Housing Yields

	Option 1.	Option 2.	Option 3.	Option 4.
Residential: Total floor space (%) ⁽¹⁾	16%	29%	35%	4%
Indicative no. of dwellings (2)	2700	3300	3900	250

(1) Assumes that one third of mixed use land is devoted to residential use and that residential building has an average plot ratio of 1:1.

(2) Assumes average dwelling density of 67 dwellings per hectare (net). This is slightly higher than typical densities occurring in Melbourne's inner suburbs.

6.5: Variations to Options

As noted earlier, Options 1, 2 and 3 are assumed to have very similar infrastructure solutions in terms of road systems, location of Spencer Street platforms and so on. As a result, Table 6.1 does not provide a measure of the impact of different approaches to these issues. These are worth testing because, apart from offering more aesthetically appealing outcomes, some of the alternative, more expensive solutions will also generate additional revenue, by releasing land of greater quality or quantity.

These effects have been quantified by examining a number of variations to the infrastructure in Options 1, 2 and 3. For the purposes of this analysis, Option 2 is adopted as the base because, at this early stage, it is deemed to best meet all financial and non-financial criteria. However, the same variations could apply to the other Options and because the infrastructure is the same for Options 1, 2 and 3, the difference in net present value is identical. The results are summarised in Table 6.5. A brief description of the supplementary Options follows.

Option 2A: New North-South Arterial, with east-west roads bridging over the Footscray Road duplication

This variation involves building the Footscray Road duplication at grade with Collins Street, LaTrobe Street and Lonsdale Street bridging over the Footscray Road duplication and intersecting with the waterfront Footscray Road at grade. A platform road would be constructed above the duplication for local access.

Option 2A is viable with a net present value of \$31 million, as shown in Table 6.5, although costs are increased by \$94 million over the base case.

Decking the east-west streets over the Footscray Road duplication imposes constraints on local traffic distribution. Local exit and entry is restricted to two intersections, those of Footscray Road duplication with Flinders Street and LaTrobe or Dudley Streets. Without the Western Bypass extension to the West Gate Freeway, these intersections' capacities will be quickly exceeded, adding pressure to other routes such as Spencer and King Streets. Nevertheless, the decking solution provides a significant improvement to amenity.

Option 2B: Footscray Road as a tunnel, near its present alignment

This variation involves building a cut and cover tunnel for Footscray Road as an arterial road, just east of the present alignment, and building a local access road at grade above it. As noted in Section 5.2.1, the cost of this work would be about \$220 million.

As shown in Table 6.5, the increase in costs between Options 2 and 2B is around \$160 million, reflecting the tunnelling cost, whereas revenue increases by only \$50 million, reflecting a slight increase in saleable land. There is, therefore, a significant fall in the net present value of Option 2B compared with Option 2.

The introduction of a tunnel under Footscray Road will relieve the area of visible through traffic with obvious benefits to amenity. However, the tunnel restricts local traffic exit from and entry to the Core Area to the intersections of Footscray Road with Flinders Street and LaTrobe Street or Dudley Street. These intersections will be heavily used and their capacities quickly exceeded without the extension of the Western Bypass to the West Gate Freeway - that is, the tunnel is not an alternative to the Western Bypass extension.

Option 2C: Spencer Street Station platforms re-located to the west and underground

This variation involves relocating the tracks and platforms from Spencer Street Station to the west. It allows the Collins Street extension to be at grade and also releases greater quantities of land on Spencer Street. The major disadvantages are the considerable cost of moving the tracks (almost \$500 million) and the lengthy construction time (about 10 years).

In the final analysis, even a substantial increase in projected revenue in this option is unable to cover the increase in costs, and the net present value of Scheme 2C is \$245 million lower than for Option 2.

Option 2D: Victoria Dock developed early

In Option 2, Victoria Dock is developed in about 2010 after the PMA has vacated its facilities at the end of their useful lives. No compensation is therefore paid to the PMA. In Scheme 2D, Victoria Dock is developed earlier, from about 1996, after the PMA's facilities are relocated. Compensation is assumed to be paid to the PMA for the early

redevelopment of its facilities. Land release in Victoria Dock is market demand driven.

Costs increase by \$130 million, which is principally compensation to the PMA. Revenue is unchanged. Thus, the net present value is reduced to negative \$36 million. Redevelopment of Victoria Dock at a time later than 1996 but before 2010 will yield a small positive net present value, indicating what could perhaps be regarded as an "optimum" date for redevelopment.

Table 6.5

Financial Evaluation of Options 2 and 2A to 2D \$million, 1990 prices

	Revenue	Costs	Net Present Value (4%)
Option 2	862	541	74
Option 2A	866	635	31
Option 2B	911	702	-34
Option 2C	986	1029	-171
Option 2D	862	671	-36

Table 6.3 Cash Flow Analysis Option 2

DATA INPUT MATRIX	NET DEVELOPABLE	AV. LAND VALUE	ANNUAL LAND	PLOT	AV FLOOR AREA	ANNUAL	TOTAL	SALES REV	FIRST YEAR	YEARS
LAND USE ELEMENTS	LAND AREA (SQ M)(2)	(\$psm)(1)(3)	TAKE-UP(SQ M)(4)	RATIO	PER LOT (SQ M)	TAKE-UP	F/S (SQ M)	ESCAL'N (PA)	OF TAKE-UP	SUPPLY
CAD OFFICES/RETAIL	95838	3500	4000	6	24000	24000	575025	0.0%	1996	24
OFFICES	106165	1250	3000	1	3000	3000	106165	0.0%	1996	35
MIXED USE (RESIDENTIAL)	7445	500	30000	1	30000	30000	7445	0.0%	1996	0
MIXED USE (RETAIL)	7445	1000	5000	1	5000	5000	7445	0.0%	1996	1
MIXED USE (OFFICE)	7445	1750	3500	3	10500	10500	22334	0.0%	1996	2
EXHIBITION	40800	500	12000	1	12000	12000	40800	0.0%	1996	3
EDUC/RESEARCH/INSTITUTIONS	160565	250	25000	1	25000	25000	160565	0.0%	1996	6
RESIDENTIAL	182665	500	30000	1	30000	30000	182665	0.0%	1996	6
OFFICE/WAREHOUSE	81022	350	5000	1	5000	5000	81022	0.0%	1996	16
VIC DOCK OFFICES	19500	1750	3500	3	10500	10500	58500	0.0%	2012	6
VIC DOCK RETAIL	10500	1000	5000	1	5000	5000	10500	0.0%	2012	2
VIC DOCK/STH WHARF RESIDENTIAL	290250	500	30000	1	30000	30000	290250	0.0%	1996	10
INFRASTRUCTURE (7)(8)	CONSTRUCTION	COST	YEAR OF	CONSTRUCTION						
	COST(\$M)(1)	ESCALATION (PA)	COMMENCEMENT	DURATION (YEARS)(6)						
Rail										
Fast Freight and Parcels	32.0	0.0%	1992	2						
Webb Dock Rail Link (Construct)	21.0	0.0%	2020	3						
Melbourne Yard (Clearance)	16.0	0.0%	1993	1						
Webb Dock Rail Link (Realign)	0.1	0.0%	1993	1						
Standard Gauge Line (Relocate)	8.0	0.0%	1995	1						
Standard Gauge Flyover (Demolish)	1.0	0.0%	1995	1						
Webb Dock Rail Link (Remove)	0.1	0.0%	2020	1						
South of Reversing Loop (Rearrange)	2.5	0.0%	1994	1						
Locomotive Maintenance Depot	5.0	0.0%	1994	1						
Multi Modal Interchange (5)	0.0	0.0%	1995	4						
Infra. Maintenance Depot	3.0	0.0%	1992	1						
Trams (Collins Street)	4.0	0.0%	1995	2						
Trams (Hawke Street)	4.0	0.0%	1995	2						
Port										
Land & Lease Comp (Nth of Dudley Street)	1.0	0.0%	1994	1						
Maintenance Depot	0.0	0.0%	2020	2						
Vic Dock 16-24/Sth Wharf 21-26	0.0	0.0%	2020	4						
Road										
Old Footscray Road (Bourke/Flinders Streets)	17.8	0.0%	1995	1						
Collins Street Extension	30.6	0.0%	1994	3						
Local Roads (Vic Dock North)(Nth)	12.9	0.0%	1995	1						
Local Roads (Vic Dock North)(Sth)	10.6	0.0%	2020	2						
Local East/West Roads (South of Latrobe St)	13.8	0.0%	1995	2						
Local East/West Roads (North of Latrobe St)	5.3	0.0%	1995	25						
Local Roads (Appleton Dock)	31.8	0.0%	1996	10						
North South Port Road	28.5	0.0%	2020	4						
Footscray Road Duplication	50.9	0.0%	1994	2						
Street Extension	21.8	0.0%	1995	2						
Latrobe Street Extension	32.5	0.0%	2010	2						
Services	14.4	0.0%	1994	3						
Central Pier	0.0	0.0%	1992	1						
Demolition/Site - Clean Up	21.1	0.0%	1994	2						
Canals/Open Space	18	0.0%	1994	2						
PMA Relocation-Vic Dock	0	0.0%	2010	2						
PMA Relocation-Sth Wharf	0	0.0%	2010	5						
Clean Up-Vic Dock	20	0.0%	2011	2						
Infrastructure-Vic Dock	100	0.0%	2010	3						
PMA Land Compensation-Vic Dock	15	0.0%	2011	1						

(SMILLIONS)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
COSTS	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Rail																			
Fast Freight and Parcels			-16.00	-16.00															
Webb Dock Rail Link (Construct)																			
Melbourne Yard (Clearance)				-10.00			-6.00												
Webb Dock Rail Link (Realign)				-0.10															
Standard Gauge Line (Relocate)						-8.00													
Standard Gauge Flyover (Demolish)						-1.00													
Webb Dock Rail Link (Remove)																			
South of Reversing Loop (Rearrange)					-2.50														
Locomotive Maintenance Depot					-5.00														
Multi Modal Interchange (6)						0.00	0.00	0.00	0.00										
Infra. Maintenance Depot			-3.00																
Trams (Collins Street)						-2.00	-2.00												
Trams (Hawke Street)						-2.00	-2.00												
Port																			
Land & Lease Comp (Nth of Dudley Street)					-1.00														
Maintenance Depot																			
Vic Dock 16-24/Sth Wharf 21-26																			
PMA Compensation-Vic Dock			0.00	0.00															
PMA Compensation-Sth Wharf																			
Clean Up-Vic Dock																			
Infrastructure-Vic Dock/Sth Wharf						-4.33	-4.33	-4.33											
PMA Land Compensation-Vic Dock																			
Road																			
Old Footscray Road (Bourke/Flinders Streets)						-17.82													
Collins Street Extension					-10.22	-10.22	-10.22												
Local Roads (Vic Dock North)(Nth)					-12.92														
Local Roads (Vic Dock North)(Sth)																			
Local East/West Roads (South of Latrobe St)						-6.92	-6.92												
Local East/West Roads (North of Latrobe St)						-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21
Local Roads (Appleton Dock)							-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18	-3.18
North South Port Road																			
Footscray Road Duplication					-25.47	-25.47													
Street Extension						-10.89	-10.89												
Latrobe Street Extension																			
Services																			
Central Pier			0.00																
Canals/Open Space					-6.00	-6.00													
Demolition/Site Clean Up					-10.55	-10.55													
SUB-TOTAL COSTS	0.00	0.00	-19.00	-26.10	-65.54	-123.14	-50.56	-7.73	-3.40	-3.40	-3.40	-3.40	-3.40	-3.40	-3.40	-3.40	-0.21	-0.21	-0.21
REVENUES																			
CAD OFFICES/RETAIL							14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
OFFICES							3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
MIXED USE (RESIDENTIAL)							3.72												
MIXED USE (RETAIL)							5.00	2.45											
MIXED USE (OFFICE)							8.13	6.13	0.78										
EXHIBITION							6.00	6.00	6.00	2.40									
EDUC/RESEARCH/INSTITUTIONS							8.25	6.25	6.25	6.25	5.18								
RESIDENTIAL							15.68												
OFFICE/WAREHOUSE							1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
VIC DOCK OFFICES																			
VIC DOCK RETAIL																			
VIC DOCK/Sth WHARF RESIDENTIAL								15.00	6.00										
SUB-TOTAL REVENUES	0.00	0.00	0.00	0.00	0.00	0.00	62.28	55.32	38.53	28.15	24.68	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
BEFORE TAX & BEFORE FINANCE																			
NET CASH FLOW	0.00	0.00	-19.00	-26.10	-65.54	-123.14	11.72	47.59	35.13	24.75	21.28	16.10	16.10	16.10	16.10	16.10	19.29	19.29	19.29
CUMULATIVE CASH FLOW	0.00	0.00	-19.00	-45.10	-110.64	-233.78	-222.06	-174.47	-139.34	-114.59	-93.31	-77.21	-61.10	-45.00	-28.90	-12.79	6.49	25.78	45.07
MARGIN:	320.86																		
NPV @ 4%:	74.31																		
NPV @ 6%:	18.87																		
NPV @ 8%:	-15.09																		
IRR:	7.0%																		
SENSITIVITY TEST																			
REDUCE REVENUES BY 10%																			
REDUCE COSTS BY 10%																			

(\$MILLIONS)	38	39	40	41	TOTALS
COSTS	2028	2029	2030	2031	
Rail					
Fast Freight and Parcels					-32.00
Webb Dock Rail Link (Construct)					-21.00
Melbourne Yard (Clearance)					-16.00
Webb Dock Rail Link (Realign)					-0.10
Standard Gauge Line (Relocate)					-8.00
Standard Gauge Flyover (Demolish)					-1.00
Webb Dock Rail Link (Remove)					-0.10
South of Reversing Loop (Rearrange)					-2.50
Locomotive Maintenance Depot					-5.00
Multi Modal Interchange (6)					0.00
Infra. Maintenance Depot					-3.00
Trams (Collins Street)					-4.00
Trams (Hawke Street)					-4.00
Port					
Land & Lease Comp (Nth of Dudley Street)					-1.00
Maintenance Depot					0.00
Vic Dock 16-24/Sth Wharf 21-26					0.00
PMA Compensation-Vic Dock					0.00
PMA Compensation-Sth Wharf					0.00
Clean Up-Vic Dock					-20.00
Infrastructure-Vic Dock/Sth Wharf					-100.00
PMA Land Compensation-Vic Dock					-15.00
Road					
					0.00
Old Footscray Road (Bourke/Flinders Str)					-17.82
					0.00
Collins Street Extension					-30.65
Local Roads (Vic Dock North)(Nth)					-12.92
Local Roads (Vic Dock North)(Sth)					-10.61
Local East/West Roads (South of Latrobe					-13.85
Local East/West Roads (North of Latrobe					-5.31
Local Roads (Appleton Dock)					-31.84
North South Port Road					-26.54
Footscray Road Duplication					-50.95
Street Extension					-21.78
Latrobe Street Extension					-32.49
Services					-14.40
Central Pier					0.00
Canals/Open Space					-18.00
Demolition/Site - Clean Up					-21.10
SUB-TOTAL COSTS	0.00	0.00	0.00	0.00	-540.96
REVENUES					
CAD OFFICES/RETAIL					335.43
OFFICES	3.75	3.75	3.75	1.46	132.71
MIXED USE (RESIDENTIAL)					3.72
MIXED USE (RETAIL)					7.45
MIXED USE (OFFICE)					13.03
EXHIBITION					20.40
EDUC/RESEARCH/INSTITUTIONS					40.14
RESIDENTIAL					91.33
OFFICE/WAREHOUSE					28.36
VIC DOCK OFFICES					34.13
VIC DOCK RETAIL					10.50
VIC DOCK/Sth WHARF RESIDENTIAL					144.63
SUB-TOTAL REVENUES	3.75	3.75	3.75	1.46	861.82
BEFORE TAX & BEFORE FINANCE					
NET CASH FLOW	3.75	3.75	3.75	1.46	320.86
CUMULATIVE CASH FLOW	311.90	315.65	319.40	320.86	
MARGIN:					
NPV @ 4%:					
NPV @ 6%:					
NPV @ 8%:					
IRR:					

DTF FLOORSPACE CALCULATION											
		AT GRADE	AIR RIGHTS	AT GRADE	AIR RIGHTS		AT GRADE	AIR RIGHTS		AT GRADE	
BLOCK	LAND USE	GROSS LAND	GROSS LAND	NET DEVEL	NET DEVEL	PLOT RATIO	POTENTIAL	POTENTIAL	TOTAL POTENTIAL	YEARS	YEAR OF
		AREA (SQ M)	AREA (SQ M)	AREA (SQ M)	AREA (SQ M)		FLSPACE (SQ M)	FLSPACE (SQ M)	FLSPACE (SQ M)	SUPPLY	RELEASE
1	CAD OFFICES	0	21850	0	18573	6	0	111435	111435		
2	AUST POST	0	0	0	0	6	0	0	0		
3	CAD OFFICES	1600	0	1360	0	6	8160	0	8160	0.3	2014
4	CAD OFFICES	0	18525	0	15748	6	0	94478	94478		
5	CAD OFFICES	10450	0	8883	0	6	53295	0	53295	2.2	2018
6	CAD OFFICES	6300	0	5355	0	6	32130	0	32130	1.3	2011
7	CAD OFFICES	0	19000	0	16150	6	0	96900	96900		
8	CAD OFFICES	7600	0	6460	0	6	38760	0	38760	1.6	2016
9	CAD OFFICES	14250	0	12113	0	6	72675	0	72675	3.0	1996
10	CAD OFFICES	0	18000	0	15300	6	0	91800	91800		
11	EXHIBITION	48000	0	40800	0	1	40800	0	40800	3.4	1996
12	CAD OFFICES	32200	0	27370	0	6	164220	0	164220	6.8	1999
13	CAD OFFICES	7600	0	6460	0	6	38760	0	38760	1.6	2015
14	CAD OFFICES	7600	0	6460	0	6	38760	0	38760	1.6	2013
15	CAD OFFICES	8050	0	6843	0	6	41055	0	41055	1.7	2010
16	CAD OFFICES	8550	0	7268	0	6	43605	0	43605	1.8	2008
17	CAD OFFICES	6150	0	5228	0	6	31365	0	31365	1.3	2006
18	CAD OFFICES	2400	0	2040	0	6	12240	0	12240	0.5	2006
19	MIXED USE	0	0	0	0	1 to 3	0	0	0		
20	MIXED USE	7600	0	6460	0	1 to 3	10788	0	10788	0.2	1996
21	MIXED USE	7600	0	6460	0	1 to 3	10788	0	10788	0.2	1996
22	MIXED USE	6700	0	5695	0	1 to 3	9511	0	9511	0.1	1996
23	MIXED USE	4275	0	3634	0	1 to 3	6068	0	6068	0.1	1996
24	MIXED USE	100	0	85	0	1 to 3	142	0	142	0.0	1996
25	MIXED USE	0	0	0	0	1 to 3	0	0	0		
26	MIXED USE	0	0	0	0	1 to 3	0	0	0		
27	OFFICE	42000	0	35700	0	1	35700	0	35700	11.9	1996
28	OFFICE	28000	0	23800	0	1	23800	0	23800	7.9	2008
29	OFFICE	29900	0	25415	0	1	25415	0	25415	8.5	2016
30	OFFICE	25000	0	21250	0	1	21250	0	21250	7.1	2024
31	EDUC/INSTIT	142000	0	120700	0	1	120700	0	120700	4.8	1996
32	RESIDENTIAL	106000	0	90100	0	1	90100	0	90100	3.0	2020
33	EDUC/INSTIT	46900	0	39865	0	1	39865	0	39865	1.6	2020
34	RESIDENTIAL	72000	0	61200	0	1	61200	0	61200	2.0	2023
35	RESIDENTIAL	22500	0	19125	0	1	19125	0	19125	0.6	1996
36	RESIDENTIAL	14400	0	12240	0	1	12240	0	12240	0.4	1997
37	OFFW/HOUSE	20800	0	17680	0	1	17680	0	17680	3.5	1996
38	OFFW/HOUSE	18000	0	15300	0	1	15300	0	15300	3.1	2000
39	OFFW/HOUSE	56520	0	48042	0	1	48042	0	48042	9.6	2003
MMI	OFFICE	32000	38000	27200	32300	6	163200	193800	357000	6.8	
TOTALS		843045	115375	716588	98069		1346739	588413	1935152		
SUMMARY TABLE											
CAD OFFICES	AT GRADE	112750	77375	95838	65769	6	575025	394613	969638		
OFFICES		124900		106165		3	106165		106165		
MIXED USE		26275		22334		1 to 3	37297		37297		
EXHIBITION		48000		40800		1	40800		40800		
EDUC/INSTIT		188900		160565		1	160565		160565		
RESIDENTIAL		214900		182665		1	182665		182665		
OFFICE/WAREHOUSE		95320		81022		1	81022		81022		
MMI		32000	38000	27200	32300	6	163200	193800	357000		
SUB-TOTAL		843045	115375	716588	98069		1346739	588413	1935152		
VIC DOCK/S WHARF											
	RESIDENTIAL	387000		290250		1	290250		290250		
	OFFICE	26000		19500		3	58500		58500		
	RETAIL	14000		10500		1	10500		10500		
OPEN SPACE		156000									
WATER		730000									
OTHER		710000									
SUB-TOTAL		2023000	0	320250			359250		359250		
TOTAL LAND BUDGET		2981420	(INCLUDES AIR RIGHTS LAND)								

Part Seven: Economic Development Opportunities

Development of Docklands could have a significant impact on the Victorian economy.

Some of the key opportunities, which relate both to existing uses and to new uses of land no longer used for port and transport activities, are therefore described in this section.

These opportunities lie in the following areas:

- Transport and Communications
- Education and Research
- Environment
- Media and Design

Part Seven: Economic Development Opportunities

7.1: Introduction

The present uses of Docklands are largely confined to the operations of the PMA, transport agencies such as V-Line, and private freight handling and forwarding agencies.

The nature of this economic activity contrasts sharply with that of immediately adjacent areas: the commercial, financial and retail activity of the CAD; the knowledge-intensive activity of research and educational establishments in the Knowledge Precinct; and increasingly diverse and technology-intensive industrial activity in the South/Port Technology Precinct. The Docklands area is surrounded also by a number of inner suburban residential areas in Footscray, Kensington, North Melbourne, and Port and South Melbourne.

The significance of Docklands for the development of the Victorian economy, therefore, relates partly to existing uses and partly to new uses of land no longer required or appropriate for port and transport operations. Strategic planning of the long-term development of the Docklands area itself could encompass a range of opportunities which collectively would have a significant impact on economic development in Victoria. These opportunities can be briefly summarised as follows:

Transport and Communications

Development of advanced transport and communications infrastructure and related services which would improve the competitive position of Melbourne and Victoria as a whole.

Education and Research

Development of a new location for education and research facilities which would reinforce Melbourne's role as a leading centre of education and research and stimulate

investment in knowledge-intensive activity.

Environment

Development of an attractive urban environment based on new, environmentally sensitive and resource efficient energy and waste management systems in conjunction with opportunities for inner urban residential accommodation.

This would provide both an exportable model for future urban development and realise significant cost savings in the provision of housing infrastructure as well as energy and waste management services.

Media and Design

Development of special purpose centres for media production and services and industrial design and innovation, aimed at increasing industry competitiveness in these areas.

A more detailed outline of specific opportunities and potential development is provided in the following pages.

7.2: Advanced Transport

While the centrality of Docklands as the nation's trade and transport hub has been a key element so far in the discussion of the physical planning for Docklands, the potential this situation offers for investment generating activities will be taken up at this point.

The development of Docklands in itself could generate a range of opportunities for developing advanced transport infrastructure and services.

7.2.1 Port Development

The role of the Docklands as the home of one of the nation's busiest ports underpins its importance to

the Victorian and Australian economy. The Port of Melbourne is the largest container and general cargo port in the Southern Hemisphere, handling 40 per cent of all containers handled in Australia.

By careful planning, by the use of advanced technologies and by improved training and industrial practices, there is the potential to achieve the highest level of efficiency and productivity among Australian Ports equal to a comparable sized world class Port overseas.

Long-term planning by the PMA acknowledges this potential and provides for a fundamental restructuring of port facilities.

The scope of this planning encompasses the following initiatives:

- the concentration of port container infrastructure on Swanson and Webb Docks;
- improved inter-modal transfer;
- improved freight handling using electronic data interchange; and
- increased scope for private sector participation.

Medium-term structural plans are aimed at upgrading and concentrating the Port's overseas operations at Swanson Dock and coastal operations at Webb Dock.

The PMA is co-operating with the PTC in formulating a port/rail strategy which could lead to significant improvements in inter-modal transfers. The possibility of removing specific railway sidings and concentrating transfer activity on a single major port/rail facility at the South Dynon freight terminal is currently being investigated.

The PMA is also currently engaged in developing a cost-benefit analysis of an electronic data interchange (EDI) based "port

community system" aimed at improving document transfer and freight handling.

The telecommunications infrastructure outlined in section 7.3.1 would support these developments.

7.2.2 Integrated Fast Freight Systems

Docklands' centrality to port and transport activity provides considerable opportunities for the development of integrated fast freight systems. Public transport agencies are pursuing a number of opportunities in these areas.

Both the PMA and the PTC are pursuing computer-based freight information systems which have the capacity to be integrated and, with developments in the formulation of a port/rail strategy, could contribute to significant improvements in inter-modal transfers.

The PTC is presently pursuing a Container Handling and Inventory Control System (CHICS) to facilitate and improve container handling within the South Dynon rail yard. The system will provide the ability to track containers through the transport system and also manage invoicing and contact with external clients.

Vic Roads is presently investigating implementation of a computerised vehicle tagging system.

Major transport companies have been actively engaged also in evaluating advanced freight tracking systems.

Integration of these systems could enable the speedy assignment of a container on a specific ship to a particular train or truck, reducing paper and eliminating delays, facilitating speedy movement of containers from back-up areas and thereby potentially reducing land

requirements and truck queues within the Port.

These systems would be enhanced by the development of new telecommunications infrastructure and services as described in 7.3.1.

Recent initiatives aimed at making rail freight more competitive and efficient could also contribute to the development of integrated fast freight systems.

These include:

- The Fast Freight Train proposal to upgrade rail freight services in the Melbourne-Sydney corridor;
- The National Freight Corporation proposal to improve the efficiency of interstate rail freight; and
- The South Dynon Terminal Development Program aimed at improving container transfer linkages.

7.2.3 Passenger Transport Infrastructure

Spencer Street Station, on the eastern boundary of Docklands, is a major passenger transport hub for the metropolis and for country and interstate rail services. The now largely disused railyards adjoining the station form part of the Core Area of land being considered for redevelopment in Docklands.

This location was also the subject of a detailed study completed in May this year which considered the proposed development of a new Transport Interchange.

The Transport Interchange, as it is presently envisaged, would combine existing country and metropolitan rail services, bus and coach services, the proposed Rapid Transit Link to Melbourne International Airport, and any additional interstate links such as the proposed Very Fast Train.

The proposed Rapid Transit Link would be designed to provide a

dedicated, high quality service between Tullamarine and the city. The optimum travel time would be 15 to 20 minutes duration. Current planning suggests such a system could be completed by 1995.

The proximity of the Core Area to water and potential for developing new activities on waterfront locations also presents the opportunity to introduce new and attractive forms of water-based transport which would facilitate the integration of Docklands with Melbourne's sports and cultural amenities, particularly upstream along the Yarra River.

7.2.4 Advanced Transport Research and Development

Coupled with the transport initiatives noted above is the need for research to support their development. Demand for such research is likely to fall in the following areas:

- electronic data communications and protocols to service automated freight systems;
- sensing and control technologies to service existing and new network systems;
- planning solutions for new forms of urban transport; and
- new materials to meet the demands in urban rapid transit systems and aerospace.

7.3: Telecommunications

Analysis of the telecommunications needs of present and future users in Docklands area, as well as the potential for facilitating linkages between education and research establishments and increased information access for the broader community, suggests there would be considerable advantages to be gained from establishing a high capacity telecommunications

network using advanced technology and capable of delivering a range of advanced communications and information services.

The provision of an intelligent telecommunications grid supporting port and transport activity, business, education and research, as well as social and cultural needs within Docklands, could have a significant impact on the development of Victoria's information and telecommunications industry and wider economy. The development of such an innovative telecommunications network would necessitate the introduction and accelerated application of new information and communications technologies, which could place Victorian industry at the forefront of developments in this field.

Development of specific applications based on such infrastructure would also create an economic advantage through increased efficiency, technology and skill development.

7.3.1 Docklands Telecommunications Network

The basic architecture of the proposed Docklands telecommunications network is set out in Figure 29. The network would be based on a high capacity, fibre optic ring connecting three switching nodes. This ring would accommodate both circuit switching and fast packet switching, the latter consisting of a Metropolitan Area Network (MAN) for the interconnection of customer Local Area Networks (LANs) and extension to Wide Area Networks (WANs), and operating in QPSX mode.

Network users including business, education and research establishments and residents would be connected using fibre optic cable instead of conventional copper cable. Integrated Services Digital Network

services could be made available in addition to the full repertoire of services available over telephone circuits. These services include:

- voice, electronic mail and voice mail;
- high speed data transmission;
- videotext;
- fast facsimile; and
- video conferencing and videophone.

The network would also incorporate a teleport facility providing direct satellite links to overseas locations and to the global switched network.

The network configuration and availability of such services would also provide the capacity for telematics and database communications.

This infrastructure would support a range of activity within Docklands.

In the field of port and transport activity, for example, the network could support advanced tracking systems used in managing the flow of containers, vehicles and trains throughout the Docklands area, as well as electronic data interchange aimed at reducing the volume of paperwork and consignment delays associated with freight handling and transfer.

The network could service businesses located in Docklands and in the CAD by providing an optic fibre connection along the proposed Collins Street extension.

Education and research centres would have access to worldwide databases, library extracts and graphic materials. The network would also have the capacity to provide distance education services.

Information services could be provided to the community through

"telematics" terminals in the home and in "information kiosks". Many of the services would be commercial but telematics affords the opportunity to supply community services such as library information, school schedules and syllabus, local news services, council information, transport timetables, telephone directory information and other public service information.

The various services and facilities made available through the Docklands network could be extended to neighbouring residential areas, business, research and education centres in other parts of Melbourne and to regional centres throughout Victoria.

For example, international communications linkages provided through the teleport facility could be extended to the CAD and beyond. The telematics services provided to Docklands residents could be extended progressively to homes in surrounding suburbs. The Docklands network could also be connected to the Victorian Government VISTEL network which has broad band connections to eighteen regional centres.

The estimated cost of the telecommunications infrastructure outlined above would be \$55 million for an initial network capacity of 20,000 lines, exclusive of long-distance capacity. The provision of simple telematics terminals for 12,000 homes is estimated to cost \$3.5 million.

7.3.2 Media and Communications Centre

The concept involves the establishment of a Centre for the development of applications in new media and communication technologies based on the proposed Media Centre which was originally part of Melbourne's Olympics bid but is now being assessed as a separate project. These applications

encompass the transmission of voice, image, text and data - either separately or in combination - and would be designed to provide enhanced services to meet growing business and community demands.

The Centre would be a platform for developing value added services including voice and electronic mail, video conferencing and, possibly, high definition television. The Centre would also function as a key node in the advanced telecommunications network serving the Docklands area.

A central element is the co-location of the following communications facilities:

- an international telecommunications linkage, using satellite and other high level capacity;
- a point of access for electronic information exchange, including options for new media and high capacity services based on main frame host computers on site;
- an "intelligent business centre" linking networks of "intelligent buildings".

The proposed Media Centre would provide an ideal venue for the development of such facilities.

7.4; Education and Research

Development of a new location for education and research facilities would reinforce Melbourne's role as a leading centre of education and research and stimulate investment in knowledge-intensive activity. Docklands has a number of intrinsic advantages in this context:

- proximity to existing concentrations of education and research and development activity including the Knowledge Precinct and South/Port Technology Precinct;

- proximity to the CAD;
- prominent and attractive waterfront location; and
- communications and computing infrastructure.

By building on these advantages, Docklands could be developed as an attractive location for new education and research facilities services and linked by advanced communications and computing infrastructure to existing centres of research.

The Victoria University of Technology, which is forming out of the amalgamation of RMIT, the Footscray Institute of Technology and the Western Institute, has signalled its intention to consider a Docklands campus. Other proposals which could be considered include:

- a Docklands Campus;
- an Information Technology Training Centre;
- a Telematics Centre;
- a Language and Cultural Resource Centre; and
- an Industrial Skills Training Centre

New research centres, such as those being pursued by the Strategic Research Foundation, alongside facilities developed by the private sector, could also be located in Docklands.

7.5: Environmental Management

The regeneration of Docklands provides an opportunity to implement alternative approaches and solutions to issues such as energy and resource conservation. Docklands could be planned and developed as a showcase urban environment to demonstrate and test new standards and technologies which address energy conservation,

renewable energy and waste minimisation.

Concepts which could be considered include an environmentally sustainable approach to site, infrastructure and land-use planning, as well as building design, and the use of resource efficient and environmentally benign energy and waste management systems.

Examples include:

- site planning to ensure maximum use of the natural environment: solar access, solar insulation (radiation), daylighting, prevailing winds;
- cogeneration systems using gas, industrial wastes or municipal solid wastes;
- passive solar heating and cooling, high efficiency HVAC (heating, ventilation and cooling) systems, building envelope design (insolation, orientation, windows, etc), district heating and cooling; and
- capture and re-use of waste heat and use of waste heat in cogeneration.

This could provide both an exportable model for future urban development and as well as energy and waste management services.

7.6: Media and Design

The southern extreme of the Greater Docklands area running through Port and South Melbourne encompasses and abuts a significant concentration of film and television studios, post-production facilities and video arts houses, and graphic arts and design studios. The Southbank area is also fast developing as a focus for performing arts and exhibition and museum space.

The following proposals are complementary to these developments and would gain substantial benefit from being located in close proximity to such activity. The aim of these proposals is to strengthen Melbourne's role as a focus of media and design expertise and to increase industry competitiveness in these areas.

7.6.1 Media Production and Services Centre

This facility would add a new, leading edge media production and services facility to Melbourne's already significant production capacity. The Centre would comprise a film and TV complex and aim to couple a low cost, high quality production house with expertise in developing media technologies. Specifically, the production house would aim to lead in developments such as special effects, computer graphics and visualisation technology, sound engineering and production systems at competitive costs.

7.6.2 National Centre for Innovation and Design

This is a proposal to establish a prominent display and information centre for industrial, scientific, high technology and consumer products that demonstrate design excellence and have worldwide market potential. In addition to holding permanent exhibitions of Australian design excellence and visiting exhibitions from around the world, the centre would provide networking and information services and conduct seminars for industry aimed at encouraging design culture.

Part Eight: Further Information

The following pages provide details of other consultation processes which may be of use to people with an interest in Docklands. Listings of other published information related to Docklands are also provided.

Part Eight: Further Information

8.1: Related Public Consultation Processes

8.1.1 Review of City of Melbourne Strategy Plan 1985

The Melbourne City Council, in conjunction with the Government (through the Department of Planning and Urban Growth) is updating the 1985 Strategy Plan for the City of Melbourne.

The first stage of the Strategy Plan review culminated in October 1990 with the release of a discussion paper called "Issues for the 90s". The paper examines the major issues for the planning and development of Melbourne over the next 10 - 15 years and suggests some possible directions and planning policies to meet the challenges involved.

A series of public forums have been held to discuss the issues raised and to give members of the community an opportunity to express their views and identify priorities. Staffed information desks at a number of festivals and community functions are providing a chance for more informal contacts and discussions with residents. Written submissions on the discussion paper are also welcome, preferably by the end of December 1990.

A Community Consultative Committee has been established to advise the Council on the subsequent stages of the Strategy Plan review. Its membership includes residents, business interests, community services organisations, representatives of major health and education institutions, road and public transport users' groups and environmental and heritage bodies.

Enquiries to:

Helen Martin 658 8432
Peter Robbins 658 8426
Melbourne City Council

8.1.2 Transport related Consultation Processes

The Central Area Transport Strategy

The draft Central Area Transport Strategy (CATS) is due to be released shortly. It has been produced after an extensive period of community consultation.

CATS is concerned with providing a high standard public transport system that will encourage commuters to leave their cars at home. Cross town trips will be made by bypassing the city. Freight will be moved quickly and easily. People who need to travel to the city by car will readily obtain short-term parking. A Pedestrian Priority Precinct centred on the civic and retail core will assist revitalisation of the city. Pedestrians and cyclists will move with safety within the central area in a pleasant environment.

Enquiries to:

Peter Grieg 860 2020
Vic Roads

Traffic in Melbourne Study

The Traffic in Melbourne Study, being undertaken by Vic Roads, will develop traffic strategies for Melbourne to the year 2000 and beyond. These strategies will support Government policies for social justice, environment and economic development.

They will add to and build on existing strategies that have been developed for public transport operation, central Melbourne access, road access and bicycles, such as Met Plan, CATS, METRAS and the State Bicycle Strategy.

You can write to the Study Team at the following address, no postage stamp required:

Freepost 53
The Traffic in Melbourne Study
4th Floor North Wing
60 Denmark Street
Kew Vic 3101

Or telephone the study team members listed below:

Don Purdue 860 2923
Chris Kearney 860 2921
Mike Sweetland 860 2924

The Victorian Transport Strategy

The Victorian Transport Strategy activities cover the development of a framework for integrated transport and land use planning. Strategic activities/projects are of at least regional scale, with overall significant impact on the transport sector and with strong cross-links between transport and land-use functions.

Enquiries to:
Oz Kayak 619 6655
Ministry of Transport

8.1.3 Ministerial Task Force on the Management of Hazardous Chemicals

The Ministerial Task Force on the Management of Hazardous Chemicals has been established to, in part, develop long term policies and strategies for the future management of the chemical industry in Victoria to achieve the economic and social objectives of the Victorian Government. The Ministerial Task Force, comprising eight Ministers, is chaired by the Hon. Neil Pope, MP.

An important feature of the Task Force will be consultation, through the establishment of a broadly based Consultative Committee.

The Committee's function will be to provide a balanced and representative view on the issues. Ministers of the Task Force will

meet with the Consultative Committee and individual members on a regular basis. The Committee is chaired by Ms Lynne Kosky who has an intimate understanding of the broad issues in relation to hazardous chemicals.

Enquiries to:
Ms Lynne Kosky
Chairperson
Consultative Committee of the
Ministerial Task Force on the
Management of Hazardous
Chemicals
Level 10
Nauru House
Melbourne Vic 3000

8.1.4 Victorian Ports Land Use Plan

The objective of this project is to ensure that appropriate port land is available to meet Victoria's long term trade needs. The plan will be a strategic document setting a framework for future development over the next 20 years. A State wide perspective has been adopted.

The Possibilities phase is due to be completed by 31 January 1991. An Options Paper will then be circulated for public comment before the Final Report is published in May 1991.

The Possibilities Paper and questionnaire are available from:
Ms Leigh Mackay
Manager Strategic Projects
Victorian Ports Land Use Plan
PO Box 4721
Melbourne Vic 3000

8.2: List of Associated Documents

The DTF has prepared a number of working papers on particular issues and aspects of Docklands. In some cases, these Working Papers contain detailed reports of analysis carried out within the DTF; others are a

summary of the work of the DTF or Consultants engaged by the DTF.

As part of the consultation process, these Working Papers and various Consultants' Reports, including reports commissioned by agencies other than the DTF and relevant to Docklands, will be made available to interested individuals and organisations who wish to examine particular issues in more detail.

Copies of the Working Papers may be obtained at a nominal charge from the following offices:

Docklands Task Force

1st Floor
Old Treasury Building
Spring Street
Melbourne Vic 3000
Phone: (03) 651 6500

Information Victoria
318 Little Bourke Street
Melbourne Vic 3000
Phone: (03) 663 3760

Consultants' Reports may be viewed at the Old Treasury Building. Copies of material contained in these Reports will be provided upon payment of an appropriate charge.

For further information, contact the DTF at the above address.

8.2.1 Working Papers

8.2.1.1. Environment

This paper discusses those issues of environmental importance which have influenced the planning work for Docklands so far and which will influence future planning and decisions.

These issues include land use and building form, building design and energy and waste management, air and water quality, provision and type of open space, movement systems and public transport, waste disposal and energy efficiency, hazardous materials management,

waterways management, the Greenhouse Effect and its possible implications, as well as relevant Government objectives and policies, especially the Conservation and Greenhouse Strategies.

8.2.1.2 Heritage

This Paper sets out the current status of studies and recommendations relating to buildings, sites and areas of heritage significance within the Greater Docklands Study Area. Studies include heritage and conservation studies carried out by State and Local Government agencies. The Paper lists buildings, sites and areas which are included on State or Local Government registers of historic places or are of heritage significance, including their heritage classification.

8.2.1.3 Residential Land Use

This Paper:

- identifies potential areas for residential land use within the Greater Docklands Study Area;
- identifies and discusses relevant policy considerations;
- determines a potential population yield;
- established market conditions for housing in Docklands;
- highlights some implementation mechanisms.

8.2.1.4 Options for the Webb Dock Rail Line

This Paper explores in detail the advantages and disadvantages of a number of alternative routes for the Webb Dock Rail Line. Routes are evaluated in terms of amenity, rail operations, port operations and cost.

8.2.1.5 Roads and Traffic

This Paper provides background to the road networks illustrated in this report. It discusses the development

and refinement of the various concepts considered, and the results of traffic modelling undertaken.

8.2.1.6 Financial Evaluation

This Paper establishes the criteria for financial evaluation of the four Strategic Options and presents a summary of assumptions made in undertaking financial analysis of the Options, and the results of financial analysis for each Option (including detailed cash flows).

8.2.1.7 Telecommunications Infrastructure and Services

This Paper provides a summary of various Working Papers on the potential for developing advanced information and communication systems in Docklands and a description of the telecommunications infrastructure and services which would be introduced in developing Docklands.

8.2.1.8 Spencer Street Station/Transport Interchange

This Paper consolidates work undertaken to date within the DTF and by external consultants on overcoming the physical barrier posed by the Spencer Street Rail Tracks and Station to development west of the CAD, and the related opportunity to redevelop Spencer Street Station as a major new Transport Interchange.

8.2.1.9 Comparative Analysis of Housing Infrastructure Costs

This Paper examines the costs of providing infrastructure to service residential development in Docklands, compared with fringe metropolitan areas.

8.2.2 Consultants' Reports

8.2.2.1 Land Surveys

Greater Docklands Land Use Survey

Docklands Task Force, March 1990

A comprehensive field survey of the Greater Docklands Study Area recording such factors as land use and building conditions in tabular and mapped form for each property.

Docklands Multifunction Polis Physical Planning Study Geotechnical Evaluation

Maunsell and Partners, April 1990

This report presents an overview of ground conditions known to exist in the Greater Docklands Study Area and the general constraints these conditions will impose on any new commercial and housing developments in the area.

The title denotes the fact that the study was undertaken in the context of preparations for the Victorian submission to the Multifunction Polis Feasibility Study. The report's findings are nonetheless valid for the Strategic Options canvassed in this report.

Summary of Ground Conditions in the Docklands Development Area

Neilson, July 1990

This report, commissioned by the Major Projects Unit, describes the geological formations occurring in the Docklands and indicates the potential for redevelopment across the area.

Docklands Study 1990: A comparative study of development costs associated with construction in the Greater Docklands Study Area and description of special conditions encountered within the area.

Stephenson & Turner, Victoria, November 1990

As the title suggest, the main concern of this report is a comparison of construction costs in Docklands. However, the report also provides an overview of geotechnical conditions in the area.

8.2.2.2 Infrastructure Planning

Docklands Task Force: Concept Study of a Moveable Rail Bridge Downstream of Appleton Dock

Maunsell & Partners, April 1990

This study addresses the feasibility of a rail crossing of the river at the southern end of East Swanson Dock.

Docklands Development: A Transport Overview

Docklands Task Force Transport Working Group, July 1990

This document reports the interim findings of a working group of representatives of the DTF and Victorian Transport agencies in regard to transport infrastructure proposals developed by the DTF. It should be noted that although the report was prepared in the context of Melbourne's candidature for the 1996 Olympics and preparations for the Victorian submission to the Multifunction Polis Feasibility Study, the various infrastructure proposals considered in the report remain valid and provide useful background to the discussion of physical infrastructure for the four Strategic Options in this report.

Docklands Task Force: Concept Study of Road and Rail Bridges Downstream of Victoria Dock

Maunsell & Partners, November 1990

This study outlines concepts for the construction of road and rail bridges to accommodate the possible extension of the Western Bypass to the West Gate Freeway and relocation of the Webb Dock Rail Line close to the proposed extension downstream of Victoria Dock. The concepts include broad design proposals, structural options and costings.

8.2.2.3 Spencer Street Railyards/Transport (Multi-Modal) Interchange

Spencer Street Yards Study

Professor David Yencken, May 1990

This study was commissioned by the Ministry of Transport to determine the future transport usage of Spencer Street Railyards. The study includes an analysis of existing functions at Spencer Street to establish which should remain and which could be relocated, and an assessment of future transports trends which could have a bearing on the site.

Spencer Street Multi-Modal Interchange Study

Connell Wagner & Daryl Jackson, August 1990

This study examines 3 options for the redevelopment of Spencer Street Station as a major new transport interchange with respect to the transport requirements and opportunities of such an interchange, potential development and urban design criteria, and relative infrastructure engineering costs.

**Transport Interchange (MMI):
Preliminary Investigation of a
Collins Street site**

Docklands Task Force, October 1990

Preliminary strategic planning for Docklands led the DTF to investigate the feasibility of locating the Transport Interchange on the current site of the Spencer Street Station, on a site bounded by Spencer Street and the westward extensions of Collins and Bourke Streets. This Paper describes the results of a preliminary investigation by the DTF to test the feasibility of the site in operational, access and urban design terms.

8.2.2.4 Heritage

**Places of Cultural Significance,
Multifunction Polis Investigation
Area**

Advice from the Department of Planning and Environment, March 1990

This advice consists of a list of identified buildings, areas and other places of cultural significance within the Docklands area and is based on various existing heritage studies.

Although sought in the context of preparations for Victoria's submission to the Multifunction Polis Feasibility Study, the advice provided relates entirely to heritage items in the Greater Docklands Study Area.

8.2.2.5 Contamination

**Melbourne Docklands
Redevelopment: Ground
Contamination Study (Volume 1
Report, Volume 2 Appendices)**

Camp, Scott, Furphy & Golder,
September 1989

This study was commissioned by the Victorian Government Major Projects Unit to assess ground contamination in the Docklands area in West Melbourne and the feasibility of site clean-up.

**Melbourne Docklands
Redevelopment: Ground
Contamination Overview Study**

Camp, Scott, Furphy & Golder, May 1990

This study provides an assessment of ground contamination in the Greater Docklands Study Area excluding the area previously studied on behalf of the Major Projects Unit.

8.2.2.6 Financial Studies

**Melbourne Docklands: Planning
Context and Financial
Implications**

Price Waterhouse and Wilson Sayer
Core, July 1990

This study was commissioned to determine the actual scope for development in the Docklands area in the context of competing opportunities for development in other areas, and whether such development would be financially viable.

**Docklands Study 1990: A
comparative study of
development costs associated
with construction in the
Docklands area, and a description
of special conditions encountered
within the area.**

Stephenson & Turner, Victoria
November 1990

This study examines the projected costs of constructing various types of buildings in the Docklands area including residential, industrial and commercial.

8.2.2.7 Telecommunications

Docklands Task Force: Report of the Information and Telecommunications Working Party, June 1990

This report sets out planning proposals for the provision of telecommunications infrastructure and services in the Docklands area. Attached to the report is a set of papers covering detailed aspects of this planning work. These papers were largely prepared in the context of Victoria's submission to the Multifunction Polis Feasibility Study but nonetheless have some relevance to the proposed infrastructure and services outlined in this report.

8.2.2.8 Miscellaneous

Docklands Task Force: The Establishment of a Technoport in Melbourne - an Initial Examination of the Issues

Maunsell & Partners, May 1990

This report examines and compares the Port of Melbourne with other similar ports around the world, examines productivity and future shipping trends, identifies possible productivity improvements and their relevance to strategic planning.

London Docklands - A Case Study for Melbourne

Dan Kolomanski Consultants, November 1990

This report examines a number of issues in the context of the London Docklands project including public and private investment in infrastructure, the role of the London Docklands Development Corporation in the project, success factors of docklands projects and options for private sector financing of the redevelopment of Melbourne's Docklands.

8.2.3. Documents Previously Published

Melbourne's Docklands - A Strategic Planning Framework

Ministry for Planning and Environment, August 1989

Melbourne's Docklands - A Strategic Planning Framework

Report on Public Consultation by Minister for Planning and Urban Growth, May 1990

Melbourne's Docklands - Progress Report

Major Projects Unit, May 1990

Melbourne Docklands

Committee for Melbourne, May 1990

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