

Melbourne Airport Master Plan 2003

Please note:

1. This Master Plan was prepared by Australia Pacific Airports (Melbourne) Pty Ltd as part of its internal strategic planning processes and in accordance with the provisions of Part 5 of the Airports Act 1996 ("the Act"), and the Regulations made under that Act and should be read in that context only.
2. The Master Plan is a revision of the previous Master Plan that was approved by the Minister in December 1998. The fundamental philosophies of the previous Master Plan are maintained in the revised plan.
3. Development strategies and scenarios in this Master Plan are based on certain assumptions and forecasts which have been prepared by Australia Pacific Airports (Melbourne) Pty. Ltd. to assist it in the strategic planning process, and to discharge its obligations under the Act. Therefore, the assumptions and forecasts should not be used or relied upon by any person for any other purpose.
4. This Master Plan is subject to change. Accordingly, the development strategies and scenarios detailed in it are indicative only, and their inclusion is not to be read as an assurance that any, or all of them, will occur.

Foreword

I am pleased to present Melbourne Airport's 2003 Master Plan which was approved by the Federal Minister for Transport and Regional Services on 7 September 2003.

This plan outlines our vision for Melbourne Airport's future. Melbourne Airport is an important part of the city and State, contributing to the growth of Victoria's economy through tourism, air freight and business development. Well thought out, planned development is our way of ensuring Melbourne Airport continues to meet the changing needs of airport users, local community and business.

Since privatisation, Melbourne Airport has achieved the highest rate of passenger growth of any major Australian airport. During that period we have overcome a number of huge challenges, including: the Asian crisis; the entry of two new domestic carriers; September 11, 2001 and the changes that flowed from that; and the collapse of the Melbourne-based airline Ansett.

During the last five years we have steadily been putting in place the development plans we outlined in the 1998 Master Plan. These include the completion of the Qantas Domestic Terminal extension, the building of the Hilton and Formule One Hotels, the building of the Menzies and DHL freight facilities, the construction of the BP/McDonald's service centre, ongoing provision of car park capacity and a number of commercial property projects including buildings for Laminex, Star Track Express, Willow Ware, Caterpillar, Gibson Freight, Jets Transport Express and a new building for the Australian Customs and Quarantine Service.

Using the Melbourne Airport Master Plan approved in 1998 as our foundation, we have been able to refine our direction, focus our efforts on key issues and once again open the forum for public discussion. This process of consultation will be ongoing with the Master Plan being reviewed every five years. We see it as part of the continuous and sustained improvement at the airport.

Through plans outlined here we aim to enhance our position as the gateway to Victoria and as a major generator of employment for the region. At the same time we recognise the need to successfully manage the interaction between a major transport hub and our residential neighbours.

We appreciate you taking the time to view our Master Plan and welcome any comments.



Chris Barlow
Chief Executive
Melbourne Airport

Melbourne Airport has prepared this document and an associated document, the "Melbourne Airport Environment Strategy" in accordance with procedures described in the Airports Act 1996.

"Melbourne Airport" is the registered business name of Australia Pacific Airports (Melbourne) Pty. Ltd.

Executive Summary

Melbourne Airport is the second busiest airport in Australia for passengers and provides the main aviation hub for the southern part of the continent. Located 22km north-west of the Central Business District, the Victorian Government recognises that the airport is Victoria's most important strategic site. It is a major contributor to the tourist and economic growth of Victoria. Although the airport has undergone substantial expansion since its opening in 1970, the site has the capacity to respond to the significant development opportunities that continuing growth in aviation activities will present.

The Master Plan covers the 20 year planning period as required by the Airports Act 1996 and provides the ability to capitalise on the potential of the airport site to serve Melbourne Airport's shareholders, industry stakeholders and the community. The planning for the next 20 years is consistent with longer term planning which provides a vision for the ultimate development of the airport.

The Master Plan is an update of the first Melbourne Airport Master Plan endorsed by the Federal Minister in December 1998. The changes that have been made are minor, largely reflecting changes in aviation industry structure (such as the collapse of Ansett) and actual changes in use that have occurred.

The Master Plan provides concept plans for use of the airport site in an environmentally acceptable manner and includes requirements for protection of the airport for current and future aircraft operations.

Master Plan Process

During the preparation of this Master Plan a program was established for extensive consultation with a wide range of industry stakeholders and representatives from Federal, State and Local Government. This consultation has continued the integrated approach to planning for Melbourne Airport which was established during previous planning cycles to develop the long term strategy for the airport.

The primary inputs to the Master Plan have been:

- Upper and lower aviation forecasts to year 2022/23 prepared by BAA plc. These forecasts indicate that by the year 2022/23 annual aircraft movements are expected to be between 229,000 and 295,000 (157,600 in 2001/02), annual passenger movements between 31.4 million and 43.7 million (16.48 million in 2001/02) and freight tonnage between 1,075,000 and 1,315,000 (331,000 tonnes in 2001/02);
- Information provided by a review of the airport's existing Master Plan. This review has covered airside and landside requirements, the assessment of aircraft inflight noise impacts and the adequacy of existing land use controls in the airport environs, surface access, and the requirements for engineering services;
- The adoption of ICAO Code F aircraft (up to 80m wingspan) as the design aircraft for airfield clearances and apron planning over the next 20 years. The largest aircraft code currently operating at the airport is Code E (B747). The new A380 aircraft, which is scheduled to commence operations in 2006/07 will be the first commercial Code F aircraft. The proposed Master Plan taxiway and apron system will still be able to accommodate Code G aircraft should they emerge in the future, with the application of operational management strategies; and
- The requirements of relevant legislation.

Using these inputs, overall integrated layouts for aviation, aviation support, commercial areas and surface access provisions have been proposed for the next 20 years and for the safe, secure and efficient long-term operation of the airport.

The proposed locations for the various facilities are presented in two drawings:

- A year 2022/23 Airport Development plan which provides in concept form the facility location requirements during the next 20 years (refer Figure 1.1). This is based on growth rates approximately midway between the upper and lower forecast; and

- An Ultimate Airport Development Concept plan which depicts the indicative aviation, aviation-related and commercial requirements for the airport site necessary to service the long term operating potential of the proposed four runway system (refer Figure 1.2).

Master Plan Features

Features of the airside planning are:

- Retention of the previously planned four runway configuration to provide for future development of wide-spaced parallel north-south and east-west runways as per the previous Master Plan; and
- Provision for future aprons and taxiway enhancements to service the growth in aircraft movements.

Features of the landside planning include:

- Further expansion of the existing international terminal to provide 20 aircraft gates (up to five Code F gates) and supporting passenger processing and retail areas;
- Provision to expand facilities for freight operations with provision for separate access for freight vehicles;
- Allowance for adequate apron areas to develop passenger and freight facilities in the longer term;
- Provision to expand facilities for domestic operators to provide access for new and existing domestic airlines within a single integrated terminal;
- Areas for expansion of heavy jet general aviation, airline maintenance, operational services and other types of aviation development; and
- Areas for commercial development.

The requirements for external access to the airport are kept under review by the State Government. The Western Ring Road project has provided a second major access to the airport site. City Link has delivered major improvements to access from the south-eastern suburbs and on the Tullamarine Freeway including a dedicated bus and taxi lane in each direction from Flemington Road. Other road improvements throughout the greater Melbourne area have enabled improved travel times to the airport from Regional Victoria.

The introduction of new, larger Skybus vehicles and associated priority traffic signalling has improved the service level travel times and frequency of this shuttle bus service to the CBD.

The previous Master Plan indicated two airport rail link options agreed with the State Government. As a result of an extensive public consultation process, the State Government has now indicated it does not wish to proceed with either of these but prefers a third option which is shown on the Master Plan (refer Figures 1.1 and 1.2). An underground rail station is planned between the multi-level car park and the present passenger terminals. As yet, no agreement has been reached with the State Government as to the extent to which the track through airport land is to be underground.

The Master Plan makes provision for road reservations and areas for vehicle and taxi/bus parking on airport.

Airport Protection

In 1992, the State Government introduced land use planning controls for the areas around Melbourne Airport which are expected to be adversely affected by aircraft noise over the life of the airport. The controls incorporate limitations on the numbers and types of uses that can be established within the noise affected zones and require that all new buildings be assessed for acoustic insulation requirements in accordance with the Australian Standard AS-2021. These restrictions were implemented to ensure that the citizens of Melbourne and the State can continue to enjoy, well into the future, the employment, commercial and tourism benefits that flow from having an efficient, 24-hour, curfew-free airport.

The other form of protection necessary for the immediate and long-term operation of an airport is the protection of its surrounding airspace from physical intrusions such as tall buildings or towers and non-physical intrusions such as industrial chimney discharges and bright lights. These matters are controlled by the Protection of Airspace Regulations which are administered by Local Government and Melbourne Airport.

Environmental Issues

The Master Plan also details environmental issues associated with the development projects documented. Melbourne Airport has a comprehensive environmental management program that ensures environmental issues are considered from the beginning of the project to the end.

1.0 Introduction

Location

Melbourne Airport is located 22km north west of the City of Melbourne's Central Business District and is the major gateway to the State of Victoria and Southern Australia for airline passengers and airfreight.

The original airport site was selected in 1959 and developed as the State's primary airport to cater for international and domestic passenger services, air freight and aircraft maintenance. International operations were transferred from Essendon Airport when Melbourne Airport was opened in 1970, with domestic operations following in 1971.

The airport is well situated in respect to major commercial/retail developments in the immediate surrounding and nearby population centres. In addition, air services support the major manufacturing base in the Melbourne area. Melbourne Airport has excellent transport linkages with regional areas and the Ports of Melbourne and Geelong.

The surrounding suburbs are easily accessible via the Western Ring Road to the Hume, Calder, Western and Princes Freeways.

Economic Benefit

In the 2001/02 financial year, Melbourne Airport handled 157,600 aircraft movements and 16.48 million passenger movements, of which 3.41 million were international originating and terminating passengers. Melbourne Airport is Australia's second ranking airport in terms of domestic and international passenger and freight throughput.

- 10,300 people were directly employed at Melbourne Airport in some 9,000 full time positions;
- Australian airlines account for more than two thirds of the total employment, followed by Air Traffic Control (9.3%), other Government Agencies (4.5%) and retail (4.1%);
- Melbourne Airport's position as the most efficient and profitable airport in Australia creates jobs and draws new production to Victoria. This superior efficiency has led to an estimated 5,000 additional jobs through the state economy and over \$500 million in Gross State Product (GSP) over and above what would be the case with average industry productivity; and

- Contributing to the efficiency of Melbourne Airport is the absence of a night-time curfew on operations, which in 2002/03 is estimated to contribute \$127 million in GSP and 2,860 jobs.

Land Availability

Facilities available for aircraft operations at present include a primary north-south runway 3,657 metres long and a secondary east-west runway with a length of 2,286 metres. Land acquisition to accommodate the future two runways will eventually increase the area of the airport site from 2,379 hectares today to approximately 2,647 hectares. Sufficient airport land is or will be available to provide for operational areas, terminals, aviation support and commercial facilities to match the airport's capacity potential. Of the 26 properties identified in the 1990 Melbourne Airport Strategy for acquisition, the majority have now been acquired by negotiation.

1990 Airport Strategy

In response to long range traffic forecasts covering the period 1990 to 2050, the airport's previous operator (the Federal Airports Corporation) and the State Government jointly developed a long term strategy for the airport's development and management. This strategy was formally endorsed by both Federal and State Governments in 1990 following an environmental impact study involving extensive community and industry consultation.

The Melbourne Airport Strategy provided a broad framework for orderly airport development, road and rail access and external land use control to protect the 24 hour, curfew-free operation of the airport. A key feature of the Strategy was provision for future development of wide-spaced parallel north-south and east-west runways to optimise hourly and annual capacities and operational flexibility.

1998 Master Plan

The 1998 Master Plan was developed in accordance with the findings of the Airport Strategy. Most importantly, it adopted the Airport Strategy recommendations for a future four runway airside system.

2003 Master Plan Review

This Master Plan has been prepared in accordance with the Airports Act 1996 and the Regulations made pursuant to the Act. Under the Act, the Master Plan is to relate to a planning period of 20 years. In order to meet the legislative requirements and position the airport to respond to the forecast growth in aviation traffic levels during the next 20 years, Melbourne Airport has undertaken a review of the airport's forward planning.

The review has been undertaken in consultation with airlines, Commonwealth and State organisations, Local Government, and other stakeholders. This consultation process has further strengthened the strong co-operative relationship between State Government, adjoining municipalities and Melbourne Airport, that has been built up over the last 15 years. Benefits to flow from these relationships include the development and introduction by the State Government of the Airport Environs Overlay to provide for future expansion of the airport and to protect its curfew-free status.

The Master Plan presents a concept for the ultimate development of the airport site and provides some more detailed concepts for the period covering the next 20 years. Proposals for development in response to growth in air traffic during this period are outlined. Future growth in traffic demand levels and the changing commercial needs of Melbourne Airport's customers will however, determine the extent and timing of particular projects. This review retains the fundamental concepts of the 1998 Master Plan in the 2003 Master Plan.

The Master Plan is a key document in ensuring the necessary balance between maintaining and expanding aviation facilities at high levels of service, whilst achieving a commercial return to Melbourne Airport's shareholders. It is a long term planning concept for safe, efficient and environmentally acceptable use of the airport site.

2.0 The Master Plan Approach

2.1 Airport Mission

The primary aim of master planning for Melbourne Airport is to establish medium and long term planning concepts for the airport site in accordance with the airport's Mission Statement, which is:-

To be one of the world's leading airport companies, and to fully realise Melbourne Airport's potential as an international gateway and hub for passengers and freight.

The principal objectives supporting the Mission Statement are:

- To ensure that airport operations continue to be safe and secure;
- To provide excellent customer service;
- To achieve cost-effective operations and offer competitive prices to our customers;
- To maximise the growth in shareholder value;
- To maximise the use of the airport to achieve the greatest economic benefit to Melbourne Airport, the aviation industry and the State of Victoria;
- To provide leadership in enhancing the whole of the airport experience;
- To develop Melbourne Airport in a way which is sensitive to the interests of the community within which it is located; and
- To develop its people and reward superior performance.

Implicit in the Mission Statement and principal objectives is a capability to efficiently use and develop the airport site for operational purposes and associated commercial activities in an environmentally acceptable manner.

2.2 Ultimate Development Concept

An important purpose of the Master Plan is to articulate a clear vision for the ultimate development of the airport so that the potential of the airport site is optimised to satisfy long term aviation needs and complementary commercial development. To achieve this objective, Figure 1.2 provides location details for proposed operational facilities consistent with optimal operation of the airport site. It also identifies areas for development of aviation support and commercial activities beyond the 20 year Master Plan period.

The basis of the Ultimate Development Concept for the airport site is the 1990 Airport Strategy and subsequent findings of the master planning and facility planning studies. It includes two additional runways with airside and landside areas available to support the full operating potential of a future four runway system.

Sufficient airport land is, or will be, available to progressively develop this concept and provide areas for associated commercial activities. The ultimate development concept is not time dependent and can flexibly respond to changes in aviation growth rates and development requirements.

The Ultimate Development Concept is fundamentally unchanged from the previous Master Plan.

2.3 Medium Term Concepts

The medium term master planning concept provides more detailed planning concepts within the context of the vision for ultimate development of the airport.

This planning has rested on important assumptions in the following areas:

- Aviation forecasts;
- Environmental requirements for major projects; and
- Provision by a range of suppliers of external infrastructure at the appropriate time.

2.4 Review by Melbourne Airport

Earlier studies examining issues and requirements associated with aircraft operations, surface traffic, airport land use and engineering services have provided essential inputs for the Master Plan review. However, the first task of the review was to update the aeronautical forecasts which are the principal drivers of the various airport business segments. Updated forecasts to 2022/23 have been the primary inputs to planning and capacity reviews for indicative provision of airside and landside infrastructure during the next 20 years.

For the landside part of the airport, the Regulations associated with the Act require that proposals for land use and related planning be described using State legislation planning terminology. Proposals for airport landside use have, therefore, been set out in a format consistent with the Victoria Planning Provisions (VPPs); refer Section 8.0.

An updated ANEF (Australian Noise Exposure Forecast) has been prepared after taking into consideration noise impacts from present aircraft operations and future operations during the various stages of proposed airfield development.

In addition, an example of the flight path data which is used in the preparation of the ANEF has been provided (refer Section 9.0).

Melbourne Airport, in reviewing the Master Plan, has been mindful of the content of the State Government's recently released strategy for future metropolitan land use and development entitled *Melbourne 2030*.

3.0 Consultation

3.1 Previous Consultations

Since the 1980s, when it was recognised that a review of the early planning for the airport was required, extensive consultation has been undertaken at each stage of the ongoing planning process.

An initial Public Information Program in 1984 described options for the development of future runways. The release of a Draft EIS (Environmental Impact Statement) in 1989 during the Airport Strategy process was accompanied by extensive Government, community and industry consultation. Consultation with State, Local Government and industry continued during the terminal precinct and airport land use planning studies that followed the development of the Airport Strategy.

During the course of 1997 and 1998, extensive consultation was held with a wide range of stakeholders prior to the approval of the previous Master Plan by the Minister in December 1998. That consultation was conducted in accordance with the provisions of the Airports Act.

In subsequent years, consultation has continued with stakeholders. Most noteworthy has been:

- Work with Tourism Victoria on the development of services to and from Melbourne;
- Participation in the development of new Airport Environs Overlay controls;
- Ongoing liaison with a range of stakeholders on aircraft noise issues through the Noise Abatement Committee chaired by Melbourne Airport; and
- Consultation with airlines on the development of aviation infrastructure, especially in the context of new pricing arrangements applying from 1 July 2002.

3.2 Consultation Process

During the preparation of this Master Plan a program was established for formal consultations with a wide range of industry stakeholders and representatives from Federal, State and Local Government.

The consultation process included initial correspondence to key stakeholders which informed them that the strategy of the 2003 Master Plan was to adopt the fundamental development framework of the 1998 Master Plan. Stakeholders were requested to provide feedback on any issues they wished to have addressed during the review process.

Ongoing informal contact, as required, was then maintained with State Government organisations, municipalities and the airline industry. A further briefing was given to these organisations to describe the emerging Preliminary Draft Master Plan prior to general public release.

The Preliminary Draft Master Plan was advertised on 5 April 2003 requesting public comment and submissions. This invitation was kept open for a period of 90 days as required by the Airports Act with a closing date for submissions of 7 July 2003. Copies of the document were also circulated to all local libraries in the region for use by the general public.

3.3 Submission to Minister

In accordance with the requirements of Section 80 (2) of the Airports Act 1996 the Draft Master Plan was submitted to the Federal Minister for Transport and Regional Services and was accompanied by:

- A list of the names of persons consulted and the members of the public who provided written comment;
- A summary of the views expressed by both the persons consulted and the members of the public;
- A statement that Melbourne Airport had taken due regard to stakeholder and public comments in preparing the draft plan; and
- Any other information about stakeholder and public comments as is specified in the regulations.

The Minister subsequently approved the Master Plan on 7 September 2003.

4.0 Development Objectives

In order to position the airport to achieve the principal objectives (described in Section 2.1) that support the Airport's Mission Statement, Melbourne Airport has established the following development objectives:

- Ensure developments provide and maintain a safe and secure airport environment;
- Ensure developments are consistent with the requirements of the Master Plan;
- Ensure developments meet relevant standards and statutes;
- Attract a range of investments that maximise the growth in shareholder value commensurate with risk;
- Provide timely, cost-efficient and appropriately financed infrastructure following adequate levels of investigation;
- Ensure public facilities provide a high level of service, are user-friendly and enhance the airport experience for users;
- Integrate environmental considerations into processes, decision making and work practices related to development of airport facilities and services;
- Seek and be sensitive to the expectations of our business partners, regulators, neighbours and the community in relation to environmental aspects relating to airport development;
- Work with the neighbouring municipalities with respect to optimising development, both on the airport and in the surrounding region;
- Provide a business environment which allows our business partners to develop and grow their businesses in accordance with their shareholder's objectives;
- Pursue flexibility in facilities to cope with changing circumstances;
- Enhance the flow of passengers and freight through the airport and strive towards achieving a reputation as an efficient, delay-free airport;
- Maximise the use of existing infrastructure; and
- Minimise disruption to airport users and tenants.

5.0 Forecasts

BAA in consultation with Melbourne Airport has produced the forecasts for this Master Plan which cover a 20 year period from 2002/03 to 2022/23. Upper and lower limit forecasts are presented in this Plan. The resulting band encompasses any long term effect associated with economic cycles and the impact that they have on passenger and freight activity demand.

These forecasts are based on various scenarios dealing with economic factors and aviation policy changes as described below, and cover:

- Aircraft movements;
- Passenger movements; and
- Freight tonnage.

5.1 Historical Air Traffic Performance

Since Melbourne Airport was opened to international traffic in July 1970 and to domestic traffic in May 1971, total traffic levels in 2001/02 had reached 16.48 million passengers and 157,600 aircraft movements¹. Over the last 15 years, a number of factors have influenced traffic growth. Some of these factors include:

- Deregulation of the domestic airline industry and code sharing;
- Changes to international services;
- Airport privatisation; and
- More recently, the heightened global security environment and the collapse of Ansett.

During the 30 year period, 1971/72 to 2001/02, total passengers have grown at a compound average annual growth rate (CAAGR) of 5.7% and total aircraft movements have grown by 3.1% CAAGR.

5.2 Passenger Movements

Forecasts for total passenger movements are based on econometric modelling of the international and domestic sectors of Melbourne Airport's business. Economic factors used include gross domestic product, personal consumption, airfares and exchange rates, as well as aviation policy changes such as international airtickets deregulation.

The forecasts indicate that the number of international passenger movements are expected to increase from 3.41 million in 2001/02 to between 7.0 and 10.6 million by 2022/23 resulting in a CAAGR of 3.5% to 5.5% respectively.

Domestic passenger growth has been forecast to moderate over the next 20 years resulting in a CAAGR of between 3.0% and 4.5%. This is expected to result in an increase from 12.81 million passengers in 2001/02 to between 24.1 million and 32.6 million in 2022/23.

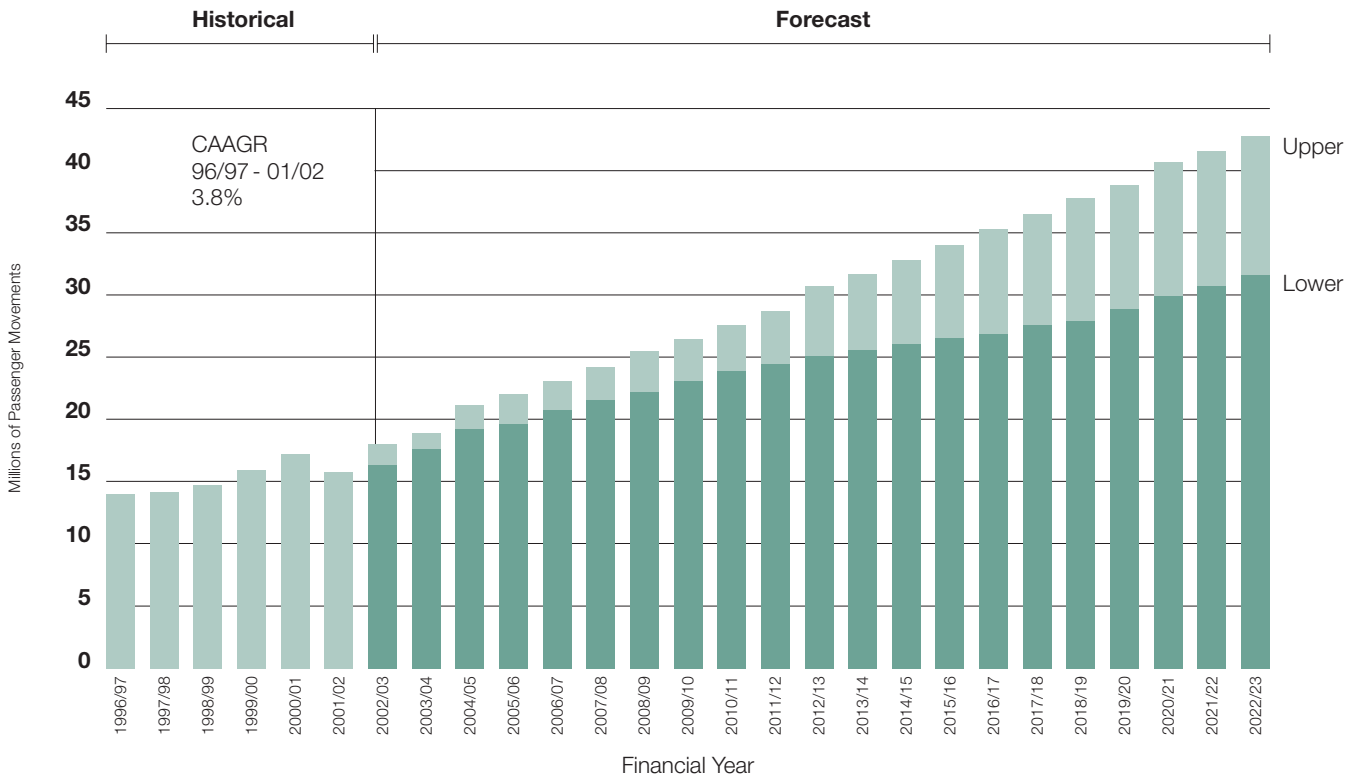
Total passenger movements are shown graphically in Graph 5.1 and in tabular form in Table 5.1. They include international, domestic and also international transit passengers. It is forecast that transit passengers will be between 0.3 million and 0.5 million by 2022/23. In 2001/02, international transit passengers totalled 0.30 million.

¹As a result of the terrorist attacks of 11 September 2001 and the collapse of Ansett, both passenger numbers and aircraft movements in 2001/02 were below 2000/01 levels of 17.24 million and 187,400 respectively.

Table 5.1
Total Passenger Movements (millions)

Traffic	Year	Movements	
Actual	2001/02	16.48	
Forecast		Lower	Upper
	2002/03	17.0	18.0
	2007/08	21.1	24.1
	2012/13	24.6	30.9
	2017/18	27.6	36.5
	2022/23	31.4	43.7
CAAGR 2002/03 to 2022/23		3.1%	4.8%

Graph 5.1
Total Passenger Movements (millions)



5.3 Aircraft Movements

The long term forecasting approach rests fundamentally on the view that the primary driver of air traffic development is the growth in the demand for travel by individuals. Consequently, airlines respond to that demand by deploying aircraft of a size and at a frequency which optimises the balance between operating costs and traffic revenues. Aircraft movement forecasts are, therefore, a derivative of passenger forecasts.

International passenger aircraft movements are forecast to grow from 21,600 in 2001/02 to between 34,400 and 45,000 movements annually in 2022/23, resulting in a CAAGR of 2.2% and 3.6% respectively.

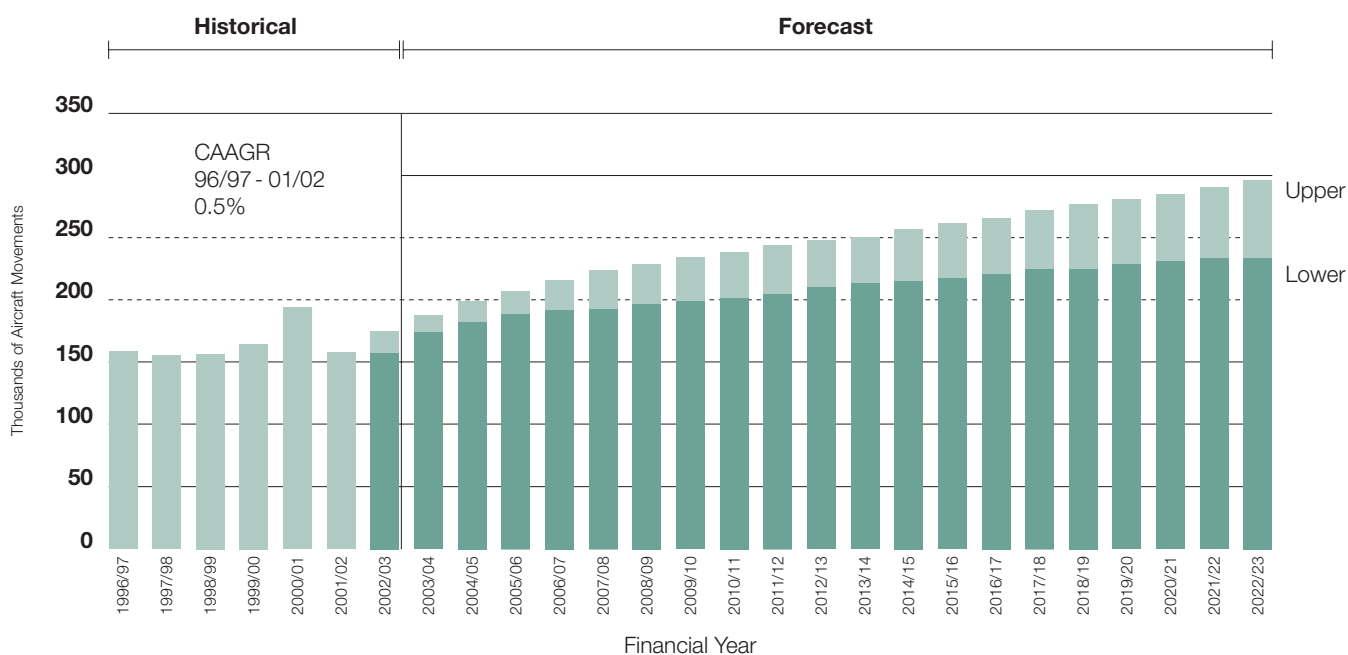
Domestic and regional passenger aircraft movements are forecast to grow to between 185,000 and 240,000 by 2022/23 from the current level of 125,800. This equates to a CAAGR of 1.9% and 3.1% respectively. Total aircraft movements include passenger aircraft, freight aircraft and a small component of heavy general aviation activity.

Total aircraft movements are shown graphically in Graph 5.2 and in tabular form in Table 5.2.

Table 5.2
Total Aircraft Movements (thousands)

Traffic	Year	Movements	
Actual	2001/02	157.6	
Forecast	2002/03	Lower	Upper
	2007/08	157.8	172.4
	2012/13	189.3	214.2
	2017/18	206.0	247.2
	2022/23	218.0	274.0
CAAGR 2002/03 to 2022/23		1.8%	3.0%

Graph 5.2
Total Aircraft Movements (thousands)



5.4 Freight Tonnage

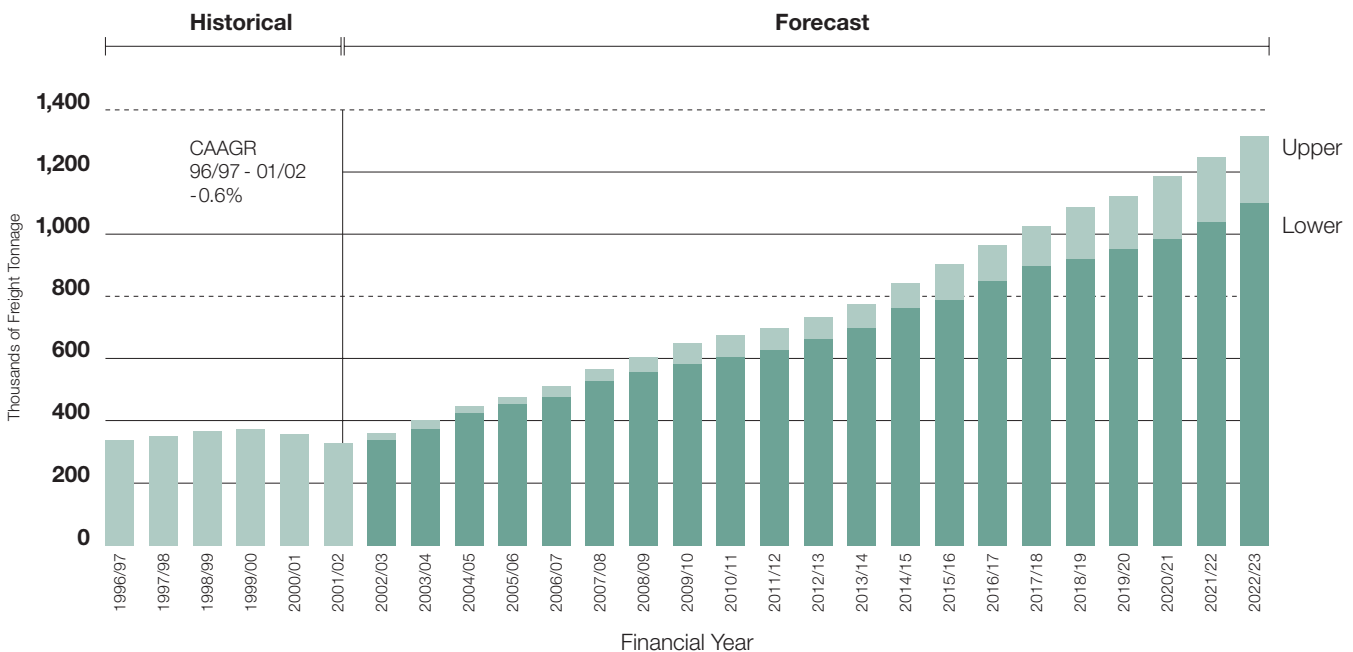
Freight tonnage forecasts are based on projected Australian foreign trade volumes and on GDP growth. Total freight tonnage forecasts for Melbourne Airport are shown in Graph 5.3 and Table 5.3.

International freight is forecast to constitute around 69% of total freight by 2022/23 (2001/02 proportion is 67%). Of particular note is the fact that 75-80% of all international air freight to and from Melbourne is currently carried in the hold of passenger aircraft. This situation is unlikely to vary over the 20 year forecast period.

Table 5.3
Total Freight Tonnage (thousands)

Traffic	Year	Movements	
Actual	2001/02	331	
Forecast		Lower	Upper
	2002/03	360	370
	2007/08	516	560
	2012/13	680	765
	2017/18	863	1,011
	2022/23	1,075	1,315
CAAGR 2002/03 to 2022/23		5.8%	6.8%

Graph 5.3
Total Freight Tonnage (thousands)



6.0 Planning Criteria

To define a Master Plan layout for airside and terminal aviation infrastructure, it is first necessary to define and adopt a set of planning criteria. Airside infrastructure planning requires a design aircraft to be defined. Terminal facility planning requires the adoption of a level of service standard.

6.1 Design Aircraft

The 1990 Melbourne Airport Strategy study adopted a Rules and Practices for Aerodromes (RPAs) Code G aircraft (95m wingspan and 113m length) as the design aircraft for establishing runway to taxiway and taxiway to taxiway separations.

In reviewing the Master Plan, it was necessary to confirm the design aircraft to be adopted. An extensive review of aircraft types that could be expected to operate at Melbourne Airport within the Master Plan 20 year period was undertaken. A stretched B747 was previously anticipated by Boeing to be in service by the year 2000. However, this type of aircraft may not be developed for the foreseeable future.

Airbus is currently developing an A380 new large aircraft based on ICAO Code F aircraft sizing (80 metre wingspan), which is expected to be in service by the year 2006. Both Airbus and Boeing have indicated that their large aircraft development plans are now based on compliance with ICAO Code F design parameters.

Therefore, to plan the international terminal, apron and freight facility dimensions for the medium term on a much larger theoretical Code G aircraft (as per the 1990 Melbourne Airport strategy proposal) is now considered to be too restrictive for Melbourne Airport. The review therefore recommended that the ICAO Code F design parameters be adopted for airside infrastructure planning and construction over the medium term.

Airports in Europe and the Asia Pacific have adopted a Code F design aircraft. Therefore, Melbourne Airport's decision to adopt a Code F design aircraft for master planning purposes is in accordance with industry practice and understanding of the probable trend in aircraft development.

Adoption of Code F enables a parallel taxiway system to be developed and optimises the capacity and functionality of the existing and future airside facilities. In addition, it also retains the capability to accommodate the future possibility of Code G aircraft at the airport through the application of operational management strategies for taxiway and apron usage.

6.2 Terminal Facilities

The International Air Transport Association (IATA) Guidelines for Airport Capacity/Demand Management provide a level of service framework which permits comparison between sub-systems within the airport complex. The framework ranges from levels of service category A, which provides an excellent level of service, no delays, and excellent level of comfort, to category F, which provides unacceptable levels of service, delays and level of comfort.

Future passenger terminal facility planning in this Master Plan has been based on IATA level of service category C, which provides good levels of service and comfort at a reasonable cost.

6.3 Airport Roads

Airport road design has followed the relevant codes, standards, guidelines and accepted traffic engineering practice. These include the Austroads Guide to Traffic Engineering Practice which refers to relevant Australian Standards, guidelines and codes of practice. These documents relate issues such as road geometry, lane widths and other design constraints to performance measures such as capacity, vehicle queues and delays and general service.

7.0 Proposals for Airport Development

In the preparation of this Master Plan, Melbourne Airport has reviewed previous planning and re-assessed the locational and spatial provisions for developments needed to cater for forecast growth in airport activity levels during the next 20 years. Requirements in the longer term have also been considered.

This section of the Master Plan describes, in general terms, the planning approach and proposed developments for:

- Airside (includes runways, taxiways and aprons);
- Landside (includes terminals, vehicle parking, air freight, aircraft maintenance, general aviation and Airservices requirements);
- Surface access (external and internal); and
- Commercial activities (includes aviation support).

The triggers for each development proposal will depend on the actual rates of growth in demand and the commercial considerations of Melbourne Airport and its customers. These will continue to be monitored and assessed closer to the time of facility need. All major airport developments will be planned and developed in consultation with relevant stakeholders and in accordance with relevant statutory requirements.

Implementation of these proposals is required to ensure comprehensive development responses to progressively increase capacities, maintain levels of service and provide for commercial developments.

The planning approach has involved the assessment of demand for space on the airport site and the determination of an integrated layout for various aviation, aviation support, access provisions and commercial requirements. The future development areas required on the airport have been planned in such a manner as to be compatible with the State Government VPP (Victoria Planning Provisions) zones.

For reference purposes, an aerial photograph of the airport taken in April 2003 is provided in Figure 7.0.

7.1 Major Developments Since Previous Master Plan

There have been a number of significant developments at Melbourne Airport since the previous Master Plan. These are as follows:

Hotels

- Formule 1 Motel
- Hilton Hotel

Terminals

- Domestic Express Terminal (decommissioned August 2002)
- Qantas Domestic Terminal Expansion
- Landside and Airside Retail Development in the International Terminal

Melbourne Business Park

- Laminex Industries
- Star Track Express
- Caterpillar Logistics
- WillowWare Australia
- Jets Transport Express
- Gibson Freight

Ground Transport and Car Parks

- Thrifty Car Rental Facility
- Taxi parking facilities
- Long term car park extension – additional 2,800 car spaces
- Melbourne Airport Business Car Parks
- Skybus Service Facility

Freight Developments

- Menzies Freight Terminal
- DHL Freight Terminal
- Qantas Freight Terminal Expansion
- Patrick Freight Terminal Upgrade

Taxiway and Runway works

- New entry taxiway to east-west runway
- Widening of certain taxiways to Code E standard

Other Developments

- Australia Post mail handling facility (under construction)
- Australian Customs Service and Australian Quarantine Inspection Service building
- BP/McDonald's service centre

7.2 Airside

Aircraft movement area facilities presently available include intersecting north-south and east-west runways, associated taxiways and apron areas. These are shown on the existing aerodrome drawing, Figure 7.1.

7.2.1 Runways

North-South Runway (16-34)

The existing north-south runway is currently 3,657 metres long and 45 metres wide. The Master Plan protects a possible 843 metre extension of the northern end to provide an ultimate runway length of 4,500 metres. The runway can be developed to accommodate the Airbus A380 aircraft by widening the runway shoulders. In a parallel runway configuration, the designation of the runway would be 16L-34R.

A new runway (3,000 metres long and 60 metres wide), designated 16R-34L, is planned 1,311 metres west of the existing north-south runway. It is envisaged that this 3,000 metre runway will satisfy requirements for the foreseeable future.

East-West Runway (09-27)

The existing east-west runway is currently 2,286 metres long and 45 metres wide. An ultimate length of 3,500 metres can be provided by extending the west end 714 metres and the east end 500 metres. Should the 500 metre eastern extension ever be required, the impact of the extension on Sunbury Road/Tullamarine Freeway would be the subject of separate studies at that time.

It may be necessary to lower the roadway to accommodate expansion requirements. In addition to arrivals, these extensions, if constructed, would allow the use of the runway as a departure runway for virtually all aircraft. In a parallel runway configuration, the designation of the runway would be 09L-27R.

A new runway, 3,000 metres long and 60 metres wide and designated 09R-27L, is planned approximately 2,035 metres south of the existing east-west runway.

Future Airside Layout

The locations of the proposed future runways, associated taxiways and apron areas to support passenger and freight terminals in the long-term are shown on the Ultimate Airport Development Concept drawing, Figure 1.2.

Computer modelling for the previous Master Plan studied hourly capacities of various modes of operation of the existing two runway system. It indicated that the annual capacity of the existing two runway system is about 248,000 movements. Landings on Runway 27 and simultaneous Land and Hold Short Operations (LAHSO) on Runway 34 for domestic aircraft are assumed to continue during peak landing periods when weather conditions permit. Several peaks occur during the day but as air movements grow, these peaks are expected to spread, as has happened at other airports. Certain runway operating modes have higher capacities and the availability of modes is governed by a number of factors such as demand, weather and noise abatement procedures.

The capacity of the existing runway system will increase over time for a number of reasons:

- Average aircraft size is growing more rapidly than previously thought, thus increasing runway capacity;
- Additional runway entry and exit taxiways will be added to reduce time spent by aircraft on the runway and increase scheduling flexibility;
- Air traffic control and navigation procedures are becoming more efficient; and
- Dual parallel taxiway facilities will be developed.

The previous Master Plan anticipated a third runway being required within the 20 year Master Plan period. Current (“most likely”) expectations are for a third runway to be required around 2022 and unlikely to be required earlier than 2017.

Therefore, there is adequate lead time available to monitor growth in aircraft movements, changes in aircraft mix, peak hour demands and noise impacts before a decision is required on the precise timing and choice of future runway.

The 2022/23 Airport Development drawing, Figure 1.1, covers the 20 year planning period. It shows, for indicative purposes only, the probable future runways north-south direction and east-west direction. Both runways are “dashed” to indicate that the decision on the orientation and location of the future runways is made, but not the decision on which runway will be constructed first. The taxiway system proposed to service a third runway and further terminal and apron developments in this period is depicted on the drawing.

7.2.2 Taxiways

North-South Taxiway System

The existing north-south taxiway (Taxiway A), parallel to Runway 16-34, is located 373 metres east of the runway and is 3,428 metres long and 23 metres wide (refer Figure 7.1). It is a full length parallel taxiway and provides access to runway thresholds 16 and 34. An additional five exit taxiways are provided between Runway 16-34 and Taxiway A. The exit taxiways aid in the efficiency and operation of Runway 16-34.

A second parallel taxiway (Taxiway S) is located 189 metres east of Taxiway A and is 23 metres wide. Taxiway S provides apron access to the International and South terminals and the freight apron. It also provides an aircraft access route to the airline maintenance bases.

In order to maximise runway capacity and delay the need for a third runway, development of the north-south taxiway system is planned. Assuming the design requirements of Code F aircraft, it is planned that a dual parallel taxiway system will be developed between the east-west runway and the southern threshold of the north-south runway (refer Figure 1.2). The development will aid in minimising delay to aircraft taxiing to and from the terminal apron and allow for a separate access way to terminal gates. Furthermore, Taxiway A will be widened as required to accommodate future Code F (A380) aircraft operations.

East-West Taxiway System

The existing east-west taxiway (Taxiway E) parallel to runway 09-27, is located 373 metres south of the runway and is 2,541 metres long and 23 metres wide. It is a full length parallel taxiway and provides access to runway thresholds 09 and 27. Two exit taxiways are provided between Runway 09-27 and Taxiway E. The exit taxiways aid in the efficiency and operation of Runway 09-27.

A second parallel taxiway (Taxiway T) is located 189 metres south of Taxiway E. It is 23 metres wide and operates as an apron access route to the International and Qantas terminals.

In order to maximise runway capacity and delay the need for a third runway, development of the east-west taxiway system is planned. Assuming the design requirements of Code F aircraft, it is planned that a dual parallel taxiway system will be developed between the north-south runway and the eastern threshold of the east-west runway (refer Figure 1.2). The development will aid in minimising delay to aircraft taxiing to and from the terminal apron and allow for a separate access way to terminal gates. Additional rapid exit taxiways will also be developed as demand arises in order to maximise runway efficiency and capacity.

Apron Taxilanes

The apron taxilane system is planned to optimise the long term functionality of the terminal gates. Apron accesses from taxiways are designed to satisfy the needs of Code F aircraft.

7.2.3 Aprons

Terminal Aprons

The existing terminal apron provides access and gate capacity at the Qantas, International and South terminals. In addition, an apron space provides for two remote parking gates west of the international terminal and an area for ground service equipment storage.

It is planned that as the demand for terminal gates grows, an additional apron will be developed. Details on existing and expected terminal gate development is provided in Section 7.3.1

Freight Apron

Five B747 parking positions are provided for international cargo aircraft in front of the existing freight terminal, south of South Terminal. Dedicated parking positions are not provided for domestic cargo aircraft as these services operate mainly at night, ie; outside the peak periods of passenger and international freighter aircraft demand. Domestic freight aircraft use the southern apron areas and the vacant domestic passenger aircraft positions.

The long term location of future freight aprons is dependent on the need for a third concourse for South Terminal. The existing capacity of five B747 freight gates satisfies the 20 year demand forecasts. Section 7.3.3 outlines the freight facility development options assuming a third concourse is required for South Terminal.

7.2.4 Air Navigation Facilities and Services

Airservices Australia provide air traffic control, aeronautical information services, airport rescue and fire fighting, and navigation services for Melbourne Airport.

Airservices Australia has the following operational facilities on the Airport:

- The Advanced Australian Air Traffic System (TAAATS) South Centre;
- Flight Service Centre and Regional Briefing Office;
- Control Tower;
- Navigation Aids; and
- Main and Satellite Fire Stations.

The Master Plan provides for a continuation of this operational use in the central area of the airport. Adequate allowance for expansion is provided to enable for further developments as and when required by technological change or the need for additional services.

Airservices Australia have long term lease arrangements for all of their facilities on the airport.

7.2.5 Summary of Airside Development Proposals

Airside developments proposed over the next 20 years, in response to demand, are:

- Construct a third runway and associated taxiways;
- Provide additional international and domestic passenger aircraft gates and apron areas, as required, to meet forecast growth in aircraft parking positions;
- Develop a new freight apron and logistics precinct either on the southern edge of the airfield to the east of the existing maintenance facilities or in an area east of the existing freight facilities. The timing and decision on which facility is to be developed is demand-dependent;
- Provide new ground support equipment storage areas to service expansion of international aircraft positions; and
- Construct new taxiways as airport operations require.

7.3 Landside

7.3.1 Passenger Terminals

The present terminal complex combines international facilities with two domestic terminals. Until the collapse of Ansett, these two domestic terminals operated under separate long term lease arrangements with Qantas Airways and Ansett Australia.

The Ansett lease was surrendered by the Administrator in May 2001. This terminal is now operated by Melbourne Airport as “South Terminal” and is a common-user domestic terminal. The arrivals and departures areas of the South Terminal have already been integrated with the International Terminal, and this integration will increase over time.

The South Terminal currently has two concourses with 20 parking positions, including 11 aerobridge gates. Some of these parking positions are used to park overnight freight aircraft.

The other domestic terminal is operated by Qantas under a lease which extends to the year 2018, allowing it to undertake terminal developments over the lease period to cater for growth in its domestic passenger traffic.

At present, the Qantas terminal has two concourses with 21 gate positions, of which 16 positions are equipped with aerobridges.

The international terminal has 12 contact gate positions, of which 11 are currently equipped with aerobridges. Of these 11 aerobridges, nine service aircraft up to the size of B747 and two service aircraft up to the size of B767. Four of the aerobridges can provide service down to B737 type aircraft. Two remote (B747) parking positions are also provided.

The international terminal has a current processing capacity of approximately 1,200 passengers per hour. With limited work, this can be increased to 1,800, with the exception of inwards quarantine.

As proposed in the previous Master Plan, growth in international traffic over the next 20 years will be accommodated by expanding the existing international terminal. This option:

- Continues to optimise existing assets;
- Minimises other costs incurred by operators using the terminal;
- Retains the central commercial focus, including retail; and
- Provides for further integration with both domestic terminals.

In accordance with the forecasts, it is feasible to provide a balanced facility for up to 20 aircraft gates (up to five Code F gates) and supporting passenger processing and retail areas on the international concourse. Figure 1.1 includes the layout for international terminal development. With this layout, the terminal building expansions and additional aircraft parking positions can be provided incrementally to cater for growth in demand.

Beyond 2022/23, it is envisaged that international activities will expand through redevelopment of concourses in the South Terminal for international use with domestic and regional services being provided in new concourses built in the area of the current freight apron (refer Figure 1.2).

Additional domestic capacity in the South Terminal will be provided initially by fully developing concourse F to make it suitable for jet operations. As a result, no provision is made for additional remote domestic terminal sites as was the case in the previous Master Plan. This situation is achievable because Melbourne Airport is now able to accommodate a third or fourth entrant carrier within the South Terminal.

During the remaining period of the Qantas domestic terminal lease, it is expected that the terminal will undergo further development. Depending on the mix of parked aircraft, approximately 40 domestic gates will then be available.

In the longer term (beyond 20 years), there is scope to introduce a third domestic concourse east of the Qantas domestic lease area, as well as provide for additional domestic terminal requirements on the southern apron areas as depicted in Figure 1.2.

7.3.2 Vehicle Parking

The Master Plan provides areas for short and long term public car parking, employee car parking, taxi and bus/coach parking.

The major parking requirement in other airport areas where facilities are located is employee and tenant parking. The provision of this parking is the tenant's responsibility and is accommodated in the individual facility lease areas or areas specifically leased for staff car parking.

The existing short term car park (including the multi-level facility) provides 3500 spaces including 400 car rental bays. Short term public car parking will continue to be developed within walking distance of each terminal and the multi-level car park can be extended eastwards to service growth in parking demand.

It is proposed that long term public car parking will continue in its present location and will be progressively developed towards Victoria Street. This at-grade area can cater for long term, employee and ground transport (taxi and coach) parking demand.

Parking provisions in the terminal area for the next 20 years are included in Figure 1.1. Similar land area provisions are made in the longer term to service the ultimate passenger terminal development, based on the assumption that increased use of multi-modal transport options will occur over this time.

These provisions do not specifically take into account the impact on parking demand if a rail service is provided to the airport. A review of demand is needed when there is more certainty about the timing for a rail service.

7.3.3 Freight

Existing freight terminal facilities at the airport consist of six separate buildings and associated aircraft parking areas. These are operated by Patrick, Australian Air Express (two buildings), Qantas Airways, DHL and Menzies Cargo Services. The locations of the freight terminals are shown in Figure 7.1.

If, in the long term, a third concourse is required for the South Terminal, two options exist for relocation of the freight apron and activities as illustrated in Figures 1.1 and 1.2.

- The development of a new freight area to the east of the existing maintenance areas; or
- The development of new aprons along the southern edge of the terminal precinct.

It would be premature, at this stage, to make a decision as to which of these options will be pursued although it is highly unlikely that they would be pursued simultaneously.

The area selected will depend on a range of issues including:

- Location of new sites for existing freight operators displaced by passenger terminal expansion;
- Presence of supporting and complementary businesses (such as logistics integration); and
- State of development of support infrastructure (especially roads).

7.3.4 Aircraft Maintenance

Initial planning provided for aircraft maintenance to be located in the southern area of the airport, north of Operations Road. Qantas Airways and Ansett Australia progressively developed maintenance facilities under long term lease arrangements that have provided for incremental development. The Ansett facility is currently operated by the Administrator of Ansett. Areas occupied by these two maintenance bases cover approximately 44 hectares. East of the airline maintenance areas are two further facilities where aircraft maintenance is carried out. One is the Tenix (formerly Hawker de Havilland) hangar (lease area 1.6 ha) and the other the former Melbourne Jet Base (lease area 4.4 ha) which is now operated by Virgin Blue.

Qantas Airways Ltd also lease an area of 1.0 hectare south of Operations Road for staff car parking.

An area south of Operations Road, as indicated in Figure 1.1 and Figure 1.2, is proposed to provide for expansion of maintenance facilities and associated aviation services. The rate of take-up of this area by the airline industry will be determined by the future growth in demand for these services. Extensions to existing infrastructure will be required to service developments on lease areas.

In the long term there is scope for further aviation development on the western side of the airport such as passenger or freight terminals, aircraft maintenance, bizjet facilities etc, should this be required.

7.3.5 General Aviation

The main general aviation facility at the airport is the Tenix (formerly Hawker De Havilland) hangar. The 1.6 hectare site was initially used for aircraft conversions and is now leased by Tenix to provide aircraft servicing.

In accordance with current Commonwealth Government policy, this Master Plan assumes Essendon Airport will continue to operate as a general aviation airport. The role of Melbourne Airport is to service air transport demand (passenger and freight) and not general aviation.

Work done in the past to examine possible closure of Essendon Airport indicates that the impact on Melbourne Airport would not pose master planning problems on the condition that future facility development is limited to providing adequate space for speed compatible (heavy jet) aircraft from Essendon. Such development would need to be commercially justified.

Development of further general aviation facilities will be implemented in response to demand in an incremental manner. The south-east sector of the airport is the logical location for such incremental development as existing infrastructure can be extended to service this area, especially if this area is also developed for freight purposes.

7.3.6 Summary of Landside and Terminal Development Proposals

Landside developments proposed over the next 20 years, in response to demand, are:

- Expand the existing domestic terminals and concourses;
- Expand the existing international satellite in stages, together with aerobridge links to proposed new aircraft parking positions;
- Increase the number of check-in counters and expand the baggage systems and inward quarantine inspection facilities;
- Convert B747 gates at the international terminal as required to accommodate Code F aircraft;
- Expand terminal retail to meet customer demand;
- Further integrate South Terminal and the International Terminal;
- Expand the multi-level car park progressively to cater for growth in demand for short term car parking;
- Extend the long term/employee car park and taxi/bus car park progressively to provide for growth in demand; and
- Develop the new Freight Centre progressively, including the new freight road, to accommodate growth in demand for cargo handling facilities.

7.4 Surface Access

The location of Melbourne Airport in relation to the major highways and freeways servicing the city of Melbourne is shown on the Transport Connections drawing, Figure 7.2.

7.4.1 External Road Access

Currently the main access to the airport is via the Tullamarine Freeway which over most of its length is a four lane divided road. Other direct access roads are:

- Sunbury Road;
- Melrose Drive (which, except for the section on the airport site that accepts traffic from the future Airport Drive and from the proposed new entrance off the Tullamarine Freeway, is not presumed to be a major access now or in the future); and
- Sharps Road/Keilor Park Drive/Annandale Road which direct traffic into South Centre Road on the airport.

The recent completion of City Link and Western Ring Road have significantly improved road access times to and from the airport. Future improvements to the intersection of the Tullamarine and Calder Freeways will ameliorate the current peak-hour congestion. These works are scheduled to be completed prior to the Commonwealth Games in 2006.

As a result of the deferment of construction of the Airport Rail Link, the State Government, in partnership with the operator of Skybus, has recently introduced significant upgrades to the City-to-Airport bus service. The upgrades include new purpose-built articulated coaches, improved ticketing and waiting areas at the airport and CBD and a more frequent time-table. A new priority lane system for these buses enables them to avoid peak-hour congestion at the Tullamarine-Calder Freeway intersection, thus improving their travel times and regularity.

In the longer term, it is expected that additional lanes may be required along the Tullamarine Freeway from the airport to City Link, to cope with both the increase in airport traffic and the residential growth in the north west suburbs. Melbourne Airport supports the State Government's urban growth and associated transport policies in the recently-released Melbourne 2030 document. Successful implementation of these policies may result in the deferment of the installation of these extra lanes.

7.4.2 Internal Road Network

Initial road planning inside the airport has incorporated a clockwise one-way terminal loop system with direct access from the Tullamarine Freeway. This loop system includes an elevated road accessing the departures level of the passenger terminal complex and ground level pick-up roadways to service the arrivals level.

Centre Road, a divided two-way road, links Sunbury Road and Arrivals Drive and facilitates vehicle circulation around the passenger terminal area.

Key planning features for staged development of the terminal area road network to service growth are:

- Segregation of passenger, freight and employee vehicle movements as far as possible; and
- Maximum use of existing road infrastructure.

7.4.3 Proposed Road Development on Airport

A new airport road, Airport Drive, is proposed as a second major airport access to link with the airport connector road that has been provided from the Western Ring Road. A further access from the Tullamarine Freeway (Victoria Street) is proposed to provide direct airport access and egress mainly for freight vehicles, coaches and taxis. This is expected to be completed prior to the Commonwealth Games in 2006.

In addition to these projects, progressive implementation of upgrades and extensions, as well as provision of new internal roads in response to subdivision requirements, will be provided to ensure the required levels of service are provided and maintained as the airport develops. The likely extent of these road improvements over the next 20 years is shown in broad concept form in Figure 1.1. Detailed design and layouts are yet to be prepared and discussed with relevant stakeholders.

An indicative layout for major roads in the presently undeveloped southern area of the airport is also illustrated in Figure 1.1. The nature and timing of use of this area will determine the need for further subdivisional roads.

7.4.4 Bicycle Paths

Melbourne Airport supports the establishment of dedicated bicycle paths where they can be safely located without congestion to the efficient arrival and departure of airline passengers and freight. One such proposal currently being considered is the extension of the Moonee Ponds Creek Community Trail to Woodlands homestead.

7.4.5 External Rail Access

With agreement from the State Government, the previous Master Plan showed two possible routes for a heavy rail corridor. One approaching the airport from the east (the Broadmeadows option) and one approaching the airport from the south, to the west of the aircraft maintenance base facilities (the Albion West option).

As a result of extensive public consultation, the State Government announced it would not be proceeding with either of these options, but would protect a third route, the Albion East route, which approaches the airport from the south and traverses airport land to the east of the maintenance bases.

The Albion East route is shown in the Master Plan in Figures 1.1 and 1.2. The route is to be underground for the entire on-airport section to maximise airport development opportunities, unless commercial negotiations between Melbourne Airport and the State Government facilitate some above-ground routing.

An underground station, with direct links to the passenger terminal complex, is proposed between the existing multi-level car park and the passenger terminal complex.

The timing for the introduction of a rail service to the airport will, to a large extent, be determined by commercial considerations. However, the on-airport planning will allow this to proceed at whatever time is appropriate.

7.4.6 Summary of Development Proposals for Surface Access

Development proposals for the airport surface access system over the next 20 years are:

- Construction of the Victoria Street interchange from the Tullamarine Freeway which will provide a separate access/egress for freight traffic, long-term car park patrons and taxis/buses;
- Construction of Airport Drive road link from Sharps Road to Melrose Drive to provide an alternative major airport access;
- Duplication of Melrose Drive from Link Road to Centre Road;
- Construction of a cross link road from Melbourne Drive to Melrose Drive; and
- Development of an airport rail link if and when commercially viable.

7.5 Commercial

Revenue to the airport from car parking, site rentals and leased premises, including passenger terminals and freight facilities, form a significant component of airport income. Therefore, it is important for airport planning to provide scope to derive income from terminal commercial areas and those areas on the airport that are not required for aviation and aviation support purposes at this time. These areas may be required in the longer term for expansion of passenger and freight facilities, as well as aircraft maintenance and other support services. Therefore, the interim usage of these areas will be arranged with due regard to the timing requirements of these future facilities.

Within passenger terminals, it is important to provide adequate space to locate commercial areas in order to service passengers and airport visitors. Since regaining control of the South Terminal, extensive work has been undertaken to integrate the landside retail areas of the South Terminal, with the International Terminal. Even though under existing lease arrangements, Qantas controls retail activities in its terminal, a new retail link was developed between the International and Qantas terminals as part of the Qantas Terminal redevelopment.

It is intended that, as far as possible, terminal expansions continue this integrated terminal concept. Terminal footprint planning makes adequate space provision for both passenger processing and commercial needs.

Figure 1.1 indicates the co-location of passengers and freight in the terminal precinct and the extent of commercial development feasible in the terminal precinct. This plan also indicates the extent of area in the south sector available for interim commercial leasing until freight activities in the terminal precinct are required to relocate in response to the long-term growth in demand. Any commercial activities in these areas will be in accordance with the zoning requirements shown in Figure 8.1.

7.5.1 Aviation Services

In the Ultimate Development Concept, the terminal precinct areas not required for passenger handling and vehicle parking will continue to be available for commercial use. After provision for long-term aviation uses, extensive areas in the South Centre Road, Annandale Road, Airport Drive and Link Road precincts remain available for commercial use.

The Master Plan makes adequate provision for space to service a range of airline support and aviation ancillary activities (other than Airservices Australia requirements) that need to be located appropriately according to their service function. This category includes:

- Aviation fuel storage areas;
- Areas for storage of Ground Support Equipment (GSE);
- Areas for terminal support services (eg: airline catering and mechanical equipment maintenance facilities) and airport maintenance facilities; and
- Customs and immigration services.

Developments in these areas will be in response to demand. Where the areas are leased, serviced sites will be provided and site development undertaken by the lessees.

The proposed locations for these service areas are shown in Figure 1.1.

7.5.2 Melbourne Airport Business Park

The Business Park is located to the south of the airline maintenance bases on an area of approximately 230 hectares that has been identified as not being required for future aviation development. Australia's leading commercial and industrial design and construction team, Australand Limited and the Santilli Group, is currently developing part of the Business Park.

Star Track Express and Laminex Industries currently operate from new state-of-the-art facilities in the Business Park. Facilities for Jets Transport Express, Caterpillar Logistics, Gibson Freight and Willow Ware have also been recently completed and a new facility to accommodate GMC Power Tools is currently under construction.

7.5.3 Airport Entry Development Site

This site is approximately 34 hectares and is bounded by the Tullamarine Freeway, Melrose Drive and the proposed Victoria Street interchange. In July 2002 the Minister agreed to this land being re-zoned from Business Zone 3 to Business Zone 2. The area will be used for activities such as office, warehousing and associated retail and commercial activities, but not those generally associated with suburban shopping centres. Major frontages to the Tullamarine Freeway and Melrose Drive have high visual exposure, making the site well suited to commercial development.

7.5.4 Summary of Commercial Development Proposals

Development proposals in response to demand for commercial facilities over the next 20 years are:

- Develop the proposed Melbourne Airport Business Park and other commercial, industrial, and service industry sites in concert with market demand;
- Provide serviced sites progressively for airline maintenance and aviation services in the southern areas of the airport; and
- Develop the Airport Entry site for office, warehouse and associated retail activities.

8.0 Airport Land Use

8.1 General

The Airports Act 1996 requires Melbourne Airport, as the lessee of the airport, to prepare a Master Plan for a 20 year planning period showing proposals for land use and related development of the airport site.

The regulations made under the Act require that the Master Plan must, where possible, describe proposals for land use planning and zoning in a format consistent with that used by the State or Territory in which the airport is located.

It should be noted however, that planning requirements for the airport site (Commonwealth land) are administered under the Airports Act, and State planning laws (Planning & Environment Act 1987) are not applicable.

8.2 Zones

Using the Master Plan concept development drawings as a base, the applicable land zones have been applied to the various areas of the airport and are shown on Figure 8.1 “Land Zoning”. Wherever possible, the standard Victoria Planning Provisions (VPP) zones have been used.

Where appropriate, some zones have schedules to provide for airport circumstances and where necessary, are supplemented by an overlay control or airport policy provision. Three Special Use Zones have been incorporated to cover the main terminal and operational areas of the airport, open space areas (generally alongside the creeks surrounding the airport) and airside areas. The zones applied on the airport are:

- Industrial 1 Zone;
- Business 2 Zone;
- Business 3 Zone; and
- Special Use Zones.

The **Industrial 1 Zone** has been applied to land situated in the south and south-eastern sectors of Melbourne Airport.

The **Business 2 Zone** has been applied to land with relatively high exposure, enabling various uses to be established in close proximity to the passenger and freight terminal areas of the airport.

Such uses may supplement the industrial and airport activities, or may be attractive to businesses which would see a competitive advantage in being located in close proximity to the terminals.

The **Business 3 Zone** also covers areas of high exposure and includes a wide range of uses such as small office related industries, warehousing, petrol stations, etc.

The **Special Use Zones** apply to areas of land which are linked with the operation of Melbourne Airport itself. Special Use Zone 1, “Aircraft terminal/support”, applies to the main terminal building and surrounding land associated with the main passenger terminal. It also includes related uses such as terminal retail, short-term car parking, hotels, freight terminals, aircraft maintenance areas and other airport operational areas such as air traffic control and emergency services. Special Use Zone 2, “Airside” applies to the remaining areas known as airside, which are essential to aircraft operations and are not accessible to the general public. Special Use Zone 3 “Park and Recreation” applies to open space areas along Moonee Ponds Creek, Maribyrnong River, Deep Creek, Golf Course and the Grey Box Forest area.

8.3 Overlays

In accordance with the provisions of the VPPs, the airport has also applied various overlays to target a single issue or related set of issues. The overlays used are:

- Airport Noise Overlay – Schedule 1 and 2;
- Environmental Significance Overlay;
- Heritage Overlay; and
- Design & Development Overlay.

Each of the overlays has a strategic justification and is also linked to the policies, development objectives and zoning described in the Master Plan. The requirements and restrictions of each overlay are similar to those in the VPPs.

The Noise Overlay Schedule 1 generally applies to areas above the 25 ANEF contour, with Schedule 2 applying to areas within the 20-25 ANEF contours.

The Environmental Significance Overlay applies to land along Deep Creek, the Maribyrnong River and Moonee Ponds Creek, the Golf Course and the Grey Box Forest area and its proposed fauna corridor. It ensures the protection of the natural environment and provides for flora protection and fauna corridors.

The Heritage Overlay applies to areas and buildings recognised as having heritage significance and are identified in the Victorian Heritage Register. These sites include the former St. Mary's Church, Grey Box Forest and Keilor Archaeological Site.

The Design and Development Overlay applies to all new developments on airport land. For the impact of development on airport operations, the Overlay requires consideration of matters such as building heights, building materials to ensure acoustic treatments, use of non-reflective materials, illumination levels and signage. The impacts of airport commercial and industrial developments on the amenity of neighbouring residential properties will also be addressed by applying the Design and Development Overlay. This process will provide for consideration of issues such as privacy, impact on sunlight, noise levels, building setbacks, landscaping, etc.

8.4 Particular Provisions

Where applicable, the Particular Provisions contained in the VPPs, which include sets of standard statewide provisions for a range of uses and developments, are taken into consideration in all airport development proposals. These contain requirements for items such as car parking, signage, loading and unloading of vehicles, etc.

8.5 Operators Consent and Building Permits

If a use or development is proposed on Commonwealth land within Melbourne Airport, an Operators Consent and Building Approval is required under the Airports Act 1996.

All major developments, as defined in the Airports Act, must be submitted to the Minister for approval and be subject to a 90 day public comment period.

9.0 Australian Noise Exposure Forecast (ANEF)

9.1 Use of ANEF System

Commonwealth Government policy requires the adoption of the Australian Noise Exposure Forecast system for determining likely noise exposure around Australian airports. A description of the system and the Associated Land Use Compatibility advice for Areas in the Vicinity of Airports is contained in Australian Standard AS2021-2000. There are three different types of aircraft noise charts produced using the ANEF system, these being:

- The ANEF – Australian Noise Exposure Forecast;
- The ANEI – Australian Noise Exposure Index; and
- The ANEC – Australian Noise Exposure Concept.

These charts are described in the Glossary in Section 13.0.

It is worth noting that the ANEF charts include the cumulative noise effect of a full year’s operations so that seasonal changes in weather patterns and airline schedules are included. The resulting contours are therefore a measure of the total noise exposure over a full 12 month period divided by 365 to give a daily average. They do not represent the maximum noise exposure caused by a single noise event (an aircraft over flight).

9.2 Background to Melbourne Airport ANEF

The first Melbourne Airport ANEF was initially issued in 1993 and since then, updated ANEFs were issued in 1996 and 1998. The ANEF contours represent the forecast worst case situation for noise impact, after taking into account the development stages of the four-runway system and a long term maximum operations level of 370,000 movements. The ANEF is required to be endorsed for technical accuracy by Airservices Australia.

9.3 Preparation of ANEF

The Melbourne Airport ANEF is an Ultimate Capacity ANEF, which is a compilation of the latest ANEI and four ANECs prepared for the major operational stages of the airport’s development. The description of these four ANECs and their forecast operational levels are as follows:

Table 9.1
ANEC Scenarios

ANEC	Runway Configuration	Annual Aircraft Movements
1	Two existing runways at maximum capacity	248,000
2	Three runways (east-west as the third runway) at maximum capacity	325,000
3	Three runways (north-south as the third runway) at maximum capacity	325,000
4	Four runways at maximum capacity	370,000

In the production of the ANEI and ANECs, the latest version of the Integrated Noise Model (INM) was used. The INM now uses a much wider range of aircraft types than was available for the previous noise modelling. The operational levels for the various runway layouts were broken down by aircraft types, arrival/departure, ANEF day and night periods, sector of origin or destination and INM stage length. When feasible under the prevailing weather and traffic demand conditions, runway operating modes used in the modelling have taken into consideration noise abatement procedures aimed at directing noise away from heavily populated areas.

All aircraft tracks, operating procedures and allocation of aircraft to the various runways have been supplied by Airservices Australia Melbourne Centre, air traffic management staff. Figures 9.2 and 9.3 illustrate the indicative jet arrival and departure tracks adopted for the four runway ANEC. In practice, aircraft tracks can vary either side of the theoretical flight paths due to the effects of weather, aircraft type and payload, etc. The computer modelling process has included an allowance for track dispersal to accommodate these variations.

9.4 Endorsement of ANEF

The 2003 Ultimate Capacity ANEF was endorsed for technical accuracy by the Airservices Environment Monitoring Manager on 11 July 2003 and is included at Figure 9.1.

The 2003 Ultimate Capacity ANEF contours have generally expanded when compared with the previous ANEF (1998). This is attributed, in the main, to the following factors:

- Changes to the aircraft fleet mix forecasts, with a significant increase in the volume of jet operations (particularly heavy jet);
- Changes in the route scheduling forecasts, with a significant increase in the volume of heavy jet passenger aircraft on direct, long haul routes;
- Decrease in the forecast general aviation (light aircraft) activity levels; and
- The INM noise modelling software has been upgraded and is now more comprehensive and able to more realistically model a greater range of aircraft types.

10.0 Airport Environs Overlay

10.1 Airport Environs Overlay

In 1992, the State Government introduced land use planning controls for the areas surrounding Melbourne Airport which were expected to be adversely affected by aircraft noise over the life of the airport. The purpose of the controls was, amongst other things, to:

- Ensure that land use and development is compatible with the operation of the airport in accordance with the Master Plan and with safe air navigation for aircraft approaching and departing the airfield;
- Assist in shielding people from the impact of aircraft noise by requiring appropriate noise attenuation measures in new dwellings and other noise-sensitive buildings in accordance with Australian Standard AS-2021-2000 “Acoustics – Aircraft noise intrusion – Building siting and construction”;
- Limit the number of people residing in the area or likely to be subject to significant levels of aircraft noise; and
- Require planning permits for certain developments and the subdivision of land with provision for referrals to the airport operator.

The total area covered by the controls is shown on the plan at Figure 10.1, which also outlines the two levels of control – namely Airport Environs Overlay Schedule 1 (AEO1) coloured pink and Airport Environs Overlay Schedule 2 (AEO2) coloured blue. The AEO1 and AEO2 boundaries were based on the recommendations of AS 2021 and the ANEF contours existing at the time of the overlays introduction. Details and requirements of the AEO1 and AEO2 are contained in the Local Planning Schemes of the four Councils covered by these controls (Hume, Brimbank, Moonee Valley and Melton). Under the AEO1, certain noise-sensitive uses such as schools, hospitals or dwellings are usually prohibited, whereas AEO2 limits the extent and location of such facilities. All new construction in both areas is required to be assessed for AS 2021 acoustic requirements.

The boundaries for both controls have remained unchanged since their introduction in 1992. However, the State Government has recently passed legislation which will change the boundaries of both controls (AEO1 and 2) to bring them more into line with the most recently approved Ultimate Capacity ANEF contours.

10.2 Prescribed Airspace

The airport has an established process to protect the airspace in and around the airport from the intrusion of tall structures and unauthorised activities.

This protection is necessary for the safe arrival and departure of all aircraft using Melbourne Airport in all weather conditions.

The potential intrusions could be from tall buildings and communication towers or non-physical activities such as emissions from large industrial chimneys or glare from bright lights, which may cause pilot distraction.

These airspace matters are controlled by the Airports (Protection of Airspace) Regulations which are administered by the airport operator and local government.

The prescribed airspace for Melbourne Airport’s future operations consists of two airspace configurations.

1. Visual flying, or VFR, in the form of Obstacle Limitation Surfaces (OLS) based on the ultimate four runway layout (refer Figure 10.2).
2. Instrument flying, or IFR, is represented by the future flight Procedures for Air Navigation Services (PANS OPS). These are based on the latest Global Positioning System (GPS) technology (refer Figure 10.3).

Future prescribed airspace surfaces were formally declared under the Airspace Regulations by D^OTARS in May 2000. Also, as Essendon Airport’s prescribed airspace overlaps the Melbourne Airport declared airspace, the impact of prospective developments (structural or non-structural) in this overlap area are also assessed by the operator of Essendon Airport.

11.0 Environmental Issues

11.1 General

An EIS was prepared by the previous airport operator in the Airport Strategy process, which covered proposals to fully develop the airport site for aircraft operations. The EIS, which was prepared under the requirements of the Commonwealth Environment Protection (Impact of Proposals) Act 1974, identified the likely social, physical, biological and economic impacts of the Airport Strategy.

The findings of the EIS recognised that Melbourne Airport could continue to undertake timely developments over the next 50 years in response to growth in aviation demand. This led to joint Federal and State Government adoption of the Airport Strategy.

Projects proposed to be undertaken during the next 20 years have been identified in Section 7 of this Master Plan. The development scenario proposed by these projects is consistent with the broad planning framework for the airport that was established by the Airport Strategy process.

The Airports Act requires the Master Plan to include an assessment of environmental issues that might reasonably be expected to be associated with projects outlined. In this section, reference is made to the Melbourne Airport Environment Strategy for issues which have been considered in that document. The Environment Strategy is a five year plan for managing the environmental issues arising from activities and operations at the airport. It covers the day-to-day management at the airport and is prepared in parallel with the Master Plan. The Airport's 2003 Environment Strategy was approved by the Minister for Transport and Regional Services on 31 August 2003.

The development proposals are a response to the ongoing growth characteristic of aviation traffic and the accompanying activity levels at the airport. This growth in activity levels has the capacity to contribute to pollution levels at the airport in various environmental areas which include:

- Water (stormwater and wastewater) and groundwater;
- Social and Community;
- Air emissions;
- Waste recycling and litter;
- Land Management;
- Hazardous products;
- Soil (pollution);

- Ecology (flora and fauna);
- Indigenous and heritage;
- Resource use; and
- Noise and vibration.

These environmental impacts have been considered in the Environment Strategy as they already occur with the present level of airport operations on a day-to-day basis.

Within the existing framework of environmental management at the airport, these impacts can be monitored and managed to achieve compliance with standards set out in the Airports (Environment Protection) Regulations associated with the Airports Act or other relevant standards. In achieving compliance with regulations, standards set by State Environment Protection Policies and Industrial Waste Management Policies will be considered along with the Commonwealth's statutory requirement for improving environmental management. Facilities and procedures are in place for stormwater quality monitoring, and there are current airport procedures relating to many of the other areas.

A comprehensive Environmental Management System, consistent with the International Standard ISO 14001, is in place at Melbourne Airport. The Environmental Management System (EMS) enables the formulation of policies and objectives, taking into account legislative needs and information about significant environmental aspects. The EMS process also requires Melbourne Airport departments and operators of significant undertakings on the airport to submit Environmental Management Programs (EMPs) for their operations annually. In addition, all significant construction projects on-airport are required to submit an Environmental Management Plan prior to construction activities commencing.

This plan is prepared and submitted by the construction company and outlines the environmental impacts associated with construction of the project, measures in place to manage environmental impacts identified, and implementation of training and monitoring programs necessary for the project. The plan is assessed and approved by the Melbourne Airport Environment Manager in conjunction with the Airport Environment Officer (Commonwealth Government Environmental Regulator).

The Master Plan addresses those environmental issues that can be attributed to further airport development in the next 20 years and that are not specifically covered in the Environment Strategy.

11.2 Identification of Issues

The proposals identified in this Master Plan for implementation during the next 20 years provide for additional runway capacity and incremental extensions to various facilities and engineering services. Although these projects will have a varying degree of impact in the environmental areas listed above, they are expected to be manageable with the implementation of appropriate environmental management controls through the EMS process.

Environmental issues that might reasonably be expected to be associated with project implementation include:

- Effects on landform;
- Impact on flora and fauna;
- Removal of trees;
- Impact on indigenous and heritage sites;
- Construction impacts;
- Downstream and on-airport effects of increases in stormwater discharge;
- Impacts on properties which adjoin the airport boundary in the south-eastern sector of the airport;
- Acquisition of property; and
- Impact of aircraft noise exposure and external land use planning.

The following section assesses these impacts and indicates plans for managing them.

The assessment of inflight aircraft noise impact and external land use planning is discussed in Sections 8, 9 and 10.

Melbourne Airport has prepared an Operational Safety Policy to control inframe aircraft ground running for test purposes. This document specifies procedures to minimise the level of noise exposure to the airport environs. An area can be made available on the airport for a noise attenuation facility, should this be required in the future.

11.3 Plans for Dealing with Environmental Issues

11.3.1 Landform

The two areas most affected by the development proposals will be the presently undeveloped south and south-east areas of the airport and the areas of the airport where future runway construction is planned.

Earthworks to provide the required runway and approach surfaces for a new north-south runway will significantly alter the western hillside of the Grey Box Forest area. The construction of the new east-west runway and associated taxiway system will require filling across Arundel Creek. There will be a requirement to pipe Arundel Creek underground in the fill areas.

When constructed, the proposed runway and taxiways will emphasise the comparatively flat nature of the airport site and remove the present landform patterns in these areas.

The changes in landform to result from the development proposals are unavoidable but are consistent with other sites developed for airports and industrial purposes.

As mentioned above, extensive earthworks involving deep cut and fill areas are required for construction of either of the proposed future runways. At the appropriate time, steps will be taken to assess the stability of batters and to ensure by trimming and plantings that final batters are visually acceptable. Excluding new pavement areas, topsoiling and grassing of all other disturbed areas will be undertaken.

Proposed developments in the south and south-east areas will remove the slightly undulating rural character of these areas. The airport operator's consent process covers a range of issues, from building envelopes and architecture to landscaping and the need for development and ongoing operations to be conducted in accordance with the Melbourne Airport Environment Policy. Examples of the successful implementation of this process are the recently completed Hilton Hotel and the development of the Melbourne Airport Business Park.

Certain areas of the airport are not affected by proposals in the Master Plan, these being:

- The golf course area in the south-west sector;
- A northern area where more than 50% of the Grey Box Forest will remain and be extended;
- An area between Sunbury Road and Moonee Ponds Creek; and
- Frontage areas along Deep Creek and the Maribyrnong River.

These areas are shown on the Environment and Heritage Drawing, refer Figure 11.1, and comprise some 579 hectares.

11.3.2 Flora and Fauna

Comprehensive flora and fauna studies were undertaken in 1995 in the Grey Box Forest area and on the site of the former St Mary's Church. Both sites are entered on the Register of the National Estate. These studies were followed by an investigation in 1997 which examined all other areas at Melbourne Airport for the potential or actual presence of threatened flora and fauna listed under the Commonwealth Endangered Species Protection Act 1992 (replaced by the Environment Protection and Conservation Biodiversity Act 1999) and the Victorian Flora and Fauna Guarantee Act 1988.

This later investigation concluded that these areas contained little vegetation of significance and that it is extremely unlikely that listed species are present. Overall they are in a highly altered condition. Where there are a number of significant vegetation communities present, as in the Grey Box Forest area, Melbourne Airport plans to preserve them and allow them to develop where this is possible.

The fauna studies have indicated that the Swift Parrot, the common dunnart, a bullant and the Australian Grayling (a fish) are the only threatened species, under the Commonwealth and State legislation referred to above, which have been recorded at, or could potentially occur at, Melbourne Airport.

Flora and fauna issues are assessed for every new development on-airport and, where warranted, appropriate assessments undertaken in accordance with the 2003 Environment Strategy. The Master Plan includes a provision (refer Figure 11.1) to provide a fauna corridor from the Grey Box Forest to Deep Creek.

11.3.3 Removal of Trees

Two areas of the airport where existing stands of trees are to be affected by the development proposals are:

- The Grey Box Forest area, of which approximately 48% is required for the construction of the proposed north-south runway. This forest is one of the largest remaining stands of Grey Box south of the divide and is listed on the Australian Heritage Commission Register of the National Estate; and
- A plantation along the south-eastern boundary of the airport from Sharps Road to Melrose Drive. Some tree removal may be required to construct the proposed rail link and potentially a rail car stabling facility. The extent of further clearing will be determined by development requirements adjacent to the rail link.

Clearing part of the Grey Box Forest for runway construction and providing for obstacle clearance requirements also allows a parallel taxiway to be constructed for the full length of the runway.

To partly compensate for the proposed removal of the western section of the Grey Box Forest, new planting of 24 hectares is being undertaken to maintain and extend the environmental and visual amenity of the area. During Autumn 2003, planting of the third and final stage of the Grey Box revegetation area will begin.

The tree plantation along the south-eastern boundary of the airport was planted in the 1970s and does not contain plant varieties of significance. When development in this area takes place, any removal of trees along this boundary will be compensated for by landscaping in accordance with the Melbourne Airport "Urban Landscape Plantings" guidelines.

11.3.4 Indigenous and Heritage

There are a number of registered heritage sites in the environs of the airport, three of which occur on the airport. These are the Grey Box Forest area, the former site of St Mary's Church and the Keilor Archaeological sites.

An Aboriginal and European cultural heritage survey of the northern part of the airport, including the Grey Box Forest area, was undertaken in 1995. Aboriginal sites and Historic Archaeological sites were recorded during the study.

Airport development in these areas will be preceded by further archaeological work and Aboriginal consultation.

11.3.5 Construction Impacts

Construction impacts which are addressed during the planning and documentation phase for projects can arise from:

- Soil erosion;
- Opening and operating borrow and fill areas;
- Generation of dust;
- Increase in heavy vehicle use of airport external and internal access roads; and
- Noise from equipment operation.

The process of dealing with these impacts is through Environmental Management Plans that must be submitted and approved before the commencement of activities on site. The Environmental Management Plan addresses measures such as stripping and stockpiling of topsoil for re-use, attention to underground and surface drainage and the provision of silt traps as required, avoiding long term exposure of subgrades by early cover with pavement material, and due attention to planning the location of fill areas to receive excess cut from earthworks.

Environment control measures also include grading, topsoiling and grassing for spoil areas, requirements for watering equipment to minimise dust, maintaining access roads clear of debris and hours for equipment operation for projects in areas sensitive to noise.

11.3.6 Stormwater Discharge

Construction periods for projects potentially have short term effects on stormwater discharge that will be managed by the Environmental Management Plan process outlined and regular on-site audits by Melbourne Airport environmental staff and the Airport Environment Officer.

In addition there are long term effects that arise from:

- Increases in surface runoff caused by the creation of large impervious areas such as runways, taxiways, aprons, buildings, and car parks; and
- Diversion and concentration of surface and sub-surface flows by the construction of airfield works, buildings and drainage works.

In the project implementation process, detailed design must incorporate appropriate engineering solutions to these long term effects to mitigate potential downstream flooding problems. Water Sensitive Urban Design (WSUD) principles will also be incorporated into the design, where feasible, to treat runoff from runways and taxiways at source.

A drainage study of the southern and south-eastern areas of the airport, where extensive developments are planned during the next 20 years, has been undertaken to provide a drainage strategy for these areas. This drainage strategy provides for:

- Future construction of three retarding basins;
- Progressive provision, to service developments, of underground trunk drainage in accordance with the drainage plan;
- As required maintenance to unlined drains to control erosion; and
- A program for undergrounding stormwater drains as development progresses.

The natural drainage pattern for most of the south-eastern and southern areas of the airport directs discharges to Steele Creek. Melbourne Water has placed discharge limits on the three Steele Creek subcatchment areas to avoid flooding of residential and industrial development downstream. The construction of the retarding basins will be timed to ensure that the discharge limits are not exceeded.

The existing three piped outlets for stormwater entry into Arundel Creek are designed to provide for energy dissipation and trapping of pollutants. These outlets are adequate to cope with the increases in stormwater discharge that will arise from an expansion of impervious areas from works to provide incremental capacity increases in aprons, taxiways and buildings within the Arundel Creek catchment on the airport.

The stormwater drainage outflow into Arundel Creek from the construction of a third runway will significantly increase, but the impact of this discharge will not be significant in volumetric terms relative to the annual discharge of the Maribyrnong River. Runway design provisions will provide for pollution and erosion controls on water discharge.

Increase in stormwater discharge to Moonee Ponds Creek and the Deep Creek system from proposed projects will be relatively small and will be provided for by appropriate drainage and outfall designs.

12.0 Periodic Reviews

The Airports Act 1996 provides for a final Master Plan to remain in force for five years. In addition, there is provision for the Minister, by written notice, to direct the airport lessee company to replace the original plan.

The Act makes similar provisions for review and replacement of the Environment Strategy which has been prepared in addition to this Master Plan.

In addition to the statutory review requirements, Melbourne Airport management processes provide for annual review of the development proposals that are included in Section 7.0.

The ANEI noise contours are calculated using ANEF techniques but with actual aircraft movements from the past year. The ANEI enables the actual noise impacts to be monitored regularly against the forecast noise impacts included in the ANEF.

13.0 Glossary

<p>ANEC (Australian Noise Exposure Concept): A set of noise contours based on hypothetical aircraft operations at an airport in the future. The concept is constructed on the basis of a set of specified variables including the number of aircraft movements, the aircraft mix and the daily profile of movements.</p> <p>ANEF (Australian Noise Exposure Forecast): An Australian Noise Exposure Forecast is the Australian Standard set of contours to be used for planning operations and administrative purposes and is generally for a specified time period. It is derived from a firm forecast of aircraft operations for a particular year or period. The ANEF can be based on one particular ANEC or can be a composite of a number of ANEC's. For Melbourne Airport it is a composite.</p> <p>ANEI (Australian Noise Exposure Index): A noise contour plan calculated using ANEF techniques, but with actual aircraft movement figures from a past year.</p>	<p>A380</p> <p>Aircraft mix</p> <p>Airport Strategy</p> <p>AEO</p> <p>BAA</p> <p>B747</p> <p>B767</p> <p>B737</p> <p>CAA</p> <p>CAAGR</p> <p>CASA</p> <p>D^oTARS</p> <p>Draft EIS</p> <p>EIS</p> <p>EMS</p> <p>EMP</p> <p>GDP</p> <p>GPS</p> <p>GSE</p> <p>IATA</p> <p>ICAO</p>	<p>Airbus A380 series aircraft</p> <p>Proportion of international, domestic, commuter and other aircraft by type</p> <p>Melbourne Airport Strategy (MAS)</p> <p>Airport Environs Overlay - Schedule 1 and 2</p> <p>BAA plc. Owners and operators of airports: London Heathrow, Gatwick, Stansted, etc.</p> <p>Boeing 747 "Jumbo" Jet</p> <p>Boeing 767 - 200 and 300 series aircraft</p> <p>Boeing 737 aircraft</p> <p>Civil Aviation Authority</p> <p>Compound Average Annual Growth Rate</p> <p>Civil Aviation Safety Authority</p> <p>Department of Transport and Regional Services</p> <p>Draft Environmental Impact Statement for MAS</p> <p>Environmental Impact Statement</p> <p>Environmental Management System</p> <p>Environmental Management Program</p> <p>Gross Domestic Product</p> <p>Global Positioning System</p> <p>Ground Support Equipment</p> <p>International Air Transport Association</p> <p>International Civil Aviation Organisation</p>
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IFR	Instrument Flight Rules
ILS	Instrument Landing System
INM	Integrated Noise Model
JUHI	Joint User Hydrant Installation
LAHSO	Land and Hold Short Operations
MAS	Melbourne Airport Strategy
NLA	New Large Aircraft (eg. Airbus A380)
OLS	Obstacle Limitation Surfaces
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
RPA	Rules and Practices for Aerodromes (Civil Aviation Safety Authority, Australia)
TAAATS	The Advanced Australian Air Traffic System
US-FAA	United States Department of Transportation Federal Aviation Administration
VFR	Visual Flight Rules
VPPs	Victoria Planning Provisions
VOR/DME	VHF Omni Range/Distance Measuring Equipment
09 L	approach to west end of existing east-west runway
09 R	approach to west end of proposed east-west runway
27 L	approach to east end of proposed east-west runway
27 R	approach to east end of existing east-west runway
16 L	approach to north end of existing north-south runway
16 R	approach to north end of proposed north-south runway
34 L	approach to south end of proposed north-south runway
34 R	approach to south end of existing north-south runway

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