



LEGISLATIVE ASSEMBLY

## Standing Committee on Public Works

### REPORT

*State Infrastructure Requirements  
for  
Sydney West Airport*

Report No.1

November 1995

**LEGISLATIVE ASSEMBLY**  
**STANDING COMMITTEE ON PUBLIC WORKS**

**CHAIRMAN**

Mr Paul Crittenden, MP

**COMMITTEE MEMBERS**

Mrs Dianne Beamer, MP.

Mr Andrew Humpherson, MP.

Dr Peter Macdonald, MP.

Ms Sandra Nori, MP.

Mr John Price, MP.

Mr Bill Rixon, MP.

The Hon George Souris, MP.

Mr Tony Stewart, MP.

Mr Gerry Sullivan, MP.

**COMMITTEE SECRETARIAT**

Mr Bill Dunbar                      Project Officer.

Ms Natasha O'Connor            Assistant Committee Officer.

Mr James Tremain                Committee Officer.

**CLERK TO THE COMMITTEE**

Mr Mark Swinson.

# **INQUIRY INTO STATE INFRASTRUCTURE REQUIREMENTS FOR SYDNEY WEST AIRPORT**

## **TERMS OF REFERENCE**

That the Standing Committee on Public Works inquire into and report to the Legislative Assembly on State infrastructure requirements for the development of Sydney West Airport as a major international and freight airport giving regard to:-

- a) the responsibilities of the State of New South Wales in providing infrastructure;
- b) how the provision of infrastructure by various bodies will be coordinated, including the proposed establishment of a Sydney West Airport Development Corporation;
- c) what infrastructure facilities need to be provided to facilitate the early opening of Sydney West Airport;
- d) what arrangements need to be put in place to preserve the environmental and quality of life concerns of those living near the airport;
- e) the balance of public and private sector involvement including who should pay the final bill for the infrastructure.

# TABLE OF CONTENTS

COMMITTEE MEMBERSHIP .....	
TERMS OF REFERENCE .....	
TABLE OF CONTENTS .....	
CHAIRMAN'S FOREWORD .....	
THE HISTORY AND FUNCTIONS OF THE COMMITTEE .....	
EXECUTIVE SUMMARY .....	
LIST OF RECOMMENDATIONS .....	

**CHAPTER 1      TERM A. STATE RESPONSIBILITIES FOR  
INFRASTRUCTURE PROVISION AT SWA**

**CHAPTER 2      TERM B. STREAMLINING AND COORDINATING  
INFRASTRUCTURE PROVISION THROUGH THE  
SWADC**

- 2.1    Introduction*
- 2.2    Current Infrastructure Planning in the SWA Sub-Region*
- 2.3    The Proposed Sydney West Airport Development Corporation (SWADC)*
- 2.4    Proposed Role and Functions of the SWADC*

**CHAPTER 3      TERM C. INFRASTRUCTURE REQUIREMENTS  
FOR THE ACCELERATED DEVELOPMENT OF  
SWA**

- 3.1    Introduction*
  - 3.1.1      Sydney West Airport: an Introduction**
  - 3.1.2      The Selection of Badgerys Creek**
  - 3.1.3      SWA: Development and Funding**
  - 3.1.4      Air Traffic Growth in Australia**
  - 3.1.5      Sydney's Status as First Port of Call in Australia**
  - 3.1.6      Leasing**
  - 3.1.7      Who Will Use SWA?**
  - 3.1.8      Coordinating Infrastructure for SWA and the SWA Sub-Region**

- 3.2 *Rail Links to Sydney West Airport***
  - 3.2.1 Introduction**
  - 3.2.2 Why Rail is Required in the SWA Sub-Region**
  - 3.2.3 The Interdependence of a Rail Link, Residential Development and SWA**
  - 3.2.4 Initial Rail Link: Glenfield-SWA**
  - 3.2.5 Cost and Time-Frame for the Glenfield-SWA Rail Link**
  - 3.2.6 Funding Issues**
  - 3.2.7 Reservation and Acquisition of Rail Corridors**
  - 3.2.8 Potential Demand and Timing for Construction**
  - 3.2.9 Train Service Frequency and Trip Times**
  - 3.2.10 The Rail Corridor Through the Airport Site**
  - 3.2.11 Proposals for an Initial Rail Link from the Main Western Line to SWA**
  - 3.2.12 The Longer Term Option: a Rail Link from St Marys/Werrington to SWA**
  - 3.2.13 Other Options for a Rail Link to SWA**
    - 3.2.13.1 A Direct Liverpool-SWA Rail Link**
    - 3.2.13.2 Light Rail**
    - 3.2.13.3 Buses Only**
  - 3.2.14 Linking SWA to the Metropolitan Network**
    - 3.2.14.1 The New Southern Railway**
    - 3.2.14.2 Direct Airport and Inter-Capital Links**
    - 3.2.14.3 Other Proposed and Planned Rail Enhancements**
    - 3.2.14.4 Access Between Northern and Western Sydney**
  - 3.2.15 Summary**
- 3.3 *Road Links to Sydney West Airport***
  - 3.3.1 Introduction**
  - 3.3.2 The Main Access Route to SWA**
    - 3.3.2.1 Elizabeth Drive**
    - 3.3.2.2 The National Highway**
    - 3.3.2.3 The Western Orbital-Stage 1**
    - 3.3.2.4 The M5**
    - 3.3.2.5 The M5 East**
  - 3.3.3 Relevant State and Regional Roads**
    - 3.3.3.1 Relevant State Roads**
    - 3.3.3.2 Relevant Regional Roads**
  - 3.3.4 RTA Advice About Likely Pressures on Roads in the SWA Sub-Region**
  - 3.3.5 Funding Additional Road Infrastructure in the SWA Sub-Region**
  - 3.3.6 Road-Based Public Transport**
    - 3.3.6.1 Buses To and From SWA**
    - 3.3.6.2 The On-Site Transport Package at SWA**
    - 3.3.6.3 Taxis and Hire Cars**
    - 3.3.6.4 Car Pooling**
    - 3.3.6.5 Bicycles**

- 3.4 *Aviation Fuel Supply*
- 3.5 *Electricity and Gas Supply*
  - 3.5.1 Relocation of the Transmission Line Crossing the SWA Site
  - 3.5.2 The Potential Cost of Relocating the Transmission Line
  - 3.5.3 Electricity Supply Requirements for SWA
  - 3.5.4 Electricity Supply: Unresolved Issues
  - 3.5.5 Gas Supply to SWA
- 3.6 *Water Supply and Sewerage Systems at SWA*
  - 3.6.1 Water Supply
  - 3.6.2 Sewerage System
- 3.7 *Health and Emergency Response Issues*
- 3.8 *Relocation Issues*
- 3.9 *Residential Development in the SWA Sub-Region*
  - 3.9.1 Population Growth in Western Sydney
  - 3.9.2 The Importance of Residential Development to the SWA Sub-Region
  - 3.9.3 Plans for Residential Development in NSW and Western Sydney
  - 3.9.4 Plans for Residential Development in the SWA Sub-Region
- 3.10 *Economic Development in the SWA Sub-Region*
  - 3.10.1 Introduction
  - 3.10.2 Economic Problems Facing Western Sydney
  - 3.10.3 Employment Needs of Western Sydney
  - 3.10.4 Western Sydney's Job Market
  - 3.10.5 Economic and Employment Opportunities Arising from SWA
  - 3.10.6 Councils' Policies to Promote Economic Development
  - 3.10.7 Opportunities for Agriculture
  - 3.10.8 Export and Freight
  - 3.10.9 Measures to Ensure SWA's Success as a Freight Airport
  - 3.10.10 Tourism
  - 3.10.11 Education and Training

## **CHAPTER 4      TERM D. MINIMISING THE ENVIRONMENTAL IMPACT OF SWA**

- 4.1 *Introduction*
  - 4.1.1 The Delicate Environmental Balance in the SWA Sub-Region
  - 4.1.2 The Need for Comprehensive Community Consultation over Airport and Environmental Matters
  - 4.1.3 The Need for a Central Authority to Ensure Ecologically Sustainable Development (ESD) in the SWA Sub-Region

- 4.2 Aircraft Noise**
  - 4.2.1 Introduction: Avoiding a Repetition of Inner Sydney Aircraft Noise Problems**
  - 4.2.2 The ANEF System**
  - 4.2.3 AS 2021-1994: The ANEF System and Land Use Planning**
  - 4.2.4 Phasing Out Noisy Aircraft in Australia**
  - 4.2.5 ANEF Contour Maps for the Draft EIS (1985)**
  - 4.2.6 Addressing the Limitations of the ANEF System at SWA**
  - 4.2.7 Flight Corridors for SWA**
  - 4.2.8 The Use of the ICAO A Departure Procedure at SWA**
  - 4.2.9 Noise Monitoring Programs at SWA**
  - 4.2.10 Aircraft Noise Health Studies**
  - 4.2.11 The Development of a Noise Management Plan for SWA**
  - 4.2.12 A Prohibition on Residential Development near SWA**
  - 4.2.13 Proposed Residential Development to the South-East of SWA**
  - 4.2.14 The Insulation and Acquisition Program at SWA**
  
- 4.3 The Acoustic Environment in Bushland Areas**
  - 4.3.1 Introduction**
  - 4.3.2 Bents Basins State Recreation Area**
  - 4.3.3 National Parks**
  
- 4.4 Air Quality**
  - 4.4.1 Sydney's Air Quality Problems**
  - 4.4.2 Pollution Types in Sydney**
  - 4.4.3 Air Quality Studies in Western Sydney (1991)**
  - 4.4.4 Existing Air Quality Monitoring in the SWA Sub-Region**
  - 4.4.5 The Metropolitan Air Quality Study (MAQS), 1992-95**
  - 4.4.6 Initiatives Arising from the MAQS**
  - 4.4.7 The RTA Plan for Reducing Motor Vehicle Emissions**
  - 4.4.8 How Individuals Can Help to Improve Air Quality in Sydney**
  - 4.4.9 The Impact of Airport Operations on Air Quality**
  - 4.4.10 The EIS Update on Air Quality (1995)**
  - 4.4.11 Conclusions**
  
- 4.5 Water Quality**
  - 4.5.1 Introduction**
  - 4.5.2 The Hawkesbury-Nepean River System and South Creek Catchment**
  - 4.5.3 The Current State of Water Quality in South Creek**
  - 4.5.4 The Need for Water Quality Testing Near the SWA Site**
  - 4.5.5 The Existing Water Quality Management Structure in the Hawkesbury-Nepean River System**
  - 4.5.6 The Needs for Better Organisation of Water Quality Management**
  - 4.5.7 The Riverkeeper Project**
  - 4.5.8 Water Quality at the SWA Site: Introduction**
  - 4.5.9 Water Quality at the SWA Site: The Draft EIS (1985)**

- 4.5.9.1 Airport Construction Stage
- 4.5.9.2 Airport Operational Stage
- 4.5.10 Updated EIS on Water Quality (1995)
  - 4.5.10.1 Proposed SWA Drainage System
  - 4.5.10.2 Preserving Stormwater Quality
  - 4.5.10.3 Staged Development of Detention Basin System at SWA
  - 4.5.10.4 Sewerage Treatment and Re-Use of Effluent

**4.6 Waste Management**

- 4.6.1 Waste Management at the SWA Site
- 4.6.2 Waste Management in the SWA Sub-Region

**4.7 Issues Relating to Aboriginal Culture**

**4.8 Flora and Fauna**

- 4.8.1 Flora
- 4.8.2 Fauna

**CHAPTER 5 TERM E. FUNDING SWA INFRASTRUCTURE PROGRAMS**

- 5.1 *Infrastructure Requirements*
- 5.2 *Current Constraints on State Funding for Infrastructure*
- 5.3 *Funding the Rail Link to SWA*
- 5.4 *Possible Methods for Recouping the Cost of Infrastructure fro SWA*

**LIST OF SUBMISSIONS . . . . .**

**LIST OF WITNESSES . . . . .**

**LIST OF SOURCES . . . . .**

**LIST OF TABLES . . . . .**

**PROCEEDINGS OF THE COMMITTEE . . . . .**

**LIST OF ACRONYMS AND ABBREVIATIONS . . . . .**

**LIST OF MAPS . . . . .**

**MAPS . . . . .**



## CHAIRMAN'S FOREWORD

I am pleased to table the first report of the Standing Committee on Public Works since it was reactivated by the Government in May 1995.

The Report on State Infrastructure Requirements for Sydney West Airport imposed an onerous responsibility on the Committee because of the need to move quickly to establish an administrative structure so that the airport can be successfully opened in time for the 2000 Sydney Olympics.

The Committee was well aware of the need to expedite the reporting process but explored every avenue to ensure that the public were well informed of the inquiry and given every opportunity to participate in it. The Committee eventually received more than 60 major submissions and held public hearings at which 26 witnesses appeared. This included representatives from all relevant Government Departments and agencies, almost every major economic institution and Local Government authority in Western Sydney, and many experts from the aviation industry.

The Committee concentrated its investigation on the following key areas:

- Determining parameters for the Sydney West Airport Development Corporation (SWADC) which will take up the recommendations of the Committee's report as the foundation for its work in the SWA Sub-Region.
- Reviewing Commonwealth road funding to confirm that it is sufficient for the construction and operation of the airport.
- Developing a strategy for the delivery of rail infrastructure to the airport and SWA Sub-Region which would balance an economically viable level of residential development with the need to preserve the environment.
- Ensuring environmentally sustainable types and levels of urban development at SWA and in the SWA Sub-Region.
- Promoting a holistic approach to environmental problems in the Sydney region to enhance air and water quality in the SWA Sub-Region.
- Protecting Western Sydney residents against aircraft noise by producing strategies to minimise exposure to SWA and ensuring that misplaced residential development under flight corridors never occurs in the SWA Sub-Region.
- Suggesting innovative funding mechanisms for infrastructure, particularly the rail link to SWA.

The Members of the Committee brought a great deal of experience and a wide-range of interests to the inquiry process. This enabled the specific concerns and needs of Western Sydney, inner Sydney and regional New South Wales to be considered in an integrated and

comprehensive assessment of SWA.

I would like to thank the staff, especially Mr Bill Dunbar for his indivisible contribution. The following officers also assisted the committee's inquiry: Dr Tania Sweeney, Ms Joan Simpson and Mr Roger Sayers.

This report offers a blueprint for the development of SWA and the SWA Sub-Region.

It contains many pages of recommendations on a wide-variety of subjects which should be taken up by both Commonwealth and State Governments to ensure that the opportunities arising from SWA are realised without negative environmental impacts. The information and recommendations in this report provide a crucial checklist for SWADC as it begins to plan land use controls for the SWA Sub-Region.

This report is intended as a document for public distribution and consumption. It provides an important resource for the residents of Western Sydney, and indeed all citizens of New South Wales, informing them of what will happen at one of the largest and most important developments in Sydney during the next century.



Paul Crittenden MP,  
**Chairman**

## **THE HISTORY AND FUNCTIONS OF THE COMMITTEE**

The Standing Committee on Public Works was originally established in New South Wales in 1887. Its operations were suspended in 1930.

It was re-activated by Motion of the Legislative Assembly on 25 May 1995 with the following principle Term of Reference:

That a Standing Committee on Public Works be appointed to inquire into and report from time to time, with the following terms of reference:

As an ongoing task the Committee is to examine and report on such existing and proposed capital works projects or matters relating to capital works projects in the public sector, including the environmental impact of such works, and whether alternative management practices offer lower incremental costs, as are referred to it by:

- the Minister for Public Works and Services, or
- any Minister or by resolution of the Legislative Assembly, or
- by motion of the Committee.

The Committee comprises 10 members of the Legislative Assembly, six members representing the Government, three members representing the Opposition, and one Independent member to be nominated in writing to the Clerk of the Legislative Assembly.

The Committee has the power to make visits of inspection within New South Wales and other states and territories of Australia.

The Committee's intended role was clarified in a speech given to the Parliament by the Hon Paul Whelan, Minister for Police and Leader of the Government in the House, on 25 May 1995:

The Committee may inquire into the capital works plans of State-owned corporations and joint ventures with the private sector. The Committee will seek to find savings in capital works programs whilst achieving a net reduction in environmental impacts by public sector developers. The Committee's work is expected to provide incentives to the public sector to produce more robust cost-benefit analyses within the government budgetary process and to give more emphasis to least-cost planning approaches. The Committee will be sufficiently resourced to enable it to conduct parallel inquiries into specific projects and capital works programs generally.... it will have sufficient resources to inquire into the capital works program of all government agencies whose capital works programs affect the coastal, environmental and transport sectors.

The Standing Committee on Public Works absorbed the functions of the Standing Committee on the Environmental Impact of Capital Works.

## **THE CURRENT INQUIRY**

The Committee's current inquiry, known as the Inquiry into State Infrastructure Requirements for Sydney West Airport, was initiated by the Minister for Public Works and Services, the Hon Michael Knight, on 6 June 1995.

In response to a letter from Dr Peter Macdonald on 6 June 1995, the Chairman wrote to the Minister requesting an amendment to Term (d) of the Terms of Reference.

The Committee received the following final Terms of Reference from the Minister for Public Works and Services, the Hon Michael Knight:

That the Standing Committee on Public Works inquire into and report to the Legislative Assembly on State infrastructure requirements for the development of Sydney West Airport as a major international and freight airport giving regard to:-

- a) the responsibilities of the State of New South Wales in providing infrastructure;
- b) how the provision of infrastructure by various bodies will be coordinated, including the proposed establishment of a Sydney West Airport Development Corporation;
- c) what infrastructure facilities need to be provided to facilitate the early opening of Sydney West Airport;
- d) what arrangements need to be put in place to preserve the environmental and quality of life concerns of those living near the airport; and
- e) the balance of public and private sector involvement including who should pay the final bill for the infrastructure.

## **THE CONDUCT OF THE INQUIRY**

The Committee faced a demanding task in fulfilling its Terms of Reference because of:

- the scale of the proposed airport development;
- the division of responsibilities between the Commonwealth and several State Government Departments and agencies;
- the need to make contact with a large group of councils and interest groups;
- the desire to give individuals the opportunity to offer their opinions and ideas.

The Committee was aware that its report had to be delivered in the shortest possible time so that the NSW Government could determine the administrative structure which would facilitate infrastructure provision and a framework for environmentally sustainable development in the SWA Sub-Region in time for the opening of the airport for the Sydney 2000 Olympics.

The Committee adopted the following procedures to ensure that its inquiry was widely publicised and that all institutions, groups and individuals with an interest in the development of Sydney West Airport were given the opportunity to offer their ideas and opinions:

- Publicly calling for submissions. The Committee placed advertisements in all major Sydney newspapers and received a total of 65 submissions including major submissions from Government Departments, Government agencies and councils.
- Targeting key stakeholders. The Committee formulated a list of institutions and groups who were personally contacted by staff of the Committee, made aware of the inquiry and encouraged to forward a submission.
- Conducting field visits. The Chairman and Committee staff visited the airport site and followed up several submissions by interviewing senior officers of Government Departments, Government agencies and councils.
- Holding Public Hearings. The Committee heard from a total of 26 witnesses.
- Receiving background briefings. The Committee received briefings from the Dr Hugh Milloy of the Commonwealth Department of Transport, Ms Jane Weder of the Coalition of Councils, and Mr Sean O'Toole, Chairman of the Task Force for the SWA Sub-Region.

The resulting report details the Committee's investigation and recommendations about what actions the NSW Government can take to prepare for the smooth opening of Sydney West Airport, maximise the economic and employment opportunities arising from the airport and minimise the environmental impact of both the airport and airport-related development on the ecologically sensitive SWA Sub-Region.

The report is intended as a document for public distribution and consumption, which will provide an important resource for the residents of Western Sydney and, indeed, all citizens of New South Wales, which will give them an indication of what they can expect to happen at this new major international and freight airport and in the surrounding region.

The structure of the report is dictated by the Terms of Reference.

Chapter 1 defines Term (a), which is the actual responsibilities of the State of New South Wales for providing infrastructure for the airport and for encouraging and coordinating development in the sub-region.

Chapter 2 investigates Term (b), which is the type of authority that should oversee the provision of infrastructure and sub-regional development; giving specific attention to a development corporation model.

Chapter 3 deals with Term (c), which seeks a detailed assessment of the actual infrastructure requirements for the judicious accelerated development of Sydney West Airport as a major international and freight airport for the Sydney 2000 Olympics.

Chapter 4 responds to Term (d), which requires an evaluation of the potential environmental impacts of Sydney West Airport. This evaluation must be undertaken in the context of efforts to deal with existing environmental problems in Western Sydney, particularly air quality and water quality. It also requires an examination of the potential impact of aircraft noise on residents of Western Sydney and seeks recommendations which the NSW Government can raise with the Commonwealth during negotiations over the introduction of a Noise Management Plan for Sydney West Airport.

Chapter 5 responds to Term (e), which asks for an appraisal of how initial airport infrastructure will be funded. This chapter also looks at some longer-term methods for funding airport-related development and the cost of environment protection measures.

The result is a report which offers a blueprint for the development of Sydney West Airport and the Sub-Region from the perspective of State responsibilities.

The Committee believes that the information and recommendations contained in this report will provide a crucial resource for the authority which ultimately takes control of this major infrastructure development in Western Sydney.

## EXECUTIVE SUMMARY

The decision by the Commonwealth to spend \$762 million and accelerate the development of Sydney West Airport at Badgerys Creek as a major international and freight airport for the Sydney 2000 Olympics poses an enormous challenge for the NSW Government. It must ensure that judicious land use and infrastructure planning encourage appropriate urban development around the airport in the SWA Sub-Region.

The long term requirements of the aviation industry and the economic opportunities which the new airport will generate must be balanced against the environmental and quality-of-life needs of people in Western Sydney.

Western Sydney faces major economic development problems because job supply has lagged behind the workforce growth. SWA offers Western Sydney the opportunity to secure a commercially viable international airport with an associated commercial/industrial complex that will complement and reinforce other economic development catalysts planned for the region. These projects represent a strategic infrastructure network that will significantly enhance the region's competitive base, create jobs and provide opportunities for residential development in the SWA Sub-Region.

### **SWADC**

The Committee believes a central authority to oversee the development of the SWA Sub-Region is essential.

The Sydney West Airport Development Corporation (SWADC) should be established immediately with comprehensive planning powers over the entire SWA Sub-Region. Such an authority is essential to ensure industrial and residential development is integrated into an Environmental Management Plan guaranteeing sustainable air and water quality and the minimisation of aircraft noise.

SWADC should be accountable to Parliament for the identification of all infrastructure required for SWA. It should coordinate the various bodies involved in the Sub-Region's development and refer to the Government any matters which may need expeditious resolution to meet completion targets for the airport opening date in 1999.

The SWADC board should include representatives from State, Commonwealth and Local Government. The number of board members should be minimised to ensure focussed decision-making. Comprehensive community consultation should be facilitated through the sub-committees established to address issues of particular importance. At the State level, SWADC should report to the Premier.

SWADC should be set clear objectives at the outset with agreed performance measures and milestones. Initial objectives for SWADC should include:

- coordinating infrastructure planning and provision;
- establishing a strategic planning framework for the SWA Sub-Region; and

- 
- providing a focal point for regional development, marketing and promotion in consultation with existing Western Sydney organisations and the FAC or lessees of the airport.

Given time constraints, SWADC should complete a strategic plan as a matter of urgency, possibly within 12 months. The plan should include a regional development plan, development instruments and an environmental management plan drafted in accordance with ESD principles. Administration of the regional plan and the development approval process conducted by Local Councils with concurrence by the Minister for Urban Affairs and Planning.

A sunset clause for SWADC should be set at five years, followed by a review which should include an option for extension for a further specified period. SWADC should not be provided with an asset base or land development powers.

### ***Economic Development***

SWA will be Sydney's second major airport and is being developed with facilities to cater for all sectors of the aviation market. The airport will be curfew-free and capable of handling major domestic and international jet traffic. It will be required to handle all freight movements during the KSA curfew hours. The master plan for Sydney West Airport includes two widely spaced parallel runways 4,000m and 2,500m long and room for future generations of aircraft with 95m wingspans. The EIS for the selection of the Badgerys Creek site (1985) was based on an ultimate annual capacity of 275,000 aircraft movements and 13 million passengers.

The first stage of development at SWA for 1999 will include:

- a 2,900m runway (on the same alignment as the planned 4,000m runway);
- parking spaces for four B747s and four B737s;
- international standard air traffic control, rescue and fire fighting facilities;
- a 10,000sq/m passenger terminal with a capacity of more than 1 million passengers a year; and
- cargo handling, designated charter/commuter and helicopter areas.

In the 1995 Budget, the Commonwealth Government reaffirmed its commitment to accelerate the development of Sydney West Airport by announcing \$762 million funding aimed at ensuring the airport opens by late 1999.

There are specific forces at work in Western Sydney which will add a new dimension to airport-related activity at SWA. SWA will give both new entrants into the Australian market and established carriers the opportunity to develop new niche markets and to further increase competition within the airline industry. It will also provide a focus for high-tech, value-added



exports from manufacturing industries in Western Sydney.

In general terms, demand for SWA will come from:

- air traffic growth in the Sydney region;
- new entrants and competition in the airline industry;
- transfer of flights from KSA because of air traffic congestion;
- the enforced transfer of curfew-period freight flights from KSA;
- the export needs of the freight industry in Western Sydney;
- passenger trips by residents of Western Sydney.

The key benefits to Western Sydney from SWA will be:

- 17,500 jobs across Australia including 7,500 jobs in Western Sydney in the airport construction phase (NIEIR figures);
- employment growth of at least 40,000 jobs (including direct and indirect employment) when SWA reaches capacity (NIEIR figures);
- enhanced export opportunities as a result of closer integration with national and international markets, and upgraded infrastructure;
- increased tourism because of increased national and international profile;
- changes to land use planning in Western Sydney which will establish a growth pole in the region and attract high value-added industries, including tourism and hospitality, aerospace, engineering, and just-in-time warehousing;
- stimulating growth in corridors supporting road and rail infrastructure to the airport; and
- providing new opportunities for international and national investment associated with the availability of major land holdings on both the airport site and off-site for greenfield industrial and mixed use sites well beyond 2010.

SWADC in collaboration with WSROC and Western Sydney Local Government authorities must ensure industrial development in Western Sydney is coordinated to minimise premature or misplaced spending. Spare capacity in existing industrial estates in Western Sydney must be used before substantial development is allowed in the SWA Sub-Region.

SWADC should target demand for new industrial development in the SWA Sub-Region at

the proposed Erskine Park Employment Zone. The zone is close to the airport, on major transport arteries and near population centres. Promoting the Erskine Park Employment Zone as the initial designated "airport enterprise zone" for SWA would ensure the region north of the airport directly benefited and was not frozen-out by development being concentrated along the proposed rail link to Glenfield in the south.

### ***Transport Infrastructure***

A good transportation network is essential for orderly and environmentally sustainable urban development of the SWA Sub-Region and Western Sydney.

Development at SWA will provide the catalyst for the development of cross-regional transport systems within Western Sydney, large areas of which are not serviced by good roads or reliable public transport.

The Commonwealth Government's allocation of \$260 million for road links to service SWA will ensure the smooth construction and initial viability of the airport, and increase community and business confidence in the Commonwealth's commitment to the project. It will also help traffic movement across Western Sydney, especially along the north-south axis.

It is crucial that a rail link to SWA is constructed and that it is economically viable.

The Committee recommends that the Glenfield-SWA rail line via the proposed South Creek Valley urban development area should be constructed as soon as possible, subject to environmental constraints. It should precede any residential development in the SWA Sub-Region, which should be concentrated along the rail line to ensure minimum environmental impact on the SWA Sub-Region.

The Glenfield rail line would link SWA to existing regional and metropolitan rail networks in Sydney along the less congested East Hills line which, in turn, would connect SWA to KSA and the Sydney CBD via the new Southern Railway.

The first stage of this process is the reservation and acquisition of the rail corridor between Glenfield and SWA. This must be done as a matter of urgency. In addition, the FAC must reserve a boundary-to-boundary rail corridor through the SWA site, select a viable location for the airport station and ensure that the 1.3km tunnel and box for the station are completed as part of the initial stage of airport construction.

In the long term, the rail link should be expanded to link SWA to St Marys/Werrington in the north.

The goal should be an efficient, reliable and reasonably priced public transport network which enables people in Western Sydney to travel to and from work without having to drive.

### ***Residential development***

The development of SWA offers a rare opportunity to construct a land transport network which can positively influence the form and pace of urban development in the SWA Sub-

Region. Transport planning options must be carefully considered to achieve optimum transport infrastructure and optimum (as opposed to maximum) residential development.

Residential development in the SWA Sub-Region must balance environmental and economic factors to produce a sustainable outcome for all Western Sydney residents.

The South Creek Valley RES was deferred in 1992 because of concerns about air and water quality if up to 200,000 people were located in what is effectively the SWA Sub-Region. Clearly, residential development on this scale is not feasible.

The population in the SWA Sub-Region should be limited, at this stage, to between 90,000 and 100,000, subject to any new environmental constraints being identified.

In addition, Liverpool Council should be allowed to withdraw areas earmarked for development by the Urban Development Program to compensate for the population increase along the proposed rail line to SWA. The total population of Liverpool LGA should not exceed 200,000 people in the next 15 years.

Given the environmental pressures on the SWA Sub-Region, residential development should proceed along the rail line to SWA limited to a level sufficient to ensure that the rail link between Glenfield and SWA is economically viable. High density housing (60 dwellings per hectare) around rail stations to SWA should be strictly limited. There should be medium to low density development to cater for young families, although the edge or fringe of development should as a rule be limited to 2kms from the nearest rail station.

### ***Environmental Issues***

There is very little environmental latitude in the SWA Sub-Region and no room for error. Maintaining the balance between urban development and the capacity of the environment to sustain such development is critical in the SWA Sub-Region.

The SWA Sub-Region's environmental capacity will determine the level and type of urban development which takes place around the airport. The region cannot be treated in isolation because its water and air quality are polluted by sources in other parts of the Sydney basin.

For example, the SWA Sub-Region is a receptor area for emissions produced throughout the Sydney basin. A holistic approach, combining innovative fuel consumption, urban planning and land transport strategies must be developed to improve air quality.

SWADC should be responsible for developing an Environmental Management Plan for the SWA Sub-Region. The plan should draw together all the Committee's recommendations on environmental matters.

SWADC and the EPA should establish an Emissions Control Strategy as part of the region's Environmental Management Plan. The strategy should include monitoring programs, an emissions inventory with standards for all criteria pollutants, prohibitions on industries which produce large quantities of emissions, and strategies for attracting clean industries.

Water quality problems which will affect development in the SWA Sub-Region are largely caused by residential and industrial development well downstream from the airport site, and beyond the boundaries of the Sub-Region. The run-off from the airport will feed into South Creek which is already the most polluted catchment in the Hawkesbury-Nepean River system and subject to one of the fastest rates of urbanisation in Australia.

It is essential that water quality in South Creek catchment is not degraded by airport operations and urban development in the SWA Sub-Region.

There must be a water quality monitoring system at South Creek and Badgerys Creek to establish baseline data. This data should be used to develop a total water cycle management system which would enable new residential and industrial developments to achieve high quality outputs.

Two facets of this process are crucial. Water quality strategies must be introduced by the Commonwealth to control output from the SWA site; and mechanisms for ensuring water quality control from residential and industrial developments in the Sub-Region.

Sewage at SWA should be treated on site to a Best Management Practice standard. Effluent/wastewater must be of potable standard to allow re-use in airport buildings and grounds. Adequate stormwater management programs must be put in place to control quality and quantity of stormwater from the SWA site and to avoid flooding.

Preparation of a waste management strategy for Sydney West Airport must be urgently considered. It should include waste minimisation at its sources, on-site segregation of quarantine and non-quarantine waste, and comprehensive recycling facilities.

Similarly, new residential and commercial developments in the SWA Sub-Region must proceed with clear waste minimisation guidelines. In particular, the SWADC must implement and monitor programs which encourage the reduction, reprocessing and recycling of waste in tandem with increased charges for straightforward waste disposal.

### *Noise*

Aircraft noise is the greatest concern of Western Sydney residents. The noise problems in inner Sydney have created a justifiable climate of apprehension which must be addressed urgently if SWA is to become recognised as a valuable asset for Western Sydney.

There are tangible reasons to believe that the impact of aircraft noise on major population centres in Western Sydney will never approach the scale of problems in inner Sydney. These reasons include:

- the comparative sizes of the airport sites. SWA is 1770ha and KSA is only 660ha. Virtually the entire area defined as being in the 40 ANEF zone at SWA by the 1985 EIS is located on the airport site;
- the much lower level of residential development in the immediate SWA Sub-

Region in comparison with densely-populated suburbs north of KSA; and

- large population centres in Penrith and Liverpool LGAs are at a tangent to the SWA runway alignment and will not be regularly overflowed.

While it is impossible to directly compare aircraft noise from KSA with that forecast for SWA when it is operating at full capacity, the following table offers a rudimentary form of comparison.

**TABLE 1: APPROXIMATE DISTANCE OF SUBURBS FROM SYDNEY'S MAJOR AIRPORTS (DIRECTION FROM AIRPORT IN PARENTHESES)**

APPROXIMATE DISTANCE FROM SYDNEY'S AIRPORTS	SWA	KSA
5kms	Kemps Creek (N-E)	Enmore, Newtown (N) Kurnell (S)
10kms	Horsley Park (N-E) Silverdale (S-W)	Drummoyne (N) Cronulla (S)
15kms	Prospect Reservoir (N-E)	Chatswood (N)
20kms	Greystanes (N-E)	Gordon (N)
25kms	Northmead (N-E)	Wahroonga, Dee Why (N)
30kms	Carlingford (N-E)	Kuringai Chase Nat. Park (N)

Even though suburbs around SWA are unlikely to experience the aircraft noise problems of inner Sydney, the existing system for measuring aircraft noise must be amended and land use planning controls must be instituted which prohibit residential development beneath flight corridors.

The failure of the ANEF system to accurately predict human response to aircraft noise from KSA must be acknowledged and steps put in place to revise the system. Such a revision needs to include 15 ANEF contour lines on maps; consider the maximum levels of aircraft noise events in aircraft noise forecasts; give a significantly greater weighting for night flights in response to SWA operating as a no curfew airport; and take into account the rural character, topography and climate of the area surrounding SWA.

The Committee believes there are several steps the Commonwealth should taken to alleviate aircraft noise exposure to existing residents in Western Sydney:

- tight mandatory flight corridors should be imposed for five nautical miles from SWA to ensure that aircraft do not overfly densely-populated areas near the airport;
- the ICAO A Departure Procedure should be introduced to reduce the range

and intensity of aircraft noise impact on areas that are 10km from SWA;

- a strategy to minimise fly-overs in the densely-populated areas north-east of SWA between 11pm to 6am should be developed; and
- night operations should be concentrated over the sparsely-populated region south-west of SWA (especially through nose-to-nose operations).

The NSW Government and SWADC should act immediately to ensure new residential developments avoid areas exposed to aircraft noise.

The SWADC should:

- place a prohibition on all new residential developments along proposed runway alignments at SWA for 10km; and
- it should have the power to prohibit residential development beyond the 10km exclusion zone (where it has jurisdiction and considers aircraft noise will detract from quality of life).

Measures are also needed in LGAs outside the SWA Sub-Region to ensure that exposure to aircraft noise is minimised, particularly south-west of the airport in Wollondilly Shire.

The Department of Urban Affairs and Planning should:

- place a moratorium on new residential developments in Penrith, Liverpool and Fairfield LGAs within a distance of 20kms from SWA until the EIS update on aircraft noise is completed in 1996 and a review has taken place of likely aircraft noise impacts;
- reject the Bushrangers Creek rezoning application submitted by Wollondilly Council; and
- suspend approval of new residential developments in the Warragamba and Silverdale regions.

Comprehensive community involvement and public accountability by Government authorities are crucial to allay concern about possible aircraft noise impacts from SWA.

This process should include production of an information kit in plain English and other languages explaining operations at SWA including maps with forecasts of aircraft noise from SWA for every stage of airport development (including a breakdown of day and night operations).

A comprehensive, long term study of the relationship between aircraft noise/emissions and human health in Sydney with a specific focus on impacts arising out of SWA and a credible

Aircraft Noise Management Plan are also required.

***Funding***

The Commonwealth has provided \$762 million to ensure that SWA can be constructed and successfully opened before the 2000 Sydney Olympics. These funds are largely directed at airport facilities and the road network which will service the airport.

Planning for additional infrastructure items must be flexible and incorporate "best practice project evaluation" standards including full cost-benefit analyses to ensure that infrastructure projects are prudent and properly timed.

Private sector involvement in infrastructure in the SWA Sub-Region should be considered on a case-by-case basis including full risk assessment and risk management plans.

Possible funding mechanisms for additional infrastructure items include car park levies, airline ticket levies and value capture taxation for properties along the rail corridor to SWA. The Committee recommends that these options should be carefully investigated by Treasury. They are designed to ensure that users and other beneficiaries fund infrastructure such as the proposed rail line.

These funding options represent methods for recouping the costs of building infrastructure. The initial funding for infrastructure must still be provided.

There will be continued competition for limited State Government funds for the foreseeable future and there is limited scope for private sector involvement in funding the rail link to SWA.

The most important additional infrastructure item requiring funding in the SWA Sub-Region is the rail link to SWA, which will service both the new airport and urban development in the SWA Sub-Region.

The immediate reservation and acquisition of the rail corridor is essential and will cost between \$64-74 million.

## RECOMMENDATIONS

### CHAPTER 2 THE SYDNEY WEST AIRPORT DEVELOPMENT CORPORATION (SWADC)

1. That having regard to the intended time frame for construction of SWA by the 2000 Sydney Olympics, the Sydney West Airport Development Corporation (SWADC) should be established as a matter of urgency. (2.4)
2. That the draft strategy being developed by the Task Force on Planning for the Sub-Region Surrounding Sydney West Airport should be completed by March 1996 at the latest and referred to SWADC for further refinement and implementation. The Task Force should then be disbanded. (2.4)

#### *SWADC: Role and Powers.*

3. SWADC should become the focal point for all infrastructure and other matters relating to the development of SWA as well as planning issues relating to the SWA Sub-Region. (2.4)
4. SWADC should recommend to the Premier the overriding parameters for regional development, following consultation with relevant authorities (including Local Councils) and the exhibition of all plans for public comment. (2.4)
5. Provision of an asset base or land development powers for SWADC is not recommended by the Committee as it is not considered necessary or desirable. Provision of new residential and industrial/commercial land by other bodies within the context of the strategic plan set by SWADC is considered a more appropriate method of operation in this regard. (2.4)
6. With respect to the availability of industrial land and the need to encourage employment in Western Sydney, SWADC should review the relative merits of promoting utilisation of spare capacity in existing industrial estates in Western Sydney, compared with developing new sites in SWA Sub-Region in the initial period. (2.4)

#### *SWADC: Accountability.*

7. SWADC should be accountable to Parliament for the identification of all infrastructure required for SWA, taking all necessary steps to achieve coordination among the various bodies involved, and reporting to Parliament on any matters that require resolution in order to meet completion targets for individual infrastructure works to achieve the airport opening date.



An Annual Report should be presented to Parliament and SWADC should also have the power to report to Parliament at other times. (2.4)

8. SWADC should be accountable to the Premier and one Federal Minister. (2.4)
9. At the State level, SWADC should report to the Premier. (2.4)
10. The Commonwealth Government should be asked for advice on relevant Commonwealth legislative aspects, including the nomination of a responsible Minister. (2.4)

*SWADC: Structure.*

11. The SWADC Board should have representatives from State, Commonwealth and Local Government. It should be funded by contributions from the State and Commonwealth Governments. (2.4)
12. The number of Board members should be kept to the minimum in order to enable focussed decision-making. (2.4)
13. Wide ranging community consultation and input should be facilitated by SWADC through the establishment of ad hoc or standing sub-committees for particular issues of importance. (2.4)
14. With regard to Local Government representation at Board level, the Committee believes that WSROC (and/or possibly MACROC) may be the appropriate representative body in order to avoid an unwieldy arrangement. Input from individual Councils, including those not directly covered in the proposed SWA Sub-Region, could be provided either via sub-committees of SWADC or through WSROC, depending on the nature of issues needing to be addressed at particular times. (2.4)
15. Staffing of SWADC should be mainly on a secondment basis from relevant agencies. The organisation should be lean, in accordance with its role and accountabilities. (2.4)

*SWADC: Objectives.*

16. SWADC should be set clear objectives, with agreed performance measures and milestones established at the outset. (2.4)
17. Initial objectives should include, but not necessarily be limited to:
  - Coordinating infrastructure planning and provision.

This would be achieved through consultation with relevant authorities, to ensure that the infrastructure necessary for SWA will be in place by 1999.

- **Establishing a strategic planning framework for the SWA Sub-Region.**  
Given time constraints, this framework should be completed as a matter of urgency within an appropriate target time frame (possibly 12 months). It should include production of a regional master plan, development instruments and plans for environmental management systems. Administration of the regional plan and the development approval process, should be carried out by Local Councils, with concurrence by the Minister for Urban Affairs and Planning that proposals were in accordance with the regional plan, as appropriate.
- **Assessing the economic, environmental and social impacts on the whole State of New South Wales.**
- **Providing a focal point for regional development, marketing and promotion.**  
The Committee notes that there are a number of established and effective organisations in Western Sydney which are capable of carrying out a regional promotional role including WSROC, MACROC, GWSRCCI and GWSEDB. SWADC should liaise with these organisations and seek their cooperation in a coordinated promotional campaign. The FAC and/or the airport lessee should also be included (a marketing program to promote SWA will undoubtedly form part of business plans for the airport). A marketing and promotion sub-committee would provide a forum in which a strategic marketing and promotion plan could be formulated. The strategic plan could then be implemented through the above mentioned individual bodies, resulting in coordinated efforts to attract new industry and commerce to the region. (2.4)

*SWADC: Sunset Clause*

18. The sunset clause for SWADC be set at five years followed by a review with an option for:
- extension for a further specified period; or
  - distribution of SWADC's responsibilities amongst appropriate authorities.
- (2.4)

**CHAPTER 3            INFRASTRUCTURE REQUIREMENTS FOR THE  
ACCELERATED DEVELOPMENT OF SYDNEY WEST  
AIRPORT (SWA)**

### 3.2 RAIL

19. **Construction of a rail link to SWA is essential. The Committee's preferred route is from Glenfield to SWA via South Creek Valley Centre. (3.2.4)**
20. **Residential development should not be allowed to proceed in the SWA Sub-Region without a rail line (i.e. any rail line must be built before such development can proceed). (3.2.4)**
21. **Residential development in the SWA Sub-Region should be clustered around proposed rail stations, with only low density development beyond a 2km radius. (2.3.4)**
22. **The rail link between Glenfield and SWA should be a double track system. (3.2.6)**
23. **It is critical that a corridor for the SWA-Glenfield rail line should be reserved as soon as possible. (3.2.7)**
24. **Further rail travel demand studies associated with SWA's development should be undertaken as soon as possible and should include the relationship between:**
  - **rail and road demand;**
  - **airport growth and urban development (incorporating the results of various reviews of the feasibility of residential development in the SWA Sub-Region); and**
  - **comparative pricing of different transport types. (3.2.8)**
25. **Any analysis of potential demand for a Glenfield-SWA rail line should:**
  - **be conducted with the involvement of the NSW Department of Transport, State Rail and the SWADC;**
  - **be evaluated by the NSW Treasury and the Department of State Development;**
  - **take place on the basis of population projections for the SWA Sub-region outlined in this report of 90,000 to 100,000 people; and**
  - **include consultation with Local Government concerning appropriate location and densities for residential development. (3.2.8)**
26. **An adequate number of Glenfield-SWA services should stop at stations in the SWA Sub-Region for the benefit of local residents. (3.2.9)**

27. A 'limited stop' Central-SWA express service should be available on a regular basis, probably every 15-20 minutes each way at peak periods, for the benefit of passengers to and from SWA. (3.2.9)
28. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the Federal Airports Corporation (FAC):
- reserves a boundary-to-boundary rail corridor through the SWA site and selects the location of the airport station as soon as possible. This selection process should maintain the following options:
    - rail platforms should be located inside the airport terminal, connected by a readily accessible escalator ride;
    - provision should be made for the eventual extension of the rail line north from SWA to St Marys/Werrington.
  - builds the 1.3km tunnel as part of the initial runway construction and the box which will eventually contain the rail station as soon as possible; and
  - provides in the leasing agreement for SWA that the lessee must guarantee complete access to and use of the station site by the operator of the station. and
  - makes the boundary-to-boundary easement through the airport site available at no charge to NSW. (3.2.10)
29. State Rail continue to evaluate various SWA to St Marys/Werrington corridor options so that this rail line can be built as soon as demand warrants and adequate funds are available. The following issues should be considered as part of the developmental process for the northern rail link from SWA to St Marys/Werrington:
- preserving the environment in greenbelts at Orchard Hills;
  - the benefits of developing an "inland port" facility in Western Sydney;
  - the benefits of facilitating the movement of coal and other freight between Port Kembla and Western Sydney via the Maldon-Dombarton line. (3.2.12)
30. Should there be no developments in respect of this additional link to SWA by 2006, State Rail or RailNet should conduct a formal review of the proposal, including a thorough cost-benefit analysis based on the most realistic and up-to-date population projections. (3.2.12)

- 31. NSW Treasury and Departments of Transport and State Development should thoroughly evaluate high speed rail proposals, including assessment of the extent to which:**
- the parallel link could be used to carry freight between Sydney's airports and between Sydney's west and south; and
  - parties could realistically expect to recoup their costs. (3.2.14.2)
- 32. State Rail Authority undertake preliminary planning on the feasibility of a 'Y' link at Glenfield to enable inter-airport express services to link up with the inter-capital rail lines and provide a competitive 'fast rail' service. (3.2.14.2)**
- 3.3 ROADS**
- 33. The RTA should manage the relevant roads around SWA by monitoring and assessing:**
- road condition;
  - traffic flow (e.g. intersection improvements, passing lanes and climbing lanes);
  - road capacity (extra lanes, improved alignment and grading); and
  - road safety issues. (3.3.1)
- 34. The RTA should monitor capacity on the eastern section of Elizabeth Drive with a view to widening it as a priority road work. (3.3.2)**
- 35. The RTA investigate how the risk of a bottleneck on the M5 East can be further reduced and to specifically consider whether another eastern terminal point would have any impact on traffic congestion. (3.3.2.5)**
- 36. Additional funds be expended on regional roads in the SWA Sub-Region in view of the likely impact of the airport on the area's key regional roads. (3.3.3.2)**
- 37. The RTA consider the following enhancement works which are not funded or programmed:**
- Bringelly Rd between Camden Valley Way and Cowpasture Rd South; and
  - The Horsley Drive east of Wallgrove Road. (3.3.4)

- 38. Monitoring will be required to provide more detailed planning data on the following roads:**
- **The Northern Rd;**
  - **Luddenham Rd;**
  - **Hoxton Park Rd;**
  - **Cowpasture Rd;**
  - **Camden Valley Way; and**
  - **Bringelly Rd. (3.3.4)**
- 39. The NSW Department of Transport and transport operators including CityRail and Sydney Buses, should cooperate in introducing integrated (inter-modal) ticketing, timetabling and promotional advertising, particularly with respect to SWA. Given the importance of private bus services in outlying areas of Western Sydney, private bus operators should, wherever possible, be included in integrated inter-modal ticketing and consulted about timetabling and invited to participate in joint information campaigns at transport interchanges. (3.3.6)**
- 40. A Working Party involving the Department of Urban Affairs, the Department of Transport and the RTA be established to develop a strategy for the Hoxton Park-Parramatta-Baulkham Hills-Rouse Hill Public Transport Corridor, including the most appropriate transport mode, and to conduct or commission relevant feasibility studies. (3.3.6)**
- 41. SWADC should develop Public Transport Corridors in the SWA Sub-Region which complement the Hoxton Park-Parramatta-Baulkham Hills-Rouse Hill Corridor in consultation with the Department of Urban Affairs, the Department of Transport and the RTA. (3.3.6)**
- 42. The NSW Department of Transport in consultation with private and public bus operators develop strategies for bus services to and from SWA and in the SWA Sub-Region which:**
- **give priority to buses on all routes to major population centres;**
  - **provide for a 'line haul' role from SWA with express services to major population centres such as Liverpool, Parramatta, Blacktown, Penrith and the Sydney CBD along the lines of State Transit's Airport Express bus service between the Sydney CBD and KSA;**
  - **will serve future residential development along the proposed railway line**

- to SWA in the period until it constructed, including residential development on Camden's eastern side;
- link the proposed South Creek Town Centre to major centres including Penrith, Blacktown, Camden, Campbelltown and Liverpool. (3.3.6.1)
43. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the FAC develops an on-site transport policy package to reduce noise and air pollution around the SWA site by restraining on-site use of petroleum powered vehicles. This package could include:
- mini-bus shuttles for employees and others travelling around the site; and
  - promoting the use of non-petroleum powered vehicles within the site. (3.3.6.2)
44. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that, in order to facilitate the efficient and speedy arrival and departure of interstate and international visitors, SWA infrastructure includes:
- adequate kerb length along international and domestic terminal frontages for the setting down and picking up of passengers in order to minimise vehicle congestion at arrival and departure areas;
  - adequate waiting/storage areas for private hire vehicles, with the storage area located close to the terminals;
  - signs clearly indicating the authorised users of kerb-side and temporary storage zones; and
  - adequate kerb space and vehicle storage space for taxis, buses, coaches and private vehicles. (3.3.6.3)
45. The Department of Transport and the NSW Taxi Industry should immediately develop specific plans to cope with extra services required for the Para-Olympics in Sydney in 2000. (3.3.6.3)
46. The SWADC should encourage the introduction of car pooling or mini-bus services in employment zones in the SWA Sub-Region to reduce car dependency. (3.3.6.4)
47. A special project group comprising the RTA, the Bicycle Council, the FAC and Bicycle NSW be established to develop plans for bicycle access to and around SWA using the Schipol Airport scheme in the Netherlands as its model. (3.3.6.5)

### **3.4 AVIATION FUEL SUPPLY**

- 48. The New South Wales Government should enter into negotiations with the Commonwealth Government and oil companies to plan for the early installation of an aviation fuel supply pipeline to SWA. These negotiations should include input from the RTA, the SRA and the NSW Department of Transport on the best possible route for an aviation fuel supply pipeline to SWA.**

### **3.5 ELECTRICITY AND GAS SUPPLY**

- 49. TransGrid and the Commonwealth Department of Transport enter into urgent negotiations, which must be completed by the end of the 1995/96 financial year, in order to:**

- ensure that the relocation of the transmission line from the SWA site is completed as soon as possible;
- consider future upgrading requirements when relocating the transmission line;
- determine a location for the transmission line which will not provide an obstacle to future development in the SWA Sub-Region;
- ensure that buffer zones or green belts are provided on both sides of the transmission line; and
- give consideration to the findings of the Inquiry into Community Needs and High Voltage Transmission Line Development (1991) in relocating the transmission line. (3.5.2)

- 50. TransGrid, Prospect Electricity, the FAC and the Commonwealth Department of Transport enter into urgent negotiations to ensure that:**

- plans for electricity supply to the SWA site are finalised as soon as possible;
- funding is supplied so that the EIS on electricity supply can be executed as a matter of urgency;
- safety issues are addressed with regard to the location of overhead power lines near transport corridors;
- plans are developed in conjunction with the SWADC for future electricity requirements in the SWA Sub-Region;



- energy conservation and demand management strategies are integrated into developments at SWA and (in conjunction with the SWADC) in the SWA Sub-Region; and
- the possibility of using underground cables for electricity supply is fully costed and canvassed. (3.5.4)

51. The SWADC develop a strategy for efficient use of energy in the SWA Sub-Region. (3.5.4)

### 3.6 WATER SUPPLY

52. The NSW Government should seek assurance from the Commonwealth Government that the proposed water supply system for SWA:

- will be capable of handling the publicly-announced figure of 1 million passenger movements by 1999; and
- can be quickly upgraded to handle increases in passenger numbers. (3.6.1)

### 3.7 HEALTH

53. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the use of airspace above Sydney water supplies is minimised. (3.7)

54. SWADC should liaise with:

- the NSW Department of Health in the preparation of a regional health plan which will ensure that initial residential development in the SWA Sub-Region has ready access to major health facilities;
- the NSW Department of Health to plan for the timely construction of a hospital for the SWA Sub-Region in a central location once a population of between 35,000 and 40,000 people is reached; and
- the FAC and NSW emergency service providers in the preparation of the State Disaster Sub-Plan for SWA and the SWA Sub-Region. (3.7)

### 3.8 RELOCATION

55. The SWADC consider the possible impact of airport operations on research and

technical facilities operated by the University of Sydney and other organisations in the SWA Sub-Region in preparing its strategic plan and that this impact be reviewed in the light of actual airport operations. (3.8)

### 3.9 RESIDENTIAL DEVELOPMENT

56. That residential development in the SWA Sub-Region should be located along the proposed rail line to SWA using the following parameters:

- given the environmental pressures in the SWA Sub-Region, residential development should be limited to a level sufficient to make the building of the rail line economically feasible;
- any plans for high density housing (60 dwellings per hectare) around rail stations to SWA should be strictly limited;
- there should be medium to low density development to cater for young families, even if it means that the edge or fringe of development will exceed 2 kms from the nearest rail station; and
- the population in the SWA Sub-Region should be limited to a total of between 90,000 and 100,000 people. (3.9.4)

57. Liverpool LGA should be allowed to withdraw areas from the Urban Development Program to compensate for an increased population of 90,000 and 100,000 people along the proposed rail line to SWA and that the total population of Liverpool LGA should not exceed 200,000 people. (3.9.4)

58. The limit of 200,000 people in Liverpool LGA should be achieved, in part, by:

- abandoning urban releases for Edmondson Park (Precinct 6) (maintaining this area as a "green zone") and pursuing rural-residential sub-division sizes; and
- scaling back the land release for Precinct 3 (Aerodrome) from 4,700 to 2,000 lots preventing residential development adjacent to Hoxton Park Aerodrome and minimising future aircraft noise exposure. (3.9.4)

### 3.10 ECONOMIC DEVELOPMENT

59. The SWADC should designate the Erskine Park Employment Zone as a priority "airport enterprise zone" for the SWA Sub-Region.

60. The Department of Urban Affairs and Planning should review the specific

circumstances surrounding the provision of water and sewerage infrastructure to the Erskine Park Employment Zone with a view to ensuring its priority development as an "airport enterprise zone".

61. The SWADC, WSROC, the GWSEDB, Western Sydney LGAs and the FAC (or lessee of the airport) should develop strategies to:
- identify factors which will affect the demand for industry and employment in Western Sydney. In this task, the Committee commends the work of the GWSEDB in developing an economic model of Greater Western Sydney including a case study on SWA;
  - ensure that existing industrial estates in Western Sydney are the target for initial airport-related industrial development;
  - earmark individual industrial estates for complementary uses;
  - ensure that no industrial estates in the SWA Sub-Region are developed until demand by airport-related industry is demonstrated. (3.10.6)
62. The SWADC should prepare a specific strategy to maximise the export potential of agricultural products originating in the SWA Sub-Region itself. This strategy may include incentives for industries which can prepare value-added, agricultural products for airfreight export to locate in the SWA Sub-Region. The likely affects of SWA on agricultural production must also be considered. (3.10.7)
63. The SWADC take into account the following matters regarding agricultural production when it is planning urban development in the SWA Sub-Region:
- that there is some concern that aircraft noise will affect poultry, egg and milk production. There is also concern that increased air pollution from aircraft fuel will adversely affect crops grown in market gardens; and
  - that the area with most agriculture potential is located in the east of the SWA Sub-Region. The potential of this area to the economy of the region, particularly once SWA is operational, will need to be taken into account when planning residential locations, industrial areas and transport routes. (3.10.7)
64. The SWADC, in consultation with relevant NSW Government Departments, the GWSEDB and Western Sydney LGAs, should undertake careful assessment of the incoming and outgoing destinations of freight in the Sydney region and develop strategies to:
- target the Asia-Pacific region with export enhancement programs for the period 2000-2005;

- foster longer-term niche markets for value-added goods which have export potential;
  - promote just-in-time warehousing to cater for expanding freight markets into Asia; and
  - attract existing freight forwarders at KSA to expand their operations to SWA and attract new firms to enter the freight handling and forwarding market at SWA. (3.10.9)
65. The SWADC, Tourism NSW, WSROC, the GWSEDB and Western Sydney LGAs should:
- develop a tourism strategy for SWA which will prolong visitor stays in Western Sydney and focus on the needs of Asian tourists;
  - ensure that land use planning around SWA takes into account the provision of suitable tourist services, including accommodation and visitor services.
  - involve regional NSW airlines in strategies to optimise intrastate patronage of SWA. (3.10.10)
66. The SWADC should work with appropriate NSW Government Departments to ensure that the specific needs of tourists are considered in planning road and rail links to SWA. (3.10.10)
67. The DEET and the NSW Department of Education and Training should work with Western Sydney educational bodies to explore the possibilities of :
- providing a coordinated training strategy specifically related to employment opportunities at SWA;
  - implementing DEET Labour Market Training Programs to introduce training packages which meet the requirements of individual contractors involved in construction and operation at SWA; and
  - using the DEET Area Assistance Scheme as a model for staffing the construction and operation of proposed infrastructure for SWA. (3.10.11)

## **CHAPTER 4            MINIMISING THE ENVIRONMENTAL IMPACT OF SYDNEY WEST AIRPORT**

### **4.1    ENVIRONMENT INTRODUCTION**

68. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the community consultation program for SWA should include:
- Community Access Centres in major suburban centres such as Liverpool, Fairfield, Parramatta, Blacktown, St Marys and Penrith;
  - mobile access centres which can visit shopping centres in smaller suburbs close to SWA such as Warragamba, Silverdale, Wallacia, Horsley Park, Wetherill Park, Smithfield, Greystanes and St Clair;
  - free 008 telephone enquiries lines;
  - free post services for receipt of written submissions;
  - publication and distribution of a comprehensive information kit on SWA in English and other languages, as well as newsletters updating airport developments;
  - attitudinal surveys;
  - technical workshops on aircraft noise; and
  - consultation with Commonwealth and State Government departments, Local Governments and special interest groups. (4.1.2)
69. The SWADC should be given the responsibility of developing, implementing and enforcing an Environmental Management Plan (EMP) in accordance with ESD principles which can provide a blueprint for long-term, sustainable growth in the SWA Sub-Region. (4.1.3)
70. The SWADC should ensure broad community participation in the development of the EMP. (4.1.3)

#### 4.2 NOISE

71. The NSW Government should enter into negotiations with the Commonwealth Government with a view to reviewing the existing ANEF system to:
- include 15 ANEF contour lines on maps;
  - consider the maximum levels of aircraft noise events in aircraft noise forecasts;
  - give a substantially greater weighting for night flights in response to SWA

operating as a no curfew airport;

- take into account the rural character, topography and climate of the area surrounding SWA. (4.2.6)

72. The NSW Government should press the Commonwealth Government to ensure that a comprehensive information kit in plain English and other languages is developed to explain just how SWA will operate and the potential noise impact of aircraft operations. (4.2.6)

73. That maps containing forecasts of aircraft noise from SWA for every stage of airport development (including a breakdown of day and night operations) should be prepared and distributed to people in adjacent LGAs. These maps should show the aircraft noise implications for the following stages:

- a 2,900m runway serving 1 million passengers in 1999;
- a single 4,000m runway; and
- a 4,000m runway and one 2,500m runway serving 13 million passengers. (4.2.6)

74. Given that SWA will operate as a no curfew airport, the NSW Government should enter into negotiations with the Commonwealth Government to ensure that:

- there are no flight paths at SWA which enable major jet traffic to turn from the runway alignment before a distance of 5 nautical miles (or 10km);
- the impact of aircraft noise on densely-populated areas to the north-east of SWA is minimised during the hours of 11pm to 6am; and
- the feasibility of concentrating night time operations to the south-west of SWA be explored. (4.2.7)

75. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that the revised ANEF system specifically considers the unique circumstances which will prevail to the south-west of SWA if flight corridors directing aircraft operations at night to the south-west of SWA are introduced. (4.2.7)

76. The insulation and voluntary acquisition program for residents to the south-west of SWA should be reviewed if flight corridors directing aircraft operations to the south-west of SWA are introduced. (4.2.7)

77. **The NSW Government enter into negotiations with the Commonwealth Government to ensure that the suitability of the ICAO A Departure Procedure for flights to the north-east of SWA is fully investigated by Air Services Australia with a view towards implementation in its strategies for minimising aircraft noise at SWA. (4.2.8)**
  
78. **The NSW Government enter into negotiations with the Commonwealth Government to ensure that a comprehensive aircraft noise monitoring system including the "Noiseload" software package is introduced both on the SWA site itself and in surrounding areas as part of the airport masterplan. (4.2.9)**
  
79. **Noise Monitoring Terminals to provide data for the system should be located at established distances from SWA on or near the following sites:**
  - **to the north-east at Kemps Creek (5kms), Horsley Park (10kms) and Prospect Reservoir (20kms).**
  
  - **to the south-west at Warragamba/Silverdale (about 10kms) and in the Bents Basin State Recreation Area (about 20kms). (4.2.9)**
  
80. **The NSW Government should enter into negotiations with the Commonwealth Government with the aim of completing the original SAHSC proposal for a comprehensive, long term study of the relationship between aircraft noise and human health in Sydney with a specific focus on impacts arising out of SWA. (4.2.10)**
  
81. **The NSW Government should press the Commonwealth Government to ensure that material explaining the possible health implications of living near an airport is included in a plain English SWA information kit to be distributed to all residents in affected areas. (4.2.10)**
  
82. **The SWADC, DUAP and the EPA should be the primary NSW representatives on any Steering Committee to develop a Noise Management Plan for SWA. (4.2.11)**
  
83. **The SWADC should be charged with the responsibility of formulating a structure of community-based working groups which can participate in the development of a Noise Management Plan for SWA. (4.2.11)**
  
84. **The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that local communities have direct influence over the final outcome of the Noise Management Plan for SWA. (4.2.11)**
  
85. **The SWADC should exercise tight control over residential development in the SWA Sub-Region with a specific charter to minimise aircraft noise exposure for new residents. (4.2.12)**

**86. The SWADC should:**

- place a prohibition on all new residential developments along proposed runway alignments at SWA for a distance of 10km; and
- have the power to prohibit residential development beyond 10km where it has jurisdiction and it considers that aircraft noise will be a major disturbance to quality of life. (4.2.12)

**87. The Department of Urban Affairs and Planning should:**

- place a moratorium on new residential developments in Penrith, Liverpool and Fairfield LGAs within a distance of 20kms from SWA until the EIS update on aircraft noise is completed in 1996 and a review has taken place of likely aircraft noise impacts; and
- ensure that priority is given to developing urban release areas in Liverpool LGA at Carnes Hill and Prestons, which are the furthest areas from SWA and which have the advantage of proximity to the proposed rail link between Glenfield and SWA. (4.2.12)

**88. The Department of Urban Affairs and Planning should:**

- reject the Bushrangers Creek rezoning application submitted by Wollondilly Council as a result of its meeting of 4 September 1995.
- suspend any approval for new residential development in the Warragamba and Silverdale regions. (4.2.13)

**89. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that the insulation and voluntary acquisition programs for SWA:**

- are specifically developed to take into account the fact that SWA will be a no curfew airport on a greenfields site;
- consider the particular circumstances of Warragamba and Silverdale in the event that night operations are concentrated to the south-west of the airport;
- conform with AS 2021-1994 and the revised ANEF system;
- are completed prior to the opening of the airport to ensure that residents are exposed to minimum aircraft noise disturbance from Day One of operations at SWA in 1999; and



- are, in the case of ongoing costs for the insulation program, funded by the Commonwealth Government through a passenger levy. (4.2.14)

#### **4.3 ACOUSTIC ENVIRONMENT**

**90. Camping at Bents Basin State Recreation Area should be terminated when SWA opens in 1999. (4.3.2)**

**91. The NSW National Parks and Wildlife Service should review the role of Bents Basin SRA as a community education centre in the light of the development of SWA. (4.3.3)**

**92. Noise monitoring terminals should be established as soon as possible at the following sites in order to determine the current state of the acoustic environment in National Parks and any change caused by aircraft noise to the acoustic environment of National Parks:**

- at the eastern border of Kanangra-Boyd National Park near the Burragarang Valley (35kms from SWA);
- at the northern boundary of Nattai National Park (45kms from SWA); and
- at Yerranderie near Mt Colong in Kanangra-Boyd National Park (55kms from SWA). (4.3.3)

**93. The NSW Government enter into negotiations with the Commonwealth Government which:**

- emphasise the value and sensitivity of the acoustic environment in National Parks;
- lead to the development of specific guidelines in Australia for monitoring and minimising aircraft noise in wilderness areas;
- result in Air Services Australia (formerly the CAA) being instructed to develop flight corridors for SWA which avoid overflying National Parks in the Sydney region where it is considered safe practice. (4.3.3)

#### **4.4 AIR QUALITY**

**94. The NSW EPA should begin negotiations with the FAC to ensure that strategies are developed which minimise ground-running by aircraft while preserving maintenance and safety standards. (4.4.11)**

- 
95. The delicate state of air quality in the SWA Sub-Region warrants the implementation of aircraft emission monitoring equipment if it is found to be effective. (4.4.11)
96. The EPA should open negotiations with the Federal Airports Corporation (FAC) to establish a comprehensive air quality monitoring system on the SWA site. Air quality monitoring stations should be located around the airport boundary and in adjacent suburbs to monitor emissions, in particular nitrogen oxide, nitric oxide, hydrocarbons, carbon monoxide, particulate matter and sulphur dioxide concentrations. (4.4.13)
97. The SWADC should work with the EPA to establish an Emissions Control Strategy as part of its Environmental Management Plan for the SWA Sub-Region. This strategy should include:
- an emissions inventory;
  - emissions standards for all criteria pollutants in the SWA Sub-Region;
  - limits or prohibitions on industries which produce large quantities of emissions, especially precursors of photochemical smog and brown haze; and
  - cumulative assessment of emissions from existing industries in the SWA Sub-Region when considering applications by new industries; and
  - methods of attracting clean industries to the SWA Sub-Region. (4.4.13)
98. The SWADC should have the power to grant immediate approval to industrial developments which produce emissions within the prescribed standards of the Emissions Control Strategy which it develops for the SWA Sub-Region so long as these developments comply with other general air quality requirements. However, scheduled industries and non-scheduled industries with acknowledged pollution problems (such as mushroom composters) should not be exempted from EPA scrutiny. (4.4.13)
99. Comprehensive education programs should be introduced by the EPA to make the community aware of strategies for:
- further reducing motor vehicle emissions;
  - controlling domestic use of paint sprays and solvents at certain critical points in Summer; and
  - reducing domestic fuel combustion in Winter. (4.4.13)

---

## 4.5 WATER QUALITY

100. Water quality monitoring stations should be established by the EPA and SWADC on four sites in the vicinity of Sydney West Airport to gather baseline data on the state of Badgerys Creek and South Creek before residential, commercial and industrial development commences. These sites are:
- on Badgerys Creek before the entrance of water from the airport site;
  - on Badgerys Creek between the airport site and the junction with South Creek;
  - on South Creek prior to the junction with Badgerys Creek;
  - on South Creek before urban development at St Clair but beyond the proposed Erskine Park Employment Park. (4.5.4)
101. Water quality data gathered near the SWA site by SWADC should be used as the basis for a total water cycle management system for the SWA Sub-Region. (4.5.4)
102. The EPA and DUAP should review the institutional framework of catchment management in the Hawkesbury-Nepean River system to determine whether it is capable of delivering the necessary improvements to improve water quality. (4.5.6)
103. REP 20 should remain the framework planning control for all developments in the SWA Sub-Region. (4.5.6)
104. The SWADC in consultation with the EPA, DUAP and the Hawkesbury-Nepean Catchment Management Trust should develop a Total Water Cycle management program for the SWA Sub-Region incorporating Best Management Practices. As part of this process:
- the SWADC should consider the impact on water quality as a priority when it is considering urban developments in the SWA Sub-Region;
  - community involvement should be a priority;
  - the SWADC should be the overall authority for monitoring and enforcing water quality standards in the SWA Sub-Region. (4.5.6)
105. The SWADC should take over the powers of the Hawkesbury-Nepean Catchment Management Trust to act as consent authority in the SWA Sub-Region for developments requiring an EIS under Schedule 3 of the EPA Regulations. (4.5.6)
106. The SWADC should pay specific attention to the following activities in the SWA

**Sub-Region which are likely to affect water quality:**

- **major urban developments at sub-regional level;**
- **major transport arteries;**
- **existing agricultural practices and any proposed change to them;**
- **existing extractive industry and mining developments (other than maintenance dredging) and any change to them; and**
- **public sector sewage treatment works. (4.5.6)**

**107. The SWADC should liaise with the Steering Committee of the Riverkeeper Project with a view to arranging membership on that Committee for the duration of its project on the South Creek region which includes SWA. (4.5.7)**

**108. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that gravel filter beds are included in a comprehensive stormwater treatment system at SWA. (4.5.10.3)**

**109. The NSW Government should seek assurance from the Commonwealth Government that the proposed sewerage system for first stage development at SWA:**

- **will be capable of handling the publicly-announced figure of 1 million passenger movements in 1999.**
- **will maximise beneficial re-use of sewage;**
- **can be quickly upgraded to handle increases in passenger numbers. (4.5.10.4)**

**110. The NSW Government should enter into negotiations with the Commonwealth Government with a view to the SWADC (during its life time) acting as a consent authority to all proposed extensions of the drainage and sewerage systems at SWA in subsequent phases of airport development. (4.5.10.4)**

#### **4.6 WASTE**

111. The NSW Government enter into negotiations with the Commonwealth Government to ensure that, as a result of the accelerated development of SWA, urgent consideration is given to preparing a waste management strategy for Sydney West Airport which integrates first stage development with full capacity project design. (4.6.1)
112. The waste management strategy for Sydney West Airport should incorporate the following features to reduce waste disposal (especially by incinerator):
- waste minimisation at its sources;
  - on-site segregation of Quarantine and non-Quarantine waste; and
  - comprehensive recycling and composting facilities. (4.6.1)
113. The SWADC should work in close consultation with the EPA to ensure that the Environmental Management Plan (EMP) for the SWA Sub-Region includes a waste management strategy which incorporates:
- waste minimisation at its sources;
  - comprehensive recycling and composting facilities; and
  - increased charges for industrial and commercial waste disposal. (4.6.2)
114. The SWADC should work in consultation with the EPA and Local Government to ensure that development in the SWA Sub-Region incorporates:
- comprehensive community education programs about waste minimisation;
  - backyard composting bins as part of all residential developments; and
  - the introduction of waste minimisation strategies in industrial estates and shopping centres (for example, split bins). (4.6.2)

#### **4.7 ISSUES RELATING TO ABORIGINAL CULTURE**

115. The NSW Minister for Aboriginal Affairs through the NSW Aboriginal Land Council should:
- initiate a new process of consultation with Aboriginal people living in the SWA Sub-Region in collaboration with ATSIC;

- undertake an assessment of the possible impact of airport-related developments in the SWA Sub-Region on Aboriginal anthropology and archaeology;
- work towards the proper acknowledgment of Gandangara and Tharawal Aboriginal culture in the SWA Sub-Region by promoting Aboriginal place names for suburbs, parks and main roads; and
- enter into negotiations with the Commonwealth Government to ensure that a significant, permanent presentation of the history of local Aboriginal culture is included in the SWA terminal. This display should be developed by an Aboriginal curator in consultation with the lessee of the airport. (4.7)

#### **4.8 FLORA**

116. The SWADC in consultation with the EPA should develop a strategy as part of its Environmental Management Plan (EMP) for the SWA Sub-Region which will:
- preserve remnant vegetation; and
  - regenerate the native vegetation of the Cumberland Plain in the Sub-Region, especially along buffer zones around the airport boundary and main transport corridors. (4.8)

### **CHAPTER 5 FUNDING SWA INFRASTRUCTURE PROGRAMS**

117. Infrastructure planning by SWADC for the SWA Sub-Region should be flexible and incorporate "best practice project evaluation" standards and full cost-benefit analyses to ensure that infrastructure is properly timed and that the level of private sector involvement is prudent.
118. The very low population density in the SWA Sub-Region and the need to preserve social equity for Western Sydney residents preclude any new or increased taxes along the lines of the BART Tax System.
119. "Build-Own-Operate-Transfer" or BOOT-type funding arrangements should not be used for the rail link to SWA.

- 120. The NSW Government should enter into negotiations with the Commonwealth with a view to investigating the practicalities of using levies to recoup the cost of infrastructure in the SWA Sub-Region.**

**These negotiations should consider the following parameters:**

- any increase in the existing KSA levy should not be applied to intrastate flights and should be limited to a modest tariff on interstate flights;
  - the first project funded by any increased levy should be a rail link from Glenfield to SWA; and
  - the feasibility of a levy on car parking at both Sydney airports.
- 121. The potential for applying a value capture tax similar to a section 94 contribution to properties which directly benefit from the development of the rail line to SWA should be thoroughly investigated by the NSW Treasury in conjunction with the SWADC.**
- 122. Private sector involvement in infrastructure for the SWA Sub-Region should be considered on a case by case basis by the relevant proponent agency in consultation with Treasury. This process should include full risk assessment and risk management plans.**

## CHAPTER 1      TERM A. STATE RESPONSIBILITIES FOR INFRASTRUCTURE PROVISIONS AT SWA

In this chapter, the Committee looks at Term A of its Terms of Reference, which requires it to inquire into and report upon:

*the responsibilities of the State of New South Wales in providing infrastructure*

for the accelerated development of Sydney West Airport (SWA) as a major international and freight airport.

In simplistic terms, the division of responsibilities with regard to infrastructure provision is that:

- the Commonwealth is responsible for the airport site itself, which it has vested in the FAC; and
- the State is responsible for the SWA Sub-Region, with input from local government.

The Committee is concerned at the outset to dispel any misconception that responsibilities for infrastructure provision at SWA and in the SWA Sub-Region can be neatly divided between the Commonwealth area inside the airport perimeter and the rest of the Sub-Region.

The unique environmental pressures on the SWA Sub-Region alone require a completely coordinated approach to airport and airport-related infrastructure provision between all levels of government.

In addition, Sydney West Airport is a Commonwealth initiative which, while offering significant benefits to the people of New South Wales, also involves significant potential costs to the State at a time when fiscal responsibility is paramount.

What is required is a consultative process between the Commonwealth and State which identifies equitable ways of funding airport-related infrastructure. The Committee has identified numerous matters in this Report where the NSW Government should negotiate with the Commonwealth to facilitate the opening of the airport and to minimise the impact of airport-related activities on the environment and quality of life in Western Sydney.

The Committee has also identified matters where the NSW Government should liaise with local government to ensure land use is compatible with social and environmental imperatives or, in relation to the environment, to use its powers to enforce land use controls over the SWA Sub-Region and beyond.

The Committee believes that its recommendations make an important contribution to identifying and providing possible solutions to many of the vexed issues relating to the development of SWA and the SWA Sub-Region.

In addition to the fundamental division between Commonwealth and State responsibilities



regarding the SWA site itself, there is a further division within State jurisdiction over the various responsibilities held by Government Departments and agencies with regard to the SWA Sub-Region.

The different responsibilities of State Departments and Agencies is summarised in the following table.

**TABLE 3: RESPONSIBILITIES OF STATE DEPARTMENTS AND AGENCIES FOR THE SWA SUB-REGION**

STATE DEPARTMENT/AGENCY	AREA OF RESPONSIBILITY
Environmental Protection Authority	Environmental policy and standards.
Dept of Urban Affairs and Planning	Land use planning (including controls on aircraft noise-affected areas). Preparation and implementation of planning instruments including SEPPs and REPs. Identification of infrastructure corridors.
Dept of Land and Water Conservation	Land and water management policy. Environmental Conservation Issues.
Sydney Water	Implementation of water policy
Sydney Electricity, Prospect Electricity	Energy planning and implementation.
Dept of Transport	Transport policy (to be implemented by RTA and SRA).
Roads and Traffic Authority	Concept development for road transport links to both National Orbital Highway and Sydney main arterial system. Environmental impact of road links.
State Rail Authority	Concept development for rail link between SWA and City Rail system.
Dept of Health	Provision of health facilities for emergency services and urban development.
NSW Police Service	Airport security
Dept of Education and Training	Policy and strategies for airport-related employment and economic opportunities.

In addition, local government is responsible for secondary infrastructure such as local roads.

This compartmentalised administrative structure has perpetuated an uncoordinated approach to the development of the SWA Sub-Region. The NSW Government must consolidate the dislocated administrative structure in the SWA Sub-Region into a single authority with the power to plan, implement and promote a coordinated strategy for environmentally-sustainable, urban development.

The Committee examines a proposed structure for the authority overseeing infrastructure provision and urban development in the SWA Sub-Region in the next chapter.

## **CHAPTER 2      TERM B: STREAMLINING AND COORDINATING INFRASTRUCTURE PROVISION THROUGH THE SYDNEY WEST AIRPORT DEVELOPMENT CORPORATION (SWADC)**

### **2.1      INTRODUCTION**

Term B of the Committee's Terms of Reference require it to report on:

*how the provision of infrastructure by various bodies will be coordinated, including the proposed establishment of a South (sic) West Airport Development Corporation.*

The Committee undertook this task as a primary objective in this Report because of the recognised need for a strong, central authority to coordinate the accelerated development of Sydney West Airport and the SWA Sub-Region in time for the 2000 Sydney Olympics.

The Committee believes that many of the recommendations which are contained in this report can be taken up by this coordinating authority as part of its overall land use and environmental strategy for the SWA Sub-Region.

As part of the conceptual development of this authority, the Committee looked at:

- the existing administrative structure for infrastructure planning in the SWA Sub-Region; and
- previous development corporations to gain an overview of their strengths and flaws.

There is little existing information on the proposed Sydney West Airport Corporation (SWADC).

The Minister for Urban Affairs and Planning issued a media release on 1 May 1995 indicating that:

- a development corporation was needed to ensure the airport opened as quickly as possible;
- the Sydney West Airport Development Corporation (SWADC) would coordinate the six Federal Government Departments, 11 State Government Departments and three Local Councils involved in the project; and
- the Premier had written to the Prime Minister seeking Federal Government support and involvement in the Development Corporation.

DUAP has advised the Committee that SWADC could be established under existing State legislation.

Given the embryonic state of planning for the SWADC, the Committee addressed the conceptual development of the SWADC as an opportunity to set basic parameters which would ensure environmentally sustainable land use planning for the SWA Sub-Region which maximised the economic benefits to Western Sydney of the airport development.

The Committee outlines the proposed functions and powers of the SWADC in the following sections.

## **2.2 CURRENT INFRASTRUCTURE PLANNING IN THE SWA SUB-REGION**

Currently, the coordination of infrastructure planning for SWA is being undertaken by a Joint Commonwealth, State and Local Government Task Force called the "Task Force on Planning for the Sub-Region Surrounding Sydney West Airport".

The Task Force was established to prepare strategic plans for an area of Western Sydney termed the "Sydney West Airport Sub-Region", which includes areas in Penrith, Liverpool and Camden LGAs. The Committee has retained this definition of the SWA Sub-Region for this inquiry.

To date, the Task Force has considered preliminary strategic land use and transportation matters and produced a report titled "Stage 1 Investigations - Final Report".

Members of the Task Force during its Stage 1 Investigations included representatives of the following State, Commonwealth and Local Government organisations:

### *State*

Department of Urban Affairs and Planning (Chair)  
Department of Transport  
Environment Protection Authority  
State Rail Authority  
Roads and Traffic Authority

### *Commonwealth*

Department of Housing and Regional Development  
Department of Transport

### *Local*

Camden Council  
Liverpool Council  
Penrith Council

The Task Force is now beginning Stage 2 investigations which involve more detailed planning for the SWA Sub-Region. Separate studies have been commissioned on:

- Water Cycle Management;
- Employment and Economic Development;
- Transport, Urban Form and Air Quality;
- Physical Services;
- Human Services; and
- Economic Feasibility.

During Stage 2 of its investigations, it is proposed that the Task Force be expanded to include the Federal Airports Corporation and the Greater Western Sydney Economic Development Board.

The Task Force is due to receive the commissioned studies by the end of 1995 and to develop a draft strategy for the Sub-Region to be finalised early in 1996. It will then have completed its work.

### **2.3 THE PROPOSED SYDNEY WEST AIRPORT DEVELOPMENT CORPORATION (SWADC)**

The completion of the draft strategy by the Task Force on Planning for the Sub-Region Surrounding Sydney West Airport in early 1996 will leave a planning vacuum in the SWA Sub-Region.

It has been proposed that the Sydney West Airport Development Corporation (SWADC) be established to ensure that infrastructure and land use planning is further refined and implemented by a single authority with responsibility for sustainable urban development in the entire SWA Sub-Region.

#### ***Current status***

The Department of Urban Affairs and Planning (DUAP) has advised the Committee that consideration of the role, powers, structure and membership of SWADC is currently in an embryonic stage. DUAP is considering the type of Development Corporation "model" that might be adopted, and discussions with the Commonwealth have been arranged.

#### ***Views of witnesses***

The Committee investigated the potential of a development corporation for the SWA Sub-

Region, especially in public hearings where expert witnesses were given the opportunity to offer their opinions on and ideas about SWADC.

Several witnesses including WSROC, Penrith Council, Liverpool Council and the Greater Western Sydney Economic Development Board (GWSEDB), supported the SWADC concept in principle.

Some witnesses were not convinced of the need for a Development Corporation (Blacktown Council) referring to the existence of established forums such as WSROC or negative past experience with other Development Corporations. With the latter in mind, the Greater Western Sydney Regional Chamber of Commerce and Industry (GWSRCCI) indicated a need for "extreme consultation" on the matter.

Aspects of the proposal which were generally supported, included:

- the desirability of coordinating planning and environmental specifications for the area;
- providing a forum for discussion of regional planning issues relating to the airport; and
- the need for a sunset clause.

WSROC proposed that SWADC assume some of the planning powers of Local Councils, in order to assist Local Councillors to resist urban development pressures.

GWSRCCI, on the other hand, was opposed to the establishment of an organisation which would over-ride Local Council authority. GWSRCCI cited previous difficulties between Local Councils and the Macarthur Development Board (later Corporation), which it said contributed to its demise. However, the GWSRCCI acknowledged the positive role played by that Corporation in providing a regional focal point.

The GWSEDB supported the establishment of SWADC, provided that:

- its role, functions and authority are clearly defined;
- there is transparency in decision-making, involving "excellent" communication with stakeholders and the public;
- regional input should not be limited to Local Government areas directly affected;
- there are strong links with other Government Departments or agencies working on airport-related matters; and

- performance criteria, targets and a sunset clause are established.

### ***Past Development Corporations***

A number of Development Corporations have been established to coordinate and/or promote development of nominated areas of the State over the past 20 or so years. They have included the Bathurst Orange Development Corporation, Macarthur Development Board (later Corporation), Albury-Wodonga Development Corporation, City West Development Corporation, Homebush Bay Development Corporation, and Darling Harbour Authority.

Results achieved by Development Corporations have been mixed, particularly when compared with expectations when they were established. The reasons for this mixed success have varied from case to case. While some of their intended goals were achieved, problems of a financial nature or difficulties resulting from a changing role or changing regional circumstances over time in several instances ultimately led to the abolition or restructuring of individual Corporations.

Development Corporations can also take a variety of forms. Their roles can involve such functions as strategic planning, land ownership and development, coordinating activities, and/or marketing and promotion of the development area.

There does not appear to be a readily transferable past or present model on which SWADC might be best based.

Some Development Corporations, for example, have been established to coordinate the re-development of major sites involving "surplus" State Government land, but this is not the case with the SWA Sub-Region. Others have been empowered to acquire large tracts of land within the nominated area for development purposes, but past experience suggests this is not a desirable or necessary model to be followed.

It is considered essential that experience with other Development Corporations should be taken into account in the establishment of SWADC.

Some of the reasons attributed to the failure of particular Development Corporations to meet their objectives have included:

- unrealistic expectations of what the Corporation could achieve;
- a lack of clear objectives and a consequent absence of performance measurement against objectives over time;
- a lack of communications between the Corporation and Local Councils;
- a tendency by Corporations empowered to acquire land for development purposes to over-invest in land assets, far ahead of real market demand,

leading to financial difficulties for Government;

- the emergence of some Corporations as large bureaucracies which develop a life of their own, making it difficult for them to respond objectively to changing circumstances; and
- the previous point, combined with the lack of a sunset clause, meant that some Corporations continued beyond the period during which they were most useful.

## **2.4 PROPOSED ROLE AND FUNCTIONS OF SWADC**

As a result of its investigation, the Committee developed a framework for SWADC. Many recommendations for actual actions to be undertaken by SWADC are contained in the body of this report.

The Committee supports the view that there should be careful consideration and extensive consultation on the details of SWADC's proposed role. However, consultation should not come at the expense of action.

The Committee believes that the acceleration of the development of SWA so that it can open before the 2000 Sydney Olympics has created a critical demand for SWADC to take control of infrastructure provision and urban development in the SWA Sub-Region.

A four year sunset clause has been proposed for SWADC, which on current planning would mean that its activities would cease about the time that SWA is opened. The Committee does not believe that such a strict time frame is appropriate given the uncertainty over the rate at which SWA and the SWA Sub-Region will be developed.

## **RECOMMENDATIONS**

- 1. That having regard to the intended time frame for construction of SWA by the 2000 Sydney Olympics, the Sydney West Airport Development Corporation (SWADC) should be established as a matter of urgency.**
- 2. That the draft strategy being developed by the Task Force on Planning for the Sub-Region Surrounding Sydney West Airport should be completed by March 1996 at the latest and referred to SWADC for further refinement and implementation. The Task Force should then be disbanded.**



***SWADC: Role and Powers.***

- 3. SWADC should become the focal point for all infrastructure and other matters relating to the development of SWA as well as planning issues relating to the SWA Sub-Region.**
- 4. SWADC should recommend to the Premier the overriding parameters for regional development, following consultation with relevant authorities (including Local Councils) and the exhibition of all plans for public comment.**
- 5. Provision of an asset base or land development powers for SWADC is not recommended by the Committee as it is not considered necessary or desirable. Provision of new residential and industrial/commercial land by other bodies within the context of the strategic plan set by SWADC is considered a more appropriate method of operation in this regard.**
- 6. With respect to the availability of industrial land and the need to encourage employment in Western Sydney, SWADC should review the relative merits of promoting utilisation of spare capacity in existing industrial estates in Western Sydney, compared with developing new sites in SWA Sub-Region in the initial period.**

***SWADC: Accountability.***

- 7. SWADC should be accountable to Parliament for identification of all infrastructure required for SWA, taking all necessary steps to achieve coordination among the various bodies involved, and reporting to Parliament on any matters that require resolution in order to meet completion targets for individual infrastructure works to achieve the airport opening date. An Annual Report should be presented to Parliament and SWADC should also have the power to report to Parliament at other times.**
- 8. SWADC should be accountable to the Premier and one Federal Minister.**
- 9. At the State level, SWADC should report to the Premier.**
- 10. The Commonwealth Government should be asked for advice on relevant Commonwealth legislative aspects, including the nomination of a responsible Minister.**

***SWADC: Structure.***

- 11. The SWADC Board should have representatives from State, Commonwealth and Local Government. It should be funded by contributions from the State and Commonwealth Governments.**
- 12. The number of Board members should be kept to the minimum in order to enable focussed decision-making.**
- 13. Wide ranging community consultation and input should be facilitated by SWADC through the establishment of ad hoc or standing sub-committees for particular issues of importance.**
- 14. With regard to Local Government representation at Board level, the Committee believes that WSROC (and/or possibly MACROC) may be the appropriate representative body in order to avoid an unwieldy arrangement. Input from individual Councils, including those not directly covered in the proposed SWA Sub-Region, could be provided either via sub-committees of SWADC or through WSROC, depending on the nature of issues needing to be addressed at particular times.**
- 15. Staffing of SWADC should be mainly on a secondment basis from relevant agencies. The organisation should be lean, in accordance with its role and accountabilities.**

***SWADC: Objectives.***

16. SWADC should be set clear objectives, with agreed performance measures and milestones established at the outset.
17. Initial objectives should include, but not necessarily be limited to:
  - **Coordinating infrastructure planning and provision.**  
This would be achieved through consultation with relevant authorities, to ensure that the infrastructure necessary for SWA will be in place by 1999.
  - **Establishing a strategic planning framework for the SWA Sub-Region.**  
Given time constraints, this framework should be completed as a matter of urgency within an appropriate target time frame (possibly 12 months). It should include production of a regional master plan, development instruments and plans for environmental management systems. Administration of the regional plan and the development approval process, should be carried out by Local Councils, with concurrence by the Minister for Urban Affairs and Planning that proposals were in accordance with the regional plan, as appropriate.
  - **Assessing the economic, environmental and social impacts on the whole State of NSW.**
  - **Providing a focal point for regional development, marketing and promotion.**  
The Committee notes that there are a number of established and effective organisations in Western Sydney which are capable of carrying out a regional promotional role including WSROC, MACROC, GWSRCCI and GWSEDB. SWADC should liaise with these organisations and seek their cooperation in a coordinated promotional campaign. The FAC and/or the airport lessee should also be included (a marketing program to promote SWA will undoubtedly form part of business plans for the airport). A marketing and promotion sub-committee would provide a forum in which a strategic marketing and promotion plan could be formulated. The strategic plan could then be implemented through the above mentioned individual bodies, resulting in coordinated efforts to attract new industry and commerce to the region.

***SWADC: Sunset Clause***

- 18. The sunset clause for SWADC be set at five years followed by a review with an option for:**
- extension for a further specified period; or
  - distribution of SWADC's responsibilities amongst appropriate authorities.

## **CHAPTER 3      TERM C. INFRASTRUCTURE REQUIREMENTS FOR THE ACCELERATED DEVELOPMENT OF SYDNEY WEST AIRPORT**

### **3.1    INTRODUCTION**

#### **3.1.1   SYDNEY WEST AIRPORT: AN INTRODUCTION**

In this chapter, the Committee looks at Term C of its Terms of Reference, which requires it to inquire into:

*what infrastructure facilities need to be provided to facilitate the early opening of Sydney West Airport.*

The Committee looks at the following issues in this chapter which will require State participation and possibly funding:

- ground transport links (road and rail);
- aviation fuel supply;
- energy supply (electricity and gas);
- water supply (including sewerage);
- land use planning for the Sub-Region including sustainable levels of residential development; and
- how to maximise the economic and employment opportunities that the airport will generate.

Sydney West Airport (SWA) will be the second major airport for Sydney and is being developed with a range of facilities to cater for all sectors of the aviation market. The airport will be curfew-free with the capacity to handle major domestic and international jet traffic. This will relieve some pressure on KSA, especially during the existing curfew and shoulder periods. The new airport will be required to handle all freight movements during the curfew hours at KSA.

The master plan for Sydney West Airport provides for two widely spaced parallel runways 4,000m and 2,500m long with provision for future generations of aircraft with wingspans up to 95 metres. The EIS for the selection of the Badgerys Creek site (1985) was based on a planned ultimate annual capacity of 275,000 aircraft movements and 13 million passengers.

There is an opportunity to introduce effective land use controls around SWA that balance the long term requirements of the aviation industry with the needs of the community in Western Sydney. In the past, the failure to move quickly at other airports, such as Tullamarine, has limited airport development opportunities.

This chapter addresses infrastructure provision and land use planning in the SWA Sub-Region to ensure inappropriate development is prevented. The Committee also recognises that the economic opportunities arising from SWA must not be pursued at the cost of the environment of Western Sydney or the quality of life of its residents.

In evidence before the Committee, Mr Bob Lundie-Jenkins of the Greater Western Sydney Regional Chamber of Commerce outlined the economic potential of SWA for Western Sydney:

... Sydney West Airport provides the key which will drive development of high value-added manufacturing, horticultural and associated agricultural exports, and improve access to the international market for provision of advanced medical and educational services available in the west (of Sydney) through the Medical Research Foundation, the Children's Hospital at Westmead, the Westmead Centre and, of course, the University of Western Sydney.... (T3, 27)

Such an airport development as SWA would drive economic activity in Western Sydney, create jobs and improve transport links.

This will require a coordinated approach to the development of the SWA Sub-Region. In its submission to the Committee (s.9), the Australian Business Aircraft Association stressed the need for a central authority to coordinate land use planning in the SWA Sub-Region based on the experience at other airport developments in Australia:

The lessons from the construction of every major airport development in Australia should be applied to the construction of Sydney West. All land within an area forecast to come under the influence of aircraft operations at Sydney West Airport should be the subject of centralised planning controls. It should never be allowed to be zoned at the whim of local councils.

The Committee looks at the first stage infrastructure for SWA in this chapter in the context of the long term land use imperatives of the SWA Sub-Region and the social and environmental needs of Western Sydney.

The Committee also examines the history of SWA including budgetary commitments by the Commonwealth Government to its construction.

### 3.1.2 THE SELECTION OF BADGERYS CREEK

In September 1983 the Commonwealth and New South Wales Governments jointly announced a program for the selection and acquisition of a second airport site for Sydney.

In 1984, the Commonwealth Government commenced a study which looked at a wide variety of possible locations. Ten locations were selected for evaluation from which eight were eliminated. The two remaining sites, Wilton and Badgerys Creek, were subjected to a full EIS in accordance with the requirements of the Environment Protection (Impact of Proposals) Act 1974. The EIS was based on the planned ultimate development of a major domestic and international airport with an annual capacity of 275,000 aircraft movements and 13 million passengers.

The draft EIS was released for public comment in June 1985 and there were 423 submissions. From these submissions, about 2,000 separate comments were identified and answered in the supplement to the draft EIS which was released in December 1985.

At the conclusion of the EIS process, and based on its findings, the Commonwealth Government announced in January 1986 the selection of the Badgerys Creek site for Sydney's second airport. The Badgerys Creek site is 46km west of Sydney's business district, 23km north-west of Campbelltown and 20km south-east of Penrith.

### 3.1.3 SWA: DEVELOPMENT AND FUNDING

The accelerated development of SWA from a general aviation facility to an international airport from day one in 1999 has been the result of air traffic increases in the Sydney region rapidly outstripping forecasts. This dramatic escalation in Sydney's popularity as a tourist and commercial destination has put extra pressure on Sydney's existing international airport, KSA, and necessitated the accelerated development of SWA to cater for traffic to the Sydney Olympics in 2000.

The Committee looked at the stages through which SWA has passed since the site was selected in 1986.

In March 1989, the Commonwealth Government announced the staged development of Sydney's second airport at Badgerys Creek, commencing with a general aviation airport. In addition, design work on a second stage providing for both domestic and international services would also begin immediately. Two complete concept designs were consequently prepared by the FAC and delivered to the Commonwealth in August 1991. The Commonwealth Government also instituted a compulsorily acquisition scheme to purchase all properties within the proposed airport boundary that were not already in Commonwealth ownership.

In response to the House of Representatives Select Committee on Aircraft Noise (HORSCAN) recommendations, the voluntary acquisition of properties inside the 35 ANEF

zones (as defined by the 1985 EIS) began in November 1990. About half of the 20 properties eligible under the acquisition program were acquired by mid-1995.

In December 1991, the Commonwealth Government confirmed that the initial development at Badgerys Creek would be a general aviation airport with an 1,800m runway. The airport site would be leased to the FAC with the FAC being responsible for building and operating the new airport.

In May 1994, the Commonwealth Government announced that the development of Sydney West Airport would be accelerated by the construction of a 2,900m runway by 1998/99, which would be suitable for use by almost all major aircraft.

The 2,900m runway will be long enough to enable B747 and B767 aircraft to fly non-stop to destinations such as Japan and Honolulu.

The extent of supporting facilities for SWA was deferred in 1994 until detailed planning and design studies were concluded. In July 1994, the FAC was commissioned to engage specialist engineering consultants to prepare concept designs for the airport. These concept designs were completed and provided to the Commonwealth Department of Transport in November 1994.

The Committee has examined the SWA concept designs in order to assess their adequacy when there is a direct impact on State responsibilities. For example, the Committee looks at the drainage and stormwater concept designs for SWA in its assessment of water quality to ensure that the airport development does not increase the pressure on the troubled Hawkesbury-Nepean River system.

The first stage of development at SWA will comprise:

- a 2,900m runway (on the same alignment as the planned ultimate 4,000m runway) capable of handling major domestic and international jet traffic;
- parking spaces for four B747s and four B737s;
- international standard air traffic control, rescue and fire fighting facilities;
- a 10,000sq/m passenger terminal with a capacity of more than 1 million passengers a year;
- a cargo handling area; and
- designated charter/commuter and helicopter areas.

A major power line and a section of The Northern Road within the airport site will be relocated to prepare the airport site for its ultimate development.



In the 1995 Budget, the Commonwealth Government reaffirmed its commitment to accelerate the development of Sydney West Airport and announced measures to ensure that the new airport would be operational in late 1999 in time for the 2000 Olympics.

The Budget measures brought the Commonwealth's total commitment to the development of the new airport and associated transport infrastructure to \$762 million.

These costs as summarised in the following table.

**TABLE 3: SUMMARY OF THE COSTS OF DEVELOPING SYDNEY WEST AIRPORT**

ITEM	COST (\$million)
Acquisition of the airport site and noise-affected properties, upgrading local access roads and preliminary design work.	152
Airport development: 2,900m runway; 10,000sq/m passenger terminal; taxiways and aprons; cargo handling and charter/commuter facilities; and relocation of The Northern Road.	306
CAA facilities (control tower, fire-fighting services, etc).	21
Environmental studies, finalising the acquisition of noise affected properties and the relocation of a major power line.	23
Construction of the Western Sydney Orbital and upgrading of Elizabeth Drive.	260
<b>Total</b>	<b>762</b>

Representatives of the Commonwealth Department of Transport have indicated that there is no impediment to the completion of this work by 1999. Mr Michael Waller, Deputy Secretary, Transport Policy:

... in our discussions with our engineering consultants and the FAC, there is nothing in the design nor in the geology of the area which suggested it cannot be constructed in time to be fully operational by the end of 1999.<sup>1</sup>

Mr Waller stated that SWA was primarily an earthmoving, grading and concrete laying activity with the construction of a terminal and access roads. He pointed out that the Third Runway took only two years to construct despite the fact that it involved filling in a portion of Botany Bay.

### 3.1.4 AIR TRAFFIC GROWTH IN AUSTRALIA

<sup>1</sup> Evidence to the Senate Inquiry into Aircraft Noise in Sydney, 746.

The development of SWA must be seen in the context of the general surge in air travel and freight both within Australia and between Australia and the rest of the world.

Australia has historically suffered from an inability to quickly access the latest international ideas and economic opportunities. However, the technological developments of the past 40 years and the recent shift in the global economic power base toward the Asia-Pacific region offer Australia an opportunity to become an important high-tech manufacturing and agricultural centre in this dynamic region.

In short, Australia is now in the right place at the right time.

The burgeoning international air travel and air freight industries in Asia provide Australia with new opportunities to attract tourists and to expand export sales.

Over the 10 years from 1983/84 to 1993/94, total international passenger movements to and from Australia increased from 4.8 million to 11.2 million. This is an annual average increase of 8.9 per cent. The Tourism Forecasting Council estimated that a total of 6.3 million visitors would arrive in Australia during 2000, compared to a record 3.7 million during 1995. Sydney's market share will be about 3 million visitors.

International tourism is among the country's top foreign exchange earners, generating forecast expenditures in 1995 of approximately \$7,300 million.<sup>2</sup> In 1991/92, international and domestic tourism in Australia generated 458,000 jobs (BTR).

This rate of growth looks set to continue as Australia benefits from the tourism boom from high growth economies in the Asia/Pacific region. The Australian Air Transport Association (AATA) outlined the economic potential of the airline industry in Australia as part of the Asian region:

Demand for air transport in the region is growing faster than anywhere else in the world, moving from an average 12.1% per annum between 1985 and 1990, to a forecast of 8.6% per annum between 1990 and 1995 and 7.5% from this year to 2000. The region's share of worldwide scheduled passenger traffic is expected to grow from 25.2% in 1985 to 51.1% in 2010.<sup>3</sup>

The AATA identified a group of countries including Australia as having significant potential to form a market pool:

While Japan remains the region's dominant market for air traffic, accounting for an expected 150 million passengers flying into and out of that country by 2010, Australia has been identified along with Hong Kong, Singapore, Hawaii, Thailand and Taiwan as the region's other major markets.

---

<sup>2</sup> Source: Bureau of Transport Research.

<sup>3</sup> Submission to the Senate Inquiry into Aircraft Noise in Sydney, p.29.

While traffic from Japan has not increased at the forecast rate, there has been such an enormous increase in air traffic in the South-East Asian basin that all forecasts have been outstripped. For example, tourism from Korea is already approaching levels previously only associated with Japan.

Domestic passenger movements in the same period from 1983/84 to 1993/94 have virtually doubled from 10.6 million to 20.0 million. This is an average increase of 6.6% per year. The domestic aviation industry has carried record numbers of passengers in the years since deregulation in 1990.

### **3.1.5 SYDNEY'S STATUS AS FIRST PORT OF CALL IN AUSTRALIA**

Sydney has traditionally been the preferred first and last port of call in Australia for tourists as well as a principal tourist destination in itself.

Sydney's cosmopolitan lifestyle, tourism attractions, excellent infrastructure and growing service industry have made it the focus of Australia's tourism industry and, therefore, the centre of the operations of the international air carriers.

Before the Olympics decision, it was estimated that foreign tourists in NSW would spend \$569 million in the year 2000 and \$1706 million in the year 2010. More recent national visitor spending projections published by the Tourism Forecasting Council forecast total real expenditure of \$11.8 billion in 2000 and \$14.5 billion in 2003.

Sydney also possesses a strong industrial base which has begun to take advantage of business opportunities in the Asia-Pacific region.

With a population of approximately 3.5 million, the Sydney region accounts for more than 20 per cent of national population and employment. Particular industrial sectors that are strongly represented in the Sydney region include finance, property and business services, transport and storage, manufacturing (especially chemicals and petroleum products), machinery and equipment, paper products, printing and publishing, and food and beverages. Many of these industries are now largely based in Western Sydney.

According to the draft EIS of the Third Runway, there was strong growth in air freight at KSA between 1980 and 1987. Freight grew at a more rapid rate than passenger traffic, recording an average annual growth of 6.7 per cent compared with passenger traffic growth of 4.3 per cent a year. During the same period growth in international freight movements was significantly greater than domestic freight, growing at an average rate of 8.9 per cent. The Draft EIS suggested the high growth in international freight was due to the growing world trade in high value added, high technology manufactured goods which are often more easily transported by aircraft.

KSA is a major generator of economic activity and employment in the Sydney region. In 1992/93, the Institute of Transport Studies estimated that the airport generated directly about

Smith Airport and not necessarily, or as popularly conveyed in the press and certainly by certain elements of Sydney, as a replacement airport. Clearly, the environmental impact statement indicated that it be an airport working in cooperation with Kingsford-Smith; there was never any indication that the airport would take on the sole responsibility of Sydney's air traffic needs. (T1, 3)

While it is crucial that a new airport comes on-line in Sydney in the next five years, it is important that the development of SWA and the Sub-Region does not outstrip demand. Infrastructure spending must be carefully targeted and timed. A coordinated approach to the development of the airport and the Sub-Region is needed to ensure the necessary infrastructure is provided before commercial and residential development occurs.

The opportunity exists at SWA to harness and enhance the future economic benefits from Sydney's airport-related industries for Western Sydney. SWA will provide an airport in the geographical heart of Sydney to encourage the residents of Western Sydney to regard air travel as a convenient mode of transport. It will provide new avenues for exporting from the manufacturing heart of the Sydney region. It will also help entrench the status of Western Sydney and the Blue Mountains as the fastest growing tourist destination in New South Wales.

### 3.1.6 LEASING

SWA will be jointly leased with KSA as part of the Commonwealth Government's leasing program for Federal airports. The FAC will have full contractual responsibility for the development of SWA until it is jointly leased with Kingsford Smith. The lessee will then be required, under the terms of the lease, to complete the construction of Sydney West to the Commonwealth Government's specifications and timetable. Complementary development of the two airports should help to rationalise airport infrastructure and airline operations in the Sydney region.

The choice between the established primary airport, KSA, and the new facility, SWA, involves airlines weighing the relative benefits of the two locations in terms of congestion, scope for expansion, operational restrictions, connections with other domestic and international flights as well as the access provided by ground transport infrastructure. Available studies indicate that single ownership of a multiple airport system serving the same catchment area is more likely to encourage the development of a secondary airport than separate ownership of individual airports.<sup>6</sup> A single owner has a greater incentive to maximise the use of both assets and relieve congestion than would separate owners.

The lessee will be able to recoup the costs of the development of SWA from a special charge on Sydney (Kingsford Smith) users. This charge will be equivalent to approximately \$1.70 per passenger movement at KSA (that is \$3.40 for a return ticket).

---

<sup>6</sup> See Richard de Neufville, *Planning Multi-Airport Systems in Metropolitan Regions in the 1990s*, Technology and Policy Program, Massachusetts Institute of Technology, Boston.

30,000 full-time jobs and almost \$3.5 billion in economic output in airport-related industries.<sup>4</sup> When flow-on effects are included, it is estimated that the airport provides about 60,000 jobs and total economic activity in Sydney of about \$7 billion. An additional 26,000 jobs will be created over the next five years and these benefits could double by 2011/2012.<sup>5</sup>

However, Sydney's hard-won status as Australia's principal tourist and freight destination will come under threat from other airports if air traffic congestion and curfews make it a less attractive option.

Already, airports that are closer to Asia, such as Cairns and Brisbane, are attracting significant tourist arrivals directly from Asia. In addition, the fact that Tullamarine in Melbourne operates as a no curfew airport has been the subject of a vigorous promotional campaign. In short, Sydney needs SWA to entrench its position as the principal air centre in Australia.

Sydney is the major hub of the Australian air transport network, accounting for 47 per cent of international and 27 per cent of domestic passenger movements. In 1994, KSA handled a total of 17.9 million passenger movements and 250,300 aircraft movements. These numbers are expected to grow to a total of 23.1 million passenger movements and 292,200 aircraft movements in the year to June 2000.

Forecasts provided by the International Air Transport Association (IATA) and the Air Transport Action Group (ATAG), show that a total of 6.1 million international passengers will fly in and out of KSA during 1995, rising to 8.5 million during 2000 (double the number for 1990) and to 11.6 million by 2005.

At the same time there will also be strong growth of domestic passengers in and out of Sydney from a forecast 10.3 million during 1995 to 13.9 million during 2000 and to 18.2 million during 2005. Domestic growth expectations also represent a doubling of passengers between 1990 and 2000.

The Third Runway EIS (1989) concluded that a second airport in the Sydney region would not become viable until annual passenger volumes reached a threshold of 25 million. On this basis, it was estimated that a second airport could not commence viable operations until the medium to long term. It now appears that this figure of 25 million passengers will be reached around the year 2000. In short, KSA is rapidly approaching capacity.

Mr Alex Sanchez, Chairman of WSROC, suggested that SWA should operate in tandem with KSA to provide Sydney with valuable airport growth potential:

Fundamentally, we would see the airport operating in concert with the Kingsford-

---

<sup>4</sup> Institute of Transport Studies Graduate School of Business, *Economic Significance of Sydney (Kingsford Smith) Airport*, University of Sydney, September 1993, pp.49-50.

<sup>5</sup> Institute of Transport Studies, pp.52-56 & 61-62.

### 3.1.7 WHO WILL USE SWA?

The Committee looks in depth at the economic potential for SWA in section 3.10 using the commercial and employment opportunities generated at KSA as a model for the future of the new airport. However, there are specific forces at work in Western Sydney which will add a new dimension to airport-related activity at SWA.

In general terms, demand for SWA will come from:

- air traffic growth in the Sydney region;
- new entrants and competition in the airline industry;
- transfer of flights from KSA because of air traffic congestion;
- the enforced transfer of curfew-period freight flights from KSA;
- the export needs of the freight industry in Western Sydney; and
- passenger trips by residents of Western Sydney.

The demand for SWA must be considered in terms of the strong expected growth for aviation passenger services in the Sydney region. The Commonwealth Department of Transport forecasts an average annual growth rate of about 5.3 per cent in passenger movements from now until 1999-2000.

The deregulation of domestic interstate aviation in 1990 indicated that demand was generated by the introduction of new services with competitive fares and service quality. Since deregulation, patronage on the domestic network has increased by 77 per cent. This increase in demand can be principally attributed to reductions in fares of about 24 per cent on the 21 principal interstate routes (Prices Surveillance Authority, May 1995).

SWA will give both new entrants into the Australian market and established carriers the opportunity to develop new niche markets and to further increase competition within the airline industry.

The initial use of the airport will also be strongly influenced by the Commonwealth Government's decision that Sydney West Airport will handle all freight movements during the curfew hours at KSA. This will have a direct effect on the use of the airport which will also attract additional freight services during non-curfew hours because freight operators will be able to increase services at small additional costs. The Committee looks at the export potential of SWA at section 3.10.8 of this report.

SWA will provide a focus for high-technology, value-added exports from manufacturing industries in Western Sydney.

In evidence before the Committee, Mr Alex Sanchez, Chairman of WSROC outlined some of the Western Sydney commercial enterprises which could take advantage of a no curfew airport like SWA:

In Western Sydney there are hi-tech industries and considerable agricultural production. I am aware of a number of firms that have clustered in parts of Liverpool — Alcatel, Philips and ASEA Brown Boveri, MM Cables and other hi-tech companies. For example, Arnott's has decided to move from its Concord-Homebush site into the Huntingwood area; United Distilleries are in the Huntingwood estate, as well. (T1, 9)

Mr Sanchez also indicated that there was the potential for considerable exports of fresh agricultural produce to Asia:

The advantage of the SWA, of course, is that it will be a curfew-free airport, so that growers would be able to fly foodstuffs in basically on a just-in-time methodology. (T1, 9)

Initial demand at SWA is also expected to come from passenger traffic dedicated to Western Sydney residents. Research indicates that by the year 2000, about 10 per cent of passengers in the Sydney region will be able to travel more quickly and more conveniently from their homes and businesses to SWA than to KSA. This proportion will increase as Western Sydney and SWA expand and more residents become used to accessing SWA.

Sydney West will also attract general aviation traffic. In recent years there has been significant growth in general aviation traffic in the Sydney basin and SWA is likely to benefit from this growth if aeronautical charges at the airport are competitive with those at Bankstown, Camden and Hoxton Park.

While it is possible to identify the potential opportunities which SWA offer to passenger and freight air traffic out of Western Sydney, it is impossible to quantify exactly what will happen when the airport opens in 1999. In a briefing to the Committee, Dr Hugh Milloy of the Commonwealth Department of Transport suggested that the most responsible action at this stage would be to develop a strategic plan which would maximise the potential of the new airport and associated developments for employment generation and economic growth while managing the land use, transport and environmental impacts of those developments.

The Committee's report will play an important part in this process by drawing together the work of various Commonwealth, State and Local Government bodies into a single document which will coordinate the scale and timing of infrastructure provision, economic activity and residential development in the SWA Sub-Region with a view to enhancing the environment and improving the job prospects and quality of life of residents in Western Sydney.

### **3.1.8 COORDINATING INFRASTRUCTURE FOR SWA AND THE SWA SUB-REGION**

The development of SWA as a major international and freight airport will have an enormous economic, social and environmental impact on Western Sydney.

SWA constitutes a major development for Greater Western Sydney. It is also part of a number of large scale initiatives including the National Highway Link, the re-development of the former ADI Site at St Marys, residential development at Rouse Hill and the establishment of Parramatta as Sydney's second CBD with secondary centres at Penrith, Liverpool, Blacktown and Campbelltown.

Taken together, these projects represent a potentially strategic infrastructure network that will complement and boost each other to significantly enhance the regional competitive base of Western Sydney.

One of the factors which weighs heavily in maximising the success of a new airport is adequate ground transport infrastructure. The Committee investigated both the Commonwealth Government's commitment to the new airport and any additional links which may be necessary in both the short and long term.

The provision by the Commonwealth of road links to service SWA will involve the construction of the Prestons to Cecil Park section of the Western Sydney Orbital road and the upgrading of Elizabeth Drive to four lane arterial road standard. Planning is under way on the Orbital link to the National Highway between Prestons and Cecil Park, which will form part of the access to SWA. It is planned that these roadworks will be completed to coincide with the airport opening in 1999. The Committee looks at the system of road links to service SWA and the Sub-Region in section 3.3 of this report.

Both the on-site and off-site developments at SWA are due for completion in 1999 and will be consistent with the master plan for the airport.

Commonwealth and State Government officials are also working on the rail corridor to connect Sydney West Airport to Sydney Airport and the rest of the metropolitan rail network. The Committee looks at the future development of the rail link in the context of Sub-Regional requirements and environmental pressures in section 3.2 of this report.

A Joint Task Force on Planning for SWA and its Sub-Region has been established with input from the three levels of Government to consider the integrated development of the new airport into the surrounding Sub-Region. It is investigating environmental, economic, integrated land use and transport planning issues. It is chaired by the NSW Department of Urban Affairs and Planning.

The Committee has received the Task Force's First Stage Report as a submission (s.64). It has formed a useful platform for the Committee's own investigations.

The challenge and the opportunity for Western Sydney is to secure a commercially viable international airport at SWA with an associated commercial and industrial complex that will complement and reinforce other economic development catalysts planned for the region. This



will, in turn, create employment for Western Sydney and open up residential opportunities in the region.

In evidence, Mr Ian Reynolds of Blacktown City Council pointed out the importance of integrating the infrastructure for SWA into Western Sydney in order to extract maximum economic and social benefits:

... if the economic development potential of the airport is to be fully realised the nature and extent of infrastructure development leading to the airport is crucial. We think that the economic development potential will be realised best if the airport is inextricably linked to the rest of the region and so can be used to promote the development of the rest of the region. (T3, 41)

The Committee believes that the development of Sydney West Airport and associated transport and service infrastructure must be seen as the highest priority project in Sydney to the year 2000.

Development of Sydney West Airport will provide the catalyst for cross-regional transport systems that will alleviate traffic congestion in Western Sydney and provide the essential boost which will enable Western Sydney to realise its economic potential.

As part of its contribution to this goal, the Committee looks at the required infrastructure network for SWA and the SWA Sub-Region in the rest of this chapter as well as the economic development that is likely to result from the construction of this focal point for commercial activity in Western Sydney.

## 3.2 RAIL LINKS TO SYDNEY WEST AIRPORT

### 3.2.1 INTRODUCTION

Land transport access is a key issue in the development of Sydney West Airport.

As emphasised by the Western Sydney Regional Organisation of Councils, much of the debate over Sydney's airport needs has focussed on the relative accessibility of Kingsford Smith Airport as opposed to SWA. Improved land transport links to SWA are an essential precursor to its full development and utilisation.<sup>1</sup>

The Federal Government was responsible for the decision to accelerate the development of SWA for the 2000 Sydney Olympics. The NSW Government is responsible for providing adequate land transport infrastructure to and around the airport, although not necessarily for funding all such infrastructure.

The land transport infrastructure should be designed to ensure the viability of SWA and its integration into Sydney, and to improve transport links within Sydney's Greater West, large areas of which are not serviced by good quality roads or reliable public transport. Much of Western Sydney, including Baulkham Hills, Liverpool, Fairfield, Penrith and Blacktown, is isolated from the rail system. Consequently, rail accounts for only a small share of journeys to work, and there is limited general use of public transport for journeys within the region.

Land access to SWA is likely to be solely by road during the early stages of development, and possibly in the early stages of growth.

However, the Committee is considering proposed rail links to SWA before road-based land transport for the following reasons:

1. To acknowledge that the traditional precedence accorded road-based transport links has fostered an unfortunate level of reliance upon private vehicles resulting in high levels of air pollution and less than optimum urban planning.
2. To signal the importance placed by the Committee on providing transport links which do not increase Western Sydney's reliance on cars, a major source of air quality problems.
3. The Committee believes that the Commonwealth Government has funded sufficient road links to SWA in the medium term to facilitate the accelerated development of the airport.

---

<sup>1</sup> WSROC, Report to WSROC on Sydney's Airport Needs and the Proposed Second Sydney Airport at Badgerys Creek, 1989, p. 11.

---

The Committee believes that a good transportation network is essential for the orderly and sustainable urban development of Western Sydney and for the maintenance of the quality of life of Western Sydney residents. Transport and urban planning are inextricably entwined.

As population pressure in the Sydney basin intensifies, residential development will occur in the SWA Sub-Region.

The Committee believes it is crucial that urban development in the SWA Sub-Region be well planned and provide adequate urban amenities, including transport infrastructure. That is the only way to ensure existing environmental pressures in the SWA Sub-Region are controlled, particularly ozone from motor vehicle emissions.

The Committee believes the SWA Sub-Region offers a rare strategic opportunities to ensure that a comprehensive land transportation network is established to positively influence the form and pace of local urban development.

Transport planning options must therefore be carefully considered and evaluated to achieve optimum transport infrastructure and optimum (as opposed to maximum) residential development.

The Committee believes that, in influencing urban development in Greater Western Sydney and particularly in the SWA sub-region, the correct balance between efficiency, equity, urban containment, the environment and integrated transport objectives can be promoted by:

1. Developing an efficient, reliable and reasonably priced public transport network allowing transit between residential and employment centres in Sydney's Greater West without necessary resort to private exhaust vehicles, thereby kerbing negative development impacts such as traffic congestion and air pollution.
2. Constructing a rail link between SWA and existing regional and metropolitan rail networks.
3. Constructing a rail line from Glenfield to SWA, via the proposed South Creek Valley urban development area if development proceeds. Development in the South Creek Valley must be on a limited scale.
4. Generally containing urban expansion in the SWA Sub-Region to within a 2km radius along the rail line to the airport in order to maximise the efficiencies of local residential development without promoting unduly high density development, particularly close to the South Creek Valley area.

### 3.2.2 WHY RAIL IS REQUIRED IN THE SWA SUB-REGION

The Committee has investigated the various options for providing land transport to SWA and the SWA Sub-Region and concluded that rail should be promoted for a variety of reasons.

Rail is the transport mode:

- which maximises access to mass transit;
- with most capacity to be developed and upgraded to meet increases in demand;
- least affected by congestion;
- most likely to guarantee travel times;
- with least impact on the natural environment;
- with least negative impact on air quality (already a concern in the Hawkesbury-Nepean Basin);
- most likely to influence the location, density and design of urban development, and therefore to maximise its efficiencies;
- offering greatest travel safety;
- best able to influence a change in travel patterns;
- with best energy efficiency;
- best able to reduce resource dependency; and
- with most potential to carry bulk freight, thereby removing it from roads and making them safer.

As emphasised in numerous submissions to this inquiry, air travellers will prefer to use KSA if access to SWA is not convenient. To maintain a good flow of tourist and commuter traffic, a rail link from the Sydney CBD to SWA with a journey time of less than one hour is essential. Other currently available land transport options cannot guarantee travel times and may be unable to cope as population densities and road congestion increase.

### 3.2.3 THE INTERDEPENDENCE OF A RAIL LINK, RESIDENTIAL DEVELOPMENT AND SWA

The Committee identified the inter-dependence of the airport with development in the SWA Sub-Region when it came to justifying initial expenditure on a rail link and developed a rail transport plan which balanced economic imperatives with sustainable residential development.

The inclusion of a rail link servicing not only SWA but the SWA Sub-Region would allow residential development to be concentrated around stations along the rail corridor, thereby encouraging compact 'transit-oriented' development.

With the Glenfield to SWA rail link, local residential development could, compared to most other existing and proposed urban release areas, better achieve the objectives of:

- integrated land use and transport;
- urban containment;
- improved air and water quality management; and
- broadened access to public transport.

The delivery of these objectives is crucial to the approval of any residential development in the SWA Sub-Region because of existing problems with air and water quality which have stymied previous attempts to develop the region (notably the South Creek Valley RES in 1991 which proposed for up to 200,000 people to live in the region).

Liverpool Council has made it clear both in its urban strategy, *The Future for Liverpool - A Regional Centre*, (7) and in its evidence to the Committee that it would only reconsider its opposition to residential development in the South Creek Valley if the State Government proceeded with limited residential development surrounding stations on a new Glenfield to SWA rail line.

Since any rail facility will significantly affect the layout of proposed urban release areas in the Sub-Region, it is important to plan the route with potential development areas in mind.

It is equally important, however, to ensure that residential development:

- does not encroach too close to the SWA site;
- does not outstrip the provision of infrastructure (e.g. water and sewerage, power, communications, hospitals, child care, schools, etc); and
- is not high density, resulting in high-rise living and, particularly in the South

Creek area, deteriorating land, air and water quality.

Infrastructure for new heavy rail lines is expensive and investors, including governments, are reluctant to make such substantial investments without the prospect of sufficient passengers (sometimes referred to as an adequate 'rail catchment') to offer a reasonable financial return over time. Projected passenger numbers for SWA have been found to be insufficient to justify a rail link servicing the airport only.

The Committee recognises that providing a direct heavy rail link servicing only SWA, with no residential development, is theoretically an option, but rejects it because it would:

- forego opportunities for compact residential development serviced by an integrated transport network;
- forego employment opportunities beyond the airport;
- involve a similarly high cost (to a line also servicing urban residential development) but with negligible return on such a substantial public investment; and
- represent an essentially regressive measure in terms of social equity because the line would mainly be used by a relatively small and affluent section of the population (i.e. airline passengers).

The potential rail catchment would be higher, and therefore more likely to justify investment in a heavy rail link to SWA, if the line also serviced compact residential development clustered around stations. The economic viability of the rail system and the optimum pattern of residential development would be considered simultaneously when setting population limits or targets.

A rail link would not only improve the viability of residential development, it would significantly increase accessibility to SWA and increase the rate of return on investment in the airport itself. SWA's viability is therefore dependent on the viability of the rail link.

While airport passenger numbers alone cannot justify a heavy rail link to SWA, the Committee agrees with various transport and urban planning studies which maintain that a rail link between the metropolitan network and SWA is feasible if it services both the airport and en route residential development.

As noted elsewhere in this report, however, there is disagreement about sustainable residential densities in the SWA Sub-Region, particularly along Section 2 of the proposed line.

The Committee has consulted extensively with Local Councils, especially Liverpool Council,

about appropriate residential densities along the proposed railway line between Glenfield and SWA.

The overwhelming message is that Western Sydney needs an improved environment and more employment opportunities before further large-scale residential development.

The Committee has therefore recommended elsewhere in this report that residential development along the Glenfield-SWA rail link be limited to between 90,000 and 100,000 people, and that Liverpool Council remove certain other areas from the Urban Development Program (UDP) to enable it to contain its population within sustainable limits.

Such a limit in the SWA Sub-Region should provide adequate passengers to make a rail link to SWA economically viable while avoiding the environmental problems associated with large scale development.

In the rest of this chapter, the Committee investigates the various options for the location of a first stage rail link to SWA as well as the longer term expansion of rail links to fully integrate SWA and the SWA Sub-Region into the Sydney Metropolitan Rail Network.

#### **3.2.4 THE INITIAL RAIL LINK: GLENFIELD - SWA**

A key issue in locating the rail link to SWA is how best to integrate that link with the existing metropolitan rail network.

Two rail lines could service SWA:

1. The Main Western Line (Sydney - Parramatta - Penrith) to the north.
2. The Main Southern/East Hills Line to the east (also known as the Southern Rail Line Option).

Several major studies have found that the most direct and logical link would begin at Glenfield on the Main Southern Line (to the east of the airport) near the intersection with the East Hills Line.

The Committee looks at a rail link to the Main Western Line (Sydney - Parramatta - Penrith) as an essential longer-term option for properly integrating the airport and related urban development into the Sydney rail system in a later section.

The Glenfield to SWA line would offer the following advantages:

- access to a main line that is less heavily trafficked and which could therefore more conveniently accommodate initial upgrading works and traffic growth;

- shorter distances and therefore faster trips between Central Station and SWA;
- a more direct rail link between Sydney's two airports when the New Southern Railway linking Central Station to KSA is completed;
- best medium-term potential to integrate the railway with future urban use, while maintaining rail options to the airport's north which could eventually service urban release areas there;
- no apparent major environmental, heritage or land use issues preventing construction;<sup>2</sup> and
- minimal cost of an interchange joining the main rail network because Glenfield is a relatively undeveloped area.

Major rail network enhancements necessary before the Glenfield to SWA via South Creek line can proceed are already in hand:

- an EIS is underway for track amplification (extra tracks) between East Hills and Tempe. This work is a Government priority which is expected to begin this year; and
- the New Southern Railway will provide the necessary extra capacity at Sydenham.

The Committee looked at the history of the proposed Glenfield-SWA rail link, the various route options for the link and how it fitted into existing rail network strategies.

The Glenfield-SWA rail link proposal has suffered an interrupted history because of its reliance on residential development in the environmentally fragile SWA Sub-Region. The South Creek Valley Regional Environmental Plan (REP) in 1991 identified a number of options for a Glenfield to SWA rail link. However, when the then Government announced the deferral of development in South Creek in 1992, largely due to concerns about local air and water quality, it also announced the abandonment of this public transport corridor route.

The prospect of a heavy rail link between Glenfield and SWA gained renewed currency when the Federal Government signalled its intention to accelerate the development of SWA for the 2000 Sydney Olympics. The line was subsequently included in the State Rail Strategic Plan 1994-2016 as a principal capital works proposal.

The original intention was to time the construction of the first, short section of the line

---

<sup>2</sup> Report of the Commonwealth/State Task Force, Access to Sydney West Airport, June 1994, p. 2.



(Glenfield to Edmondson Park) to coincide with land releases in the Ingleburn/Edmondson area, then projected for 2002.

CityRail conducted a preliminary study of route options, with a station proposed at Edmondson Park on or near the Camden Valley Way.

Section 1 (the eastern section of a proposed Glenfield to SWA line) would run from Glenfield to Edmondson Park/Leppington and would cover less than a third of the total distance to SWA. Land acquisition costs would be relatively modest because the proposed route would run through tracts of Commonwealth and State land. As noted later, it is likely that Section 1 will be built at least two or three years ahead of the longer Section 2 of the line (Edmondson Park to SWA).

Section 2 (the western section to SWA) would be double the length of Section 1 and involve about 75-80 per cent of total building costs. Its construction was originally regarded as dependent not only on the role and development of SWA, but on population growth in South Creek Valley creating an adequate rail catchment. Since the Federal Government announced its intention to accelerate the development of SWA, there has been increased pressure for this section of the line to be at least begun, if not completed, before local residential development proceeds so that sustainable urban development is fostered along the route from the outset.

Section 1 (Glenfield to Edmondson Park) has been included in the State Government's bid for funding under the Building Better Cities program, but, regardless of the outcome of the bid, this section is likely to be built well before Section 2.

The provision of a corridor for the rail link between Glenfield and SWA must consider the relative viability of routes including the cost and difficulties of land acquisition.

The land use between Edmondson Park and SWA is at present predominantly non-urban, and is suited as a transport corridor because of the sub-division pattern of large land parcels. This reduces acquisition costs by minimising the number of land holders with whom to negotiate and reduces existing infrastructure impediments to the railway and surrounding residential development.

Five Glenfield to SWA route options were considered by the Commonwealth/State Task Force which reported in 1994 on access to SWA.

The Joint Task Force's preferred route was to:

- diverge from the East Hills line at Glenfield; then
- run generally west to the proposed South Creek Valley Town Centre; then
- run generally north-west to intersect with Badgerys Creek; and

- go underground in a north-west direction to bisect the proposed runways and allow for a railway station close to the airport terminal.

This option was selected because it would:

- best fit proposed urban development;
- not close off development options in South Creek Valley (indeed, it would provide a major transport spine through proposed residential development);
- provide optimal access to SWA and enough on-site flexibility to adjust for various terminal locations; and
- allow servicing of commercial development in the airport's north-east sector.<sup>3</sup>

The Commonwealth Department of Transport has funded State Rail to commission the following studies:

1. A study of the likely costs of two possible route options for the Glenfield-SWA railway:
  - i. the less direct route, which would veer south through the proposed South Creek Town Centre; and
  - ii. the more direct route through Ingleburn, Austral and Rossmore.
2. A financial and economic evaluation of Glenfield to SWA rail link options, taking into account various potential regional urban development scenarios. This evaluation builds on a 1994 joint study of the financial and economic feasibility of Section 1 undertaken by the then NSW Department of Planning, the NSW Department of Transport, and the State Rail Authority.

The results of these studies, along with other studies of environmental impact and demand analysis, have been incorporated by State Rail into a package to be used in relevant discussions with the Commonwealth Department of Transport.

This package has been considered in the deliberations of a new Joint Commonwealth/State Task Force formed in 1995 to develop a strategic plan for the SWA Sub-Region and called the "Task Force Planning for the Sub-Region Surrounding Sydney West Airport". The Committee has outlined the membership and functions of this Task Force at 2.2 of this

---

<sup>3</sup> Joint Task Force, Access to SWA, 13. The Task Force's preferred option is not the preferred option of the Federal Airports Corporation.

report. The Stage 1 Report by the Task Force benefits from State Rail's analysis of the feasibility and likely impacts of the rail line.

The Task Force's Stage 1 Report has:

- mapped a variety of public transport options including heavy rail, light rail and 'buses only' options and their potential outcomes;
- evaluated strategic development options involving different urban development and transport scenarios; and
- tested each of these scenarios against broad State Government planning objectives.

The Task Force favoured a Glenfield to SWA heavy rail link which would service existing development areas plus future development areas to the west (including Edmondson Park and Ingleburn). However, it recommended that residential development not proceed without a rail link.

The Task Force is currently developing an integrated land use and transport strategy as part of its Stage 2 deliberations which will promote public transport in the region with the Glenfield-SWA rail line as its centrepiece.

The Glenfield-SWA rail route considered by this Planning Task Force is similar to that supported by the earlier Joint Task Force examining access to SWA. It has been slightly amended to avoid encroaching upon sites of environmental and heritage significance.

Two routes for the Glenfield to SWA rail link were seriously evaluated:

1. A more direct 21km route, which would, however, traverse many highly fragmented properties, thereby complicating land acquisition negotiations.
2. A less direct 24km route, which would traverse less fragmented land. While this route would cost more in terms of capital costs, it would offer a larger pool of potential users, and therefore a better longer-term financial return.

The location of any Glenfield-SWA rail corridor would be affected by environmental and heritage issues including natural flora and fauna, environmentally significant habitats, Aboriginal archaeological sites, geology and flooding.

The two main routes have been adjusted to:

- avoid areas prone to flooding or geological instability;

- avoid sites of known heritage and/or environmental significance including Aboriginal archaeological sites, remnant bushland and visually prominent ridge tops
- use cuttings to minimise visual and noise impacts;
- minimise the use of fill; and
- avoid social severance (i.e. the extent to which the line would fragment existing communities or separate new ones).

The Task Force's proposed route for the Glenfield-SWA line was the longer 24km route. The 24km route between Glenfield and SWA would:

- predominantly cover non-urban land use;
- not require tunnelling other than at the border of the SWA site;
- involve about 50 minutes travel time from Sydney to SWA; and
- veer south from the most direct route to service the South Creek area (adding a mere few minutes to the total trip).

This longer route may cost up to a third more than the shorter route (despite traversing less fragmented land use). However, it would offer a significantly larger pool of potential rail users because it would travel closer to the urban growth area of Camden as well as cross the proposed South Creek Town Centre. The potentially higher rail patronage of this longer route would offer greater economic viability over the longer-term and could justify earlier construction.

State Rail has indicated that it would prefer fewer, more widely-spaced stations to maximise the potential pool of rail passengers and limit its station-related costs. The Committee believes that this policy also serves quality of life and environmental imperatives if residential development in the Sub-Region and around each station is limited.

State Rail anticipates three stations along the proposed route to SWA:

- probably two in the Edmondson Park area; and
- one at South Creek.

A station near army land at Ingleburn would serve medium or high-density urban development at the army camp site as well as residential development at Edmondson Park. The station name of 'Bardia' has been proposed. If there is not another station near

Edmondson Park or at Leppington, a shuttle bus could deliver local residents to Bardia. Other stations could be at Rossmore (OTC-owned land) and Luddenham North.

WSROC has consistently opposed the proposed route through South Creek, arguing that the area cannot sustain the type of higher density development being canvassed by the Planning Task Force.

**The Committee agrees with WSROC that residential development on the scale being proposed by the Planning Task Force cannot be sustained in the SWA Sub-Region unless pressing environmental stresses are addressed.**

**The Committee does not believe that these environmental stresses can be quickly remedied.**

**Therefore, the Committee believes that the scale of residential development in the SWA Sub-Region must balance the fragile state of the environment with ensuring the economic viability of a rail link.**

#### **RECOMMENDATIONS**

- 19. Construction of a rail link to SWA is essential. The Committee's preferred route is from Glenfield to SWA via South Creek Valley Centre.**
- 20. Residential development should not be allowed to proceed in the SWA Sub-Region without a rail line (i.e. any rail line must be built before such development can proceed).**
- 21. Residential development in the SWA Sub-Region should be clustered around proposed rail stations, with only low density development beyond a 2km radius.**

### 3.2.5 COST AND TIME-FRAME FOR THE GLENFIELD-SWA RAIL LINK

The Committee has recommended that the Glenfield-SWA rail link is the best initial option for a rail link to the new airport. This decision was reached after considering a range of factors including the cost of construction. In this section, the Committee provides more details on the cost of a Glenfield-SWA rail link.

In evidence before the Committee, State Rail estimated that a rail link to SWA would cost approximately \$294-\$372 million, depending on the corridor chosen.

This amount would cover the costs of:

- engineering and environmental studies related to reserving the corridor on a statutory planning instrument;
- land acquisition (\$64-74 million);
- upgrading Glenfield Station;
- cut and fill;
- constructing bridges, dual tracks and stations along the route (approximately \$4 million per above-ground station);
- some necessary noise attenuation measures including noise barriers along Section 2; and
- environmental restoration costs.

State Rail stated that it intended to apply the most up-to-date construction methods to the Glenfield to SWA rail line to minimise negative environmental impacts, and that it would landscape the corridor to correct any unavoidable impacts.

Construction of the line is expected to take about three years, but could take up to five years.

This costing includes the costs of the airport station and the 1.3km rail tunnel under the airport, which are estimated to cost \$30 million.

In addition to the cost of building the line, there would be the additional cost of rolling stock (tens of millions of dollars) and annual operating costs for a link to SWA. The Committee has been informed by State Rail that these costs could be recouped by setting a commercial rail fare. Additional rolling stock could also reduce trip times, thereby attracting more rail users and increasing the return over time.

### 3.2.6 FUNDING ISSUES

The Committee has heard various suggestions with respect to minimising or recouping some of the costs of building the rail link to SWA.

It has been suggested by Travers-Morgan in the South Creek Transport Study (1990) that some costs of the rail link could be deferred by building a single track in the first stage with the necessary engineering works (such as embankments and cuttings) to facilitate duplication when demand to SWA and/or nearby residential development warranted twin tracks. (37)

**The Committee believes that a single track system is unlikely to be a cost-effective option given that:**

- signalling and engineering costs would be almost as much for a single track as for double tracks; and
- staged provision would duplicate some labour costs.

### RECOMMENDATIONS

**22. The rail link between Glenfield and SWA should be a double track system.**

In addition to this scheme for delaying expenditure, the Committee has received several ideas about funding the rail link.

Funding initiatives proposed to the Committee for the SWA rail link include:

- dedicating a proportion of existing fuel levies to providing public transport infrastructure, including the proposed rail line to SWA; and
- passing on a proportion of one or more levies raised by the Commonwealth or the lessee of the airport to contribute towards its costs.

These proposed levies include:

- a levy on car parking at both Sydney airports (similar to that operating in the Sydney CBD); and
- a small levy (incorporated in the price of the airline ticket) on airline passengers.

In his submission and evidence to the Committee, Tim Robertson suggested that value capture taxation would offer a means of recouping some of the costs of providing the rail

infrastructure. This is a way of taxing windfall gains in property values resulting from the provision of infrastructure such as transport or water and sewerage services. For example, building a railway to SWA would generally increase the value of land and development around that line. value capture taxation would involve a tax on such property value gains, and using these collected funds to offset some of the costs of the railway. It does not, however, remove the need to provide up front capital for a project. Nor it is a trouble-free option - there are many practical difficulties in applying the concept of value capture taxation. A proposed rail corridor to SWA through an 'undeveloped' or 'greenfield' area to serve potential new residential areas could provide a unique opportunity to explore the potential and practicality of value capture taxation. First, however, there would need to be a thorough investigation and assessment of how difficulties in its application might be addressed and minimised.

The Committee looks at these funding issues, including the potential to use levies, in Chapter 5 of this report.

### **3.2.7 RESERVATION AND ACQUISITION OF RAIL CORRIDORS**

The most pressing initial expenditure for the SWA rail link is the acquisition of the rail corridor.

As most of the land along the route from Glenfield to SWA is in private ownership, the land for the corridor would have to be acquired. Not surprisingly, sub-division and residential development are placing increasing pressure on the land required for such a rail corridor, particularly along 'Section 1' of the proposed line.

State Rail has indicated that the priority of reserving an above-ground rail corridor is particularly urgent given the urban expansion planned for this sector. The rail alignment for Section 1 could be finalised in the near future, and a decision to reserve the route is now urgently required. Once a corridor is reserved, land acquisition negotiations can take up to five years.

The Committee believes that a preferred corridor should be reserved as soon as possible to prevent:

- land speculation, inappropriate residential and other development;
- reduction if not loss of corridor options; and
- related cost escalation.

Once the corridor is reserved, State Rail would also need to arrange for land to be set aside for park-and-ride and/or 'kiss and ride' facilities and for appropriate provision for good bus,



taxi, pedestrian and bicycle access at key station locations.

The following steps should be expedited as part of this process:

- cost-benefit analysis based on realistic population targets agreed in consultation between State Rail and State planning and Local Government authorities;
- engineering studies to prove the alignment and determine which properties are required;
- an environmental study to ensure that the rail corridor meets environmental requirements;
- reservation of the proposed corridor in a Regional or Local Environmental Plan; and
- commencement of land acquisition negotiations.

State Rail has estimated that land acquisition would cost \$64-\$74 million (including large land parcels owned by the Commonwealth).

## RECOMMENDATIONS

- |                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------|
| <p><b>23. It is critical that a corridor for the SWA-Glenfield rail line should be reserved as soon as possible.</b></p> |
|--------------------------------------------------------------------------------------------------------------------------|

### 3.2.8 POTENTIAL DEMAND AND TIMING FOR CONSTRUCTION

Early projections of potential patronage of a rail line to SWA assumed that the airport would be operational from 2010 and would support a rail link from 2020. The Federal Government announcement of its intention to accelerate the development of SWA for 1999 commencement is likely to bring the rail time frame forward.

In its submission to the Committee, State Rail suggested that the timing of the rail link's construction would be dependent on growth in demand. At this stage, demand is not foreseen as adequate to justify a rail link in its own right until 2006 at the earliest, and possibly until 2010 or even later.

As noted earlier, however, urban development along Section 1 (Glenfield to Edmondson Park) could be synchronised with construction of that section to ensure adequate demand, and this section could be built well ahead of Section 2.

With respect to the entire line, the 1985 Environmental Impact Statement for SWA made some general estimates of rail demand, including that 30-40 per cent of travellers to and from SWA would use a rail link. It also emphasised that the overall rail numbers would be sensitive to the proportion of employees travelling to SWA by rail, especially during peak hours.<sup>4</sup> Demand analysis for the Travers Morgan South Creek Transport Study five years later indicated that a rail link could attract about 28,000 trips per day to and from SWA via South Creek based on population projections for South Creek Valley of the order of 200,000 people.

The Committee believes that determining demand for the rail link is not simply a question of updating existing demand analyses.

There has been an acceleration of the initial role foreseen for SWA as well as a shift in the population and employment projections on which early demand and cost-benefit analysis were based. More recent 'modal split' modelling (i.e. of the proportions of travellers likely to use different transport types) suggests that rail operators should target employees in encouraging use of a rail line to metropolitan airports. There could also be scope for bulk discount agreements with airport employers who could include the cost of a yearly rail or rail/bus ticket in employee 'packages'.

As WSROC emphasised in its submission (s.44), whilst it is not essential that the rail link precede the actual opening of the airport, it is crucial that it be provided well in advance of the airport's future growth. Further assessment of the potential rate of airport growth is clearly necessary.

Even if construction of a Glenfield to SWA rail line were to be expedited, State Rail would still require an adequate pool of rail users to cover ongoing operating costs. To this end, if and when a Glenfield to SWA line is built, an advertising campaign aimed at maximising the numbers travelling to and from SWA by rail should emphasise the relative speed, comfort, reliability and value of such travel.

**The Committee believes that further analysis of potential demand is necessary for transport planning purposes, based on a realistic assessment of SWA's role and future growth, and on projections of local population and commuter demand.**

---

<sup>4</sup> Kinhill Stearns, Second Sydney Airport, Site Selection Programme EIS, 1985, pp 310-314. The EIS estimated that 10,200 air passengers would travel by rail to/from SWA in a low-rail case, and 13,600 in a high-rail case.

## RECOMMENDATIONS

- 24. Further rail travel demand studies associated with SWA's development should be undertaken as soon as possible and should include the relationship between:**
- rail and road demand;
  - airport growth and urban development (incorporating the results of various reviews of the feasibility of residential development in the SWA Sub-Region); and
  - comparative pricing of different transport types.
- 25. Any analysis of potential demand for a Glenfield-SWA rail line should:**
- be conducted with the involvement of the NSW Department of Transport, State Rail and SWADC;
  - be evaluated by the NSW Treasury and the Department of State Development;
  - take place on the basis of population projections for the SWA Sub-Region outlined in this report of 90,000 to 100,000 people; and
  - include consultation with Local Government concerning appropriate location and densities for residential development.

### 3.2.9 TRAIN SERVICE FREQUENCY AND TRIP TIMES

The Committee investigated the frequency of the train service from SWA and the time of the trip to the Sydney CBD because easy access and quick travel times will significantly enhance patronage.

The trip time from Central to SWA will range from 42-56 minutes.

The fastest trip time between Central and SWA (about 42 minutes) would not only compare favourably with the trip time by road, but would not be lengthened by congestion problems. Indeed it could be slightly reduced with new rolling stock.

Overseas evidence suggests that an express rail service to an airport is much more likely to increase rail's share of patronage than a frequent-stop rail service. With the use of 'limited

stops' and express trains to SWA, 'centre to centre' travel times would compare favourably with overseas examples. However, express services should not be provided at the expense of regular all-stops services to residential areas.

Should an express service become available from KSA to SWA via Glenfield, City Rail's Central to Glenfield services should be timetabled to conveniently connect with such express services.

For passenger convenience, check-in facilities could be provided at Central Station and other key stations including Parramatta, and special luggage cars from Central to SWA could relieve passengers from having to worry about transferring their luggage. The rail service should be well advertised as a relatively inexpensive, quick and trouble-free option for airline passengers, 'meeters and greeters' and 'see-offs' and particularly for employees commuting to SWA and/or nearby commercial developments.

## RECOMMENDATIONS

- 26. An adequate number of Glenfield-SWA services should stop at stations in the SWA Sub-Region for the benefit of local residents.**
- 27. A 'limited stop' Central-SWA express service should be available on a regular basis, probably every 15-20 minutes each way at peak periods, for the benefit of passengers to and from SWA.**

### 3.2.10 THE RAIL CORRIDOR THROUGH THE AIRPORT SITE

In addition to the planning required to get the rail line to the airport boundary, the rail link to SWA must be carefully planned once it is on the airport site to ensure that rail can be accessed easily by visitors.

Selection of a rail corridor and its alignment through the airport site will require detailed engineering studies and should take into account:

- the need for the airport station to be only a short escalator ride away from the airport terminals;
- the need to maintain options for extension of the railway from SWA north to St Marys/Werrington (the alignment through the SWA site should therefore be from the airport's south-eastern boundary to its northern boundary);
- the location and design of :

- air/rail freight transfer facilities;
  - transport interchange facilities;
  - infrastructure including drainage, sewerage and power facilities;
  - parking areas, taxi ranks and car hire zones, etc; and
- the existence of Aboriginal archaeological zones and sampling locations at the site's edge.

The Joint Task Force Report recommended the airport station be under or adjacent to the airport terminal to minimise tunnelling costs and maximise passenger convenience.<sup>5</sup>

Several submissions and witnesses emphasised the importance of the rail station being a short escalator ride away from the airport terminal or terminals, as is increasingly the case with major overseas airports serviced by rail.

The 1.3km tunnel and the box which will eventually contain the rail station should be integrated into the design strategy for SWA and built as soon as possible to:

- ensure that the rail station is close enough to the airport terminals and visible to patrons;
- minimise disruption once airport operations begin;
- allow terminal developments to be designed around the station;
- facilitate the coordinated and early provision of facilities, including electricity, communications and gas, through the tunnel; and
- achieve longer-term savings (although at an increased up-front cost).

The time-frame for the construction of the rail line will mean that it will be more than likely that NSW authorities will have to deal with the lessee of the airport over rail access through the SWA site. The Committee believes that the leasing agreement for SWA should guarantee access to the SWA site and use of the rail station on reasonable terms.

---

<sup>5</sup> Joint Task Force Report, Access to SWA, pp 12-13.

**RECOMMENDATIONS**

- 28. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the Federal Airports Corporation (FAC):**
- reserves a boundary-to-boundary rail corridor through the SWA site and selects the location of the airport station as soon as possible. This selection process should maintain the following options:
    - rail platforms should be located inside the airport terminal, connected by a readily accessible escalator ride,
    - provision should be made for the eventual extension of the rail line north from SWA to St Marys/Werrington;
  - starts building the 1.3km tunnel as part of the initial runway construction and the box which will eventually contain the rail station as soon as possible; and
  - provides in the leasing agreement for SWA that the lessee must guarantee complete access to and use of the station site by the operator of the station.
  - makes the boundary-to-boundary easement through the airport site available at no charge to NSW.

**3.2.11 PROPOSALS FOR AN INITIAL RAIL LINK FROM THE MAIN WESTERN LINE TO SWA**

A number of submissions and witnesses argued to the Committee that the initial railway link to SWA should be from the Main Western Line which services Greater Western Sydney, rather than from Glenfield.

The Committee considered this option and also considered it as a longer-term additional link from SWA to the Main Western Line at St Marys/Werrington. This would facilitate movement between the Main Southern Line and the Main Western Line via SWA.

A link from the Main Western Line would have the advantage of providing direct and quicker access between SWA and:

- Parramatta (Sydney's second CBD);
- Blacktown (a growing residential and employment centre); and
- the Blue Mountains (an important tourist destination).

However, the Committee has already considered at 3.2.4 a range of reasons why Glenfield was preferred to the Main Western Line as the initial rail link to SWA.

Not least among these reasons is the problem of limited capacity on the Main Western Line. There is very limited scope to increase its capacity by widening the rail corridor width (this would be impossible east of Strathfield). In addition, large-scale urban development at Rouse Hill is expected to exacerbate these existing capacity problems.

Commentators supporting a rail line from Parramatta to SWA have emphasised that Parramatta is a primary centre in the Sydney region, the closest CBD to the Homebush Bay Olympic facility, and the primary centre in Western Sydney. However, any Parramatta to SWA rail option would be complicated by the following logistical problems. It would:

- traverse highly built-up areas;
- require extensive tunnelling;
- involve extremely limited opportunity for new stations;
- possibly cost up to double a Glenfield-SWA option;
- possibly not produce an adequate pool of rail users to be economically feasible;
- only cut several minutes off the rail trip from Parramatta to SWA (which will only take 29-38 minutes with a Glenfield to SWA line), whilst lengthening trip time from the Sydney CBD; and
- require significantly increased capacity on the Main Western Line.

Importantly, the Glenfield to SWA option does not preclude future rail enhancements which would upgrade rail services to and from Parramatta and reinforce its position as a primary centre and transport interchange. This option is considered by the Committee in more detail below.

Several submissions and witnesses supported the option of the initial rail link to SWA being from St Marys on the Main Western Line. Blacktown Council argued in its submission (s.33) that:

- the economic feasibility of a Glenfield to SWA line would depend on residential development in the South Creek Valley region, which may not be possible given concerns about air and water quality;
- it more effectively services urban growth areas and, once planned rail enhancements are in place, the North Shore; and
- Sydney's long-term interests would be better served by a rail link to SWA from the Main Western Line utilising either:
  - a corridor running adjacent to the preferred route for the Liverpool to Hornsby National Highway link; or
  - a slightly more westerly corridor from Badgerys Creek through the Erskine Park area through to St Marys and possibly further to the Australian Defence Industries (ADI) site.

As the initial link to SWA, the St Marys to SWA rail option would involve less travelling time between Parramatta and SWA, and a shorter distance from an existing line to SWA. However, it would:

- involve a longer overall route and longer travel times between SWA and the Sydney CBD than the Glenfield to SWA option;
- travel through substantial areas presently deemed unsuitable for urban development; and
- offer less service frequency to SWA, including express services, due to the Main Western Line's limited capacity.

Another option, for a heavy rail link between Blacktown and SWA via the Eastern Creek Corridor, would not only involve high cost but an inadequate rail catchment. On the other hand, a proposal for a heavy rail line from Werrington to SWA via the University of Western Sydney (UWS) Werrington Campus would offer a larger catchment, but would involve high cost, largely due to the extensive tunnelling that would be required.

**The Committee believes that unless practical and cost-effective means can be found to sufficiently increase capacity on the Main Western Line, it is unlikely that the initial link to SWA can proceed from that line.**

**However, the Committee believes that the option for a second stage rail link between SWA and St Marys should continue to be developed.**

**The Committee considers practical options for a longer-term link from the Main**



**Western Line to SWA in the next section.**

### **3.2.12 THE LONGER TERM OPTION: A RAIL LINK FROM ST MARYS/WERRINGTON TO SWA**

The Committee does not accept that the St Marys to SWA link is a better option than Glenfield to SWA in providing the initial rail access to SWA and its sub-region.

However, the Committee sees considerable merit in an eventual rail line southwards from St Marys/Werrington to SWA to service both passenger and freight demand, and to generally facilitate industrial development to the north of the airport.

If this extra link eventuated, provision for 'Y' links at junctions with the Main Western and Main Southern lines would enable round trips from Sydney CBD, via Glenfield, SWA, St Marys, and then to Parramatta and back to Sydney. This would not only increase potential for 'main stops only' express trips (avoiding platform changes), but would also be a major step towards an orbital rail network for Sydney.

While the State Rail Strategic Plan does not specifically refer to the possibility of a link from the Main Western Line to SWA, the Integrated Transport Strategy has identified it as a longer-term option.

State Rail does not envisage adequate demand to justify this link in its own right until 2010 or later, but emphasises that a corridor should be reserved as soon as possible to prevent both loss of future options through development and related cost escalation.

The Committee concurs with this assessment.

Submissions to the Committee reinforced the value of a rail link from St Marys-SWA in the longer term.

WSROC (s.44) has identified a St Marys-SWA link as an important medium-term objective which would provide:

- high speed travel between Parramatta and SWA, north-western Sydney, and, with construction of the Macquarie rail link, the North Shore; and
- facilities for freight traffic between SWA and employment centres in outer Western Sydney.

Blacktown City Council (s.33) has suggested that:

- if the Glenfield to SWA line proceeds, it should subsequently be extended

north from SWA to St Marys;

- this would create the opportunity to eventually link future urban releases such as the ADI site and the Rouse Hill Development Area (RHDA) directly with SWA; and
- there would also then be a strategic opportunity to develop in the longer-term a rail link between the ADI site/St Marys and the Richmond Line at Riverstone via Marsden Park.

State Rail has investigated various route options for a St Marys-SWA rail link and has:

- estimated that the 18km of track between SWA-St Marys would cost about \$340 million at present prices (\$40 million for negotiated land acquisition and \$300 million for construction);<sup>6</sup> and
- suggested that annual operating costs could be recouped if commercial fares were set.

The SWA to St Marys/Werrington line should also be considered in the context of overall land use planning. After a preferred corridor is reserved, negotiated land acquisition could take up to five years.

In addition, it should be noted that the South Creek corridor has been identified as a potential route for a coal freight line from Port Kembla to St Marys.

Long-established State Government policy is that coal should be transported by rail wherever practicable. This policy means that the development of the rail link between Port Kembla and Western Sydney should be supported on environmental grounds alone.

The Commission of Inquiry into the Upgrading of the Port Kembla Coal Terminal in December 1993 outlined the purpose of this policy as:

- to make effective use of substantial existing rail infrastructure and related port investment; and
- to minimise environmental impacts in the community, given that coal in New South Wales is required to travel through urban areas to reach ports (NSW Coal Strategy Study 1983).

---

<sup>6</sup> This would not include the costs of any 'extra link' to the ADI site. Whilst there used to be a spur line to transport ammunitions from that site, the construction of a heavy rail line would be 'from scratch', and any such extension would need to be subject to thorough demand and cost-benefit analysis.

Connections from SWA to the north and south into a Maldon-Dombarton line would provide a direct freight link from the Illawarra to Western Sydney.

**The Committee believes that the development of rail links between SWA-Glenfield, in the first instance, and SWA-St Marys/Werrington, in the longer term, should take into account the potential for coal freight to be transported between Port Kembla to Western Sydney along this line.**

## RECOMMENDATION

- 29. State Rail continue to evaluate various SWA to St Marys/Werrington corridor options so that this rail line can be built as soon as demand warrants and adequate funds are available. The following issues should be considered as part of the developmental process for the northern rail link from SWA to St Marys/Werrington:**
- preserving the environment in greenbelts at Orchard Hills;
  - the benefits of developing an "inland port" facility in Western Sydney; and
  - the benefits of facilitating the movement of coal and other freight between Port Kembla and Western Sydney via the Maldon-Dombarton line.
- 30. Should there be no developments in respect of this additional link to SWA by 2006, State Rail or RailNet should conduct a formal review of the proposal, including a thorough cost-benefit analysis based on the most realistic and up-to-date population projections.**

### 3.2.13 OTHER OPTIONS FOR A RAIL LINK TO SWA

The Committee details additional proposals for rail links to SWA in this section, which it considered before recommending that the Glenfield-SWA Rail line should be the initial rail link and that the SWA-St Marys/Werrington link should be considered as the most viable longer term option.

#### 3.2.13.1 A DIRECT LIVERPOOL-SWA RAIL LINK

Another option examined by the Task Force of Planning for the Sub-Region Surrounding Sydney West Airport was a direct rail link from Liverpool to SWA. This option would offer

a relatively direct route to the Main Southern Line. However, it would also:

- traverse creeks and built up and commercially important areas thus requiring considerable tunnelling which may prove more disruptive and costly (possibly by 50 per cent more) than the Glenfield-SWA option; and
- involve complex interchange with Liverpool, and require additional infrastructure to enable adequate access to the Main Southern Line southwards and the East Hills Line.<sup>7</sup>

A Glenfield-SWA line would provide a similar level of access as a Liverpool-SWA line, with trip times of between 17-26 minutes. While Liverpool City Council has emphasised the importance of a rail link to SWA in the development of a rational and environmentally sensitive public transport network servicing its municipality, it has also signalled its support for the Glenfield to SWA option. In addition, the upgrading of Liverpool Station will be completed by 2000 and cross-regional access to and from Liverpool will be enhanced by the substantial transport interchange planned there.

### 3.2.13.2 LIGHT RAIL

As emphasised earlier in this section, one of the many benefits of heavy rail is that it would facilitate a seamless link with the existing regional and metropolitan rail network.

A light rail link to SWA, however, would create considerable logistical problems. It would:

- involve an inconvenient change of travel mode likely to deter public transport use, increase road-based transport use and thereby exacerbate traffic congestion and air pollution;
- service a smaller potential pool of users, reducing financial feasibility;
- not meet State Government objectives on integrated land-use and transport because it is less able than heavy rail to:
  - contribute to the supply of residential land;
  - facilitate urban residential development, integrated land use and integrated transport;
  - influence urban form and densities; and

---

<sup>7</sup> Liverpool Council supports a Y link between the Southern and East Hills lines. Whilst this would certainly increase Liverpool's connectability with the metropolitan rail network, it would involve substantial costs which have not been programmed for.

- limit opportunities for:
  - economic development;
  - employment in Western Sydney (other than at SWA);
  - freight transport (the change of mode might discourage even the parcel freight market).

Despite these disadvantages, light rail could also cost as much as heavy rail.

**The Committee believes that the preceding factors in this section discount the possibility of light rail being a viable transport option to SWA.**

### **3.2.13.3 BUSES ONLY**

If there were no rail link servicing SWA and residential development in the South Creek sub-region, buses would be the main form of public transport.

Buses provide an excellent service when complementing a rail link by providing flexible cross-regional services.

However, the Committee believes that buses would be a considerably less efficient option as the main provider of transport services to SWA because they are:

- affected by traffic congestion and therefore cannot guarantee travel times;
- cannot serve any freight role; and
- are much less likely to offer off-peak services, particularly for airport shift workers.

In addition, buses are much less able than heavy rail to:

- influence the pattern of urban development and help achieve a more compact city;
- provide a regional transport function; and
- maximise economic and employment growth potential.

**The Committee believes that buses are likely to increase the pressure on potential residential areas further from Sydney, thereby exacerbating urban sprawl and its related social and environmental problems.**

In addition, if urban residential development proceeds in the SWA Sub-Region, buses are:

- less likely to offer regular and convenient services at non-peak periods; and
- likely to:
  - involve longer journeys to work;
  - encourage car use and dependency, thereby exacerbating road congestion and air pollution;
  - result in community isolation and/or fragmentation and social inequity including unequal access to jobs.

The Task Force developing a Strategic Plan for the SWA Sub-Region evaluated four bus transit options (i.e. from Blacktown, Parramatta, Glenfield and Liverpool stations to SWA), but regarded none of them as competitive with a Glenfield-SWA heavy rail option against a range of criteria.

The Committee agrees with this assessment.

**The Committee believes that a Glenfield-SWA rail link is a superior option to a bus-oriented transport system for both the airport itself and the sustainable long-term development of the SWA Sub-Region.**

### **3.2.14 LINKING SWA TO THE METROPOLITAN NETWORK**

As emphasised throughout this report, any rail link to SWA should be properly integrated into the metropolitan rail network to facilitate the ultimate objective of an orbital rail network for Sydney. It should also maintain options for single-mode rail travel between Sydney's two airports.

The Committee looked at how the rail link to SWA would fit into Sydney's rail network both in the short term and in the future as the State Rail Authority developed its proposal for an orbital rail network.

#### **3.2.14.1 THE NEW SOUTHERN RAILWAY**

The Committee looked at the proposed Glenfield-SWA rail link in tandem with the New Southern Railway to determine the potential quality of inter-airport rail access in Sydney.

The New Southern Railway will connect KSA to the East Hills Line (at Turrella), which would also be the main rail line connecting SWA with the Sydney CBD. With both links in

place, the inter-airport journey would take about 36 to 48 minutes.

State Rail is responsible for building the new Southern Railway. Construction will cost the NSW Government about \$544 million. A private sector consortium (Transfield Holdings and CRI) will build the route's four stations (at an estimated cost of \$125 million) and recoup its construction and operating costs through user charges.

Construction began in mid-1995 and the railway is expected to be operational by May 2000. As well as providing extra rail capacity in Sydney's South, it will improve the flexibility of rail services to Western Sydney.

Passengers will be able to access the new Southern Railway from suburban platforms at Central Station. The 10km route will be underground except where it joins the existing rail network and for necessary access to the stations and will run south through Waterloo and Beaconsfield (Green Square station) to Mascot (station between Church and Coward Streets), where it will turn south-west to a station at KSA's domestic terminal and another at the international terminal, before crossing Tempe Reserve to rejoin the rail network north of Turrella on the East Hills Line.

There is an option for an interchange station (Wolli Creek Interchange Station - \$20 million estimated cost) on the Illawarra Line between Arncliffe and Tempe to provide Illawarra Line passengers with access to the New Southern Railway.

The Environmental Impact Statement for the New South Railway (1993) notes that:

- in peak periods, CityRail would run a suburban train on the route every 7.5-10 minutes each way;
- the trip from Central Station to KSA's international terminal would take about 10 minutes; and
- the new line would initially carry approximately 46,000 passengers per day, increasing to 65,000 by 2013.

The EIS suggests that there will be minimal environmental impacts during operation except from noise where the tunnel passes through hard rock.

The benefits of the New Southern Railway are that it will:

- avoid modal interchanges which impede smooth travel;
- offer train services which are fully integrated with the CityRail network;
- provide a stimulus to public transport use through and within an area suffering

from traffic congestion;

- provide a quick and convenient service to KSA not only for air travellers, etc, but for those working near stations along the route, particularly at growing employment centres near that airport;
- increase rail capacity, by-passing Sydenham's bottleneck and possibly avoiding the need for further upgrading there; and
- stimulate the redevelopment potential of the area between Botany and Central Sydney.

**The Committee believes that it is worth noting that, once the New Southern Railway brings KSA within easier reach of the Sydney CBD, the rail link to SWA will be even more crucial in order to attract airline patronage to a second Sydney airport.**

#### **3.2.14.2 DIRECT AIRPORT AND INTER-CAPITAL LINKS**

The Committee cannot predict at this stage the extent to which SWA will become a transport hub including a major air freight and forwarding centre. Such opportunities would certainly be enhanced, however, with:

- an express rail service between Sydney's two airports; and
- a 'fast rail' connection onto the main Sydney-Melbourne rail link, allowing fast rail freight and passenger services to both Melbourne and Canberra.

CityRail will operate rail services from Central to SWA via Glenfield, but there could be greater commercial viability for an inter-airport express service. With a 'Y' link at Glenfield, such an express could link up with the inter-capital rail lines and provide a 'fast rail' service that could compete with aircraft flights for both passengers and freight and thereby relieve pressure on Sydney's airports.

In a submission to the Committee (s.18), SpeedRail proposed:

- a new high speed rail system initially linking Sydney to Canberra;
- that this link could facilitate an uninterrupted journey between KSA and SWA using new tracks between the New Southern Railway at Turrella and a point south of Campbelltown; and
- that these tracks would run alongside the existing East Hills line to Glenfield then beside the Main Southern Line to Campbelltown (and could be shared



between SpeedRail trains and other services).

SpeedRail believes that sharing use of the track between Turrella and Glenfield would contribute significantly towards the provision of a high quality inter-airport express service that would not be delayed by existing suburban trains.

SpeedRail's submission to the Committee emphasised:

- the potential of high-speed trains to replace aircraft flights, particularly between Sydney and Canberra;
- that, in the longer term, as the high speed network is expanded, it would be interested in providing high speed rail services between SWA and other destinations including Melbourne and Brisbane;
- that a possible route to Newcastle and northern Australia could run from SWA; and
- the potential for high speed trains to offer a quick and reliable freight service, thereby removing trucks from our roads.

**The Committee sees merit in high speed rail proposals. It notes, however, that the number of passengers travelling directly between Sydney's two airports is not expected to warrant an inter-airport rail link in its own right; and that, in the absence of such a rail express service, an inter-airport bus shuttle could provide an adequate service for the relatively small numbers expected to travel between the two airports.**

**The NSW Government would need to ensure that the opportunity for a private/public sector infrastructure sharing arrangement, as represented by the SpeedRail proposal, would not become an ongoing government subsidy for the benefit of a small and relatively affluent class of regular air travellers.**

## **RECOMMENDATIONS**

- 31. NSW Treasury and Departments of Transport and State Development should thoroughly evaluate high speed rail proposals, including assessment of the extent to which:**
- the parallel link could be used to carry freight between Sydney's airports and between Sydney's west and south; and
  - parties could realistically expect to recoup their costs.
- 32. State Rail Authority undertake preliminary planning on the feasibility of a 'Y' link at Glenfield to enable inter-airport express services to link up with the inter-capital rail lines and provide a competitive 'fast rail' service.**

### 3.2.14.3 OTHER PROPOSED AND PLANNED RAIL ENHANCEMENTS

This report has emphasised the need to integrate SWA into Western Sydney and, simultaneously, to upgrade public transport within Western Sydney in order to provide equitable access to employment and to curb the area's air quality problems. This positive outcome cannot be achieved without good public transport links between SWA and major population and/or employment centres such as Liverpool, Parramatta, Penrith, St Marys and Blacktown, and between those centres.

Rail access between SWA and Liverpool would be provided by the Glenfield to SWA link, whilst rail access to the other four centres would, in the longer-term, be dramatically expedited by the eventual construction of an SWA-St Marys link.

Other relevant rail enhancements include:

- The Glenfield Turnback, scheduled for 1996 completion, which will permit the operation of additional trains to Liverpool and Parramatta.
- The Riverwood-Turrella amplification which will:
  - provide much-needed additional capacity between Glenfield and Sydney CBD; and
  - be an integral link in the construction of both the New Southern Railway and the Glenfield to SWA line;
- The Harris Park 'Y' Link, a kilometre-long rail link between the Main Western Line at Harris Park and the Main Southern Line at Merrylands, which is scheduled for completion in October 1996 at a cost of \$27 million which will:

- allow direct train services between Parramatta (Main Western Line) and Fairfield, Liverpool and Campbelltown (Main Southern Line);
  - obviate the current need for south-west passengers to change before reaching Parramatta;
  - play a major role in refocussing the rail system on Parramatta; and
- Parramatta Station upgrading, expected to be complete by June 1997.

**The Committee believes that these rail enhancements will significantly improve Sydney's rail network in the short term and, in conjunction with the completed rail links to SWA in the longer term, provide Western Sydney with a fully-integrated rail transport system.**

#### **3.2.14.4 ACCESS BETWEEN NORTHERN AND WESTERN SYDNEY**

The Committee also looked at the long-term opportunities for rail access between northern and western Sydney, which would enable SWA to take advantage of the large proportion of the air travel market which originates from northern Sydney.

A number of submissions and witnesses before the Committee:

- emphasised that a disproportionate number of air travellers using SWA (about 50 per cent) come from Sydney's North Shore; and
- argued that SWA should therefore be readily accessible to North Shore residents by rail, and that check-in facilities should be provided at Epping and Chatswood stations.

The Committee believes that the high rate of North Shore origin among airline users is no guarantee that rail would attract their patronage. A family travelling overseas with a substantial amount of luggage, for example, may be more likely to book a taxi with extra luggage capacity, or to arrange for a friend or family member to take them to SWA by one or more private vehicles.

Having noted that qualification, the Committee believes that it is worth emphasising the potential benefit of improved public transport links between western and northern Sydney. Public transport links across a north-west axis would provide better access by Western Sydney residents to employment corridors, which would increase rail patronage and curb car-dependency.

State Rail's Strategic Plan 1994-2016 includes the following strategies for facilitating access

between western and northern Sydney:

- the building a new Parramatta to Epping Link at an estimated cost of \$400 million; and
- a Macquarie Rail Link (Epping - Chatswood/St Leonards) at an estimated cost of \$500 million.

These links would connect Parramatta to Epping (and thereby Hornsby) and Epping to Chatswood. They will thereby facilitate rail travel between SWA and North Sydney and establish Parramatta as the key node for rail transport from the North Shore.

However, before these works are completed, it should be possible to run services from the North Shore line to SWA via Sydney CBD.

In strategies submitted to the Committee, WSROC notes that:

- the Parramatta-Epping link would not only be a major step in re-orienting the rail system to Parramatta, but could be used to promote the 'urban villages' concept around new stations;<sup>8</sup> and
- the Macquarie Rail Link will benefit Western Sydney by providing a link along the Parramatta - North Ryde - Lower North Shore employment growth corridor; and, by facilitating travel on this north-west axis, will also relieve pressure on the Main Western Line.<sup>9</sup>

The construction of the Macquarie Rail Link could start as early as 2006, particularly if private sector participation is achieved. The Chatswood-SWA rail trip would then take about 40 minutes.

### 3.2.15 SUMMARY

Population growth in Western Sydney has already resulted in traffic congestion and air quality problems. Strategic planners agree that public transport infrastructure in Western Sydney should be upgraded and properly integrated into the Sydney network.

---

<sup>8</sup> WSROC recommends a comprehensive strategic study of the Parramatta-Epping corridor involving relevant Councils, NSW DoT and DUAP. WSROC, Submission on the Road and Rail Strategic Plans, pp 12-13.

<sup>9</sup> WSROC, Submission on the Road and Rail Strategic Plans, May 1995. WSROC also believes that the Macquarie Rail Link should be expedited and given the same overall priority as the M2 motorway.

The Glenfield-SWA line's environmental and social impacts will be assessed in the EIS update which has been commissioned by the Commonwealth. However, in general, the provision of this rail line will:

- allow the exploitation of the sub-regional employment opportunities;
- improve public transport facilities in Western Sydney and significantly advance the prospect of a Sydney orbital rail network;
- facilitate 'transit-oriented' residential development; and
- minimise the environmental and social costs of residential development, including:
  - traffic congestion;
  - air pollution;
  - road safety risks;
  - community isolation and/or fragmentation.

Missing the opportunity to incorporate provision for rail access in the planning and construction of SWA would:

- exacerbate the environmental and social costs noted above, particularly traffic congestion and air pollution;
- effectively 'lock-out' large numbers of Western Sydney residents (without access to private transport) from jobs at or near the airport;
- most likely result in potentially prohibitive cost increases for future provision of such infrastructure and loss of corridor options; and
- possibly result in local residential development proceeding in an uncoordinated manner without adequate public transport infrastructure, thereby exacerbating the urban sprawl and its negative social and environmental impacts.

Indeed, the Committee believes that the potential negative impacts of development in the SWA sub-region in the absence of adequate public transport infrastructure are so great that there should be no residential development in the SWA sub-region without a rail line.

If SWA is to be operational by 1999, a decision on a rail link cannot be postponed.

Whilst the Committee would, in principle, prefer that train travel to SWA was available from day one of airport operations, it acknowledges that this is unlikely and will not impede its initial operations.

However, the Committee believes that certain fundamental steps must be taken to ensure that the eventual rail link to SWA can go ahead in the future without logistical difficulties created by inaction at the conceptual planning stage. Critical to this process is reserving and acquiring the rail corridor as soon as possible.

Both the Commonwealth and NSW Governments have clearly signalled their support for grasping both the economic development and employment opportunities which the airport presents to Western Sydney.

The Commonwealth Government has already made a commitment of \$762 million to the development of SWA.

The NSW Government is responding by establishing the planning authority, SWADC, which can ensure the orderly and environmentally sustainable urban development of the SWA Sub-Region.

While the Committee cannot recommend a deadline for the rail line's construction, it emphasises that postponing the work to beyond 2006 could result in the loss of opportunities to efficiently develop residential areas and to kick start SWA by properly integrating it into Sydney's public transport network.

## **3.3 ROAD LINKS TO SYDNEY WEST AIRPORT**

### **3.3.1 INTRODUCTION**

A good road system to SWA is essential to get the new airport off to a successful start.

By its very location, SWA will depend heavily on good road access, particularly until a rail line is built.

It is crucial that both passenger and freight traffic can readily access SWA by road from the Sydney CBD and from major residential and employment areas including Parramatta, Blacktown, north-western Sydney and Port Botany.

The Commonwealth has recognised this imperative and responded by funding the construction of the Western Sydney Orbital and the upgrading of Elizabeth Drive at a cost of \$260 million in the 1995 Budget.

This funding demonstrates the Commonwealth's commitment to the accelerated development of SWA for opening in 1999, and lays the foundation for its long-term success.

The Commonwealth's financial commitment to upgrade existing major roads in the airport vicinity and its foreshadowed support for the eventual construction of new roads leading to SWA will increase public and business confidence in the airport's viability and act as a catalyst for that development.

A number of submissions and witnesses have emphasised that road-based access to SWA, particularly by private vehicles, should not be encouraged at the expense of rail. Others have implied that road network planning in the region should no longer concentrate on satisfying peak demand for private passenger vehicles.

While these points have some validity, the Committee believes that the following should be paramount when considering the funding of roads to SWA:

- the existing road system in Western Sydney is not as well developed as in other parts of Sydney and requires upgrading regardless of SWA;
- for Western Sydney to adequately benefit from SWA, there must be efficient, road-based access to the airport from all parts of Greater Western Sydney and from Sydney's inner western and northern areas;
- the main road access to SWA, the proposed Western Sydney Orbital, is a crucial link in a chain of high quality roads;
- it will take time to provide the public transport infrastructure necessary to offer Western Sydney residents an alternative to car dependency;

- most freight travelling to SWA and through Western Sydney will be carried by road and an efficient heavy freight industry requires high quality roads and designated routes;
- the expanding tourism industry relies on good road infrastructure, especially to the CBD;
- good quality road access is required by road-based public transport, especially buses. Buses must be considered at every stage of planning road access to SWA because they reduce individual vehicle use in the fragile Western Sydney airshed; and
- upgrading of the main existing road access route to SWA (Elizabeth Drive) is the essential first step in the development of SWA because it will give construction traffic access to the airport site.

The Committee believes that these important points about the value of road access to SWA in its initial stage of development should not be forgotten in the crucial environmental debate over the merits of public transport as a method for controlling air quality problems in Western Sydney.

Clearly, road access to SWA is essential and its development does not signal a lack of commitment to the construction of a rail link to the new airport.

**The Committee believes that the Commonwealth has set appropriate priorities by funding major road works for the first stage of the development of SWA.**

It is difficult to predict traffic levels to and from the airport because the future demands on the road system will depend, to a large extent, on the land use decisions made for areas around SWA.

The 1985 EIS estimated that the airport would generate about 57,000 vehicle movements per day. This would include commercial and freight vehicles, vehicles carrying airline passengers, 'meeters and greeters', 'see-offs' and employees. The number of vehicle movements is likely to rise to 70,000 if there is no railway line servicing SWA.

Traffic to SWA will use a variety of access routes and have a diversity of origins. The main access route to SWA is covered in detail in subsequent sections in the following order: Elizabeth Drive, the Western Sydney Orbital Stage 1 (part of the National Highway), the M5, and the M5 East.

Closer to SWA, where the road network is relatively undeveloped and where the roads (whether State or regional) are essentially rural in character, there will be gradually increasing traffic pressures on roads that were never meant to handle substantial traffic



volumes. These local, State and regional roads are dealt with below in the sections on the main access route to SWA.

The Committee believes that this increasing pressure on roads around SWA necessitates a comprehensive monitoring system to accurately predict when upgradings will be required.

## RECOMMENDATIONS

**33. The RTA should manage the relevant roads around SWA by monitoring and assessing:**

- road condition;
- traffic flow (e.g. intersection improvements, passing lanes and climbing lanes);
- road capacity (extra lanes, improved alignment and grading); and
- road safety issues.

### 3.3.2 THE MAIN ACCESS ROUTE TO SWA

The Committee believes that it is important to explain the rationale for providing a motorway-standard route to SWA.

The Joint Commonwealth/State Task Force which examined access to SWA found in its report, "Access to Sydney West Airport", that:

- the most practical and direct road link between the two airports would be a corridor based on Elizabeth Drive, Stage 1 of the proposed Western Sydney Orbital, the M5 and the proposed M5 East;
- the initial level of traffic between the two airports could be accommodated by existing road development plans for Sydney's south-west;
- the upgrading of Elizabeth Drive should be coordinated with construction of the SWA runway so that an upgraded Elizabeth Drive could carry construction traffic; and
- the timing of other road developments between the two airports was consistent with the proposed opening of SWA.

Despite the emphasis placed on inter-airport links by the Task Force, the importance of improving cross-regional road links has been more significant than providing direct access between Sydney's two airports. As WSROC noted in its submission to the Committee:

- high standard road developments planned for south-west Sydney are proceeding independently of SWA and are using available road corridors; and
- Elizabeth Drive and the Western Sydney Orbital (Stage 1) are the most important sections of road infrastructure required not only to provide the road connection between SWA and the city and to integrate Sydney's two airports, but to realise maximum economic benefits for Western Sydney.

Traffic modelling is being conducted as part of the overview report for Elizabeth Drive and the Sydney Western Orbital Stage 1 (southern route). The EIS for Stage 1 will give some indication about expected traffic demand, including traffic demand between the two airports.

Once these sections of the route are completed, they will provide good access to SWA from:

- the south via the Hume Highway; and
- central, eastern, and southern Sydney, via the M5 and proposed M5 east.

It should be acknowledged, however, that some of the traffic between these areas and SWA is likely to use the M4/Great Western Highway corridor - a journey which takes about 40-50 minutes at a good time, and as long as 60-70 minutes when congestion is bad. While it is expected that this extra traffic will be accommodated within existing traffic flows, it should be noted that peak hour traffic congestion on the M4 can already be a problem between Concord and Penrith.

**The Committee regards the clear and immediate priorities to be:**

- **the development of Elizabeth Drive, especially between Wallgrove Rd and SWA; and**
- **the National Highway, especially between Prestons and West Baulkham Hills.**

**The Committee therefore supports the Commonwealth Government's decision to develop Stages 1 & 2 of the Western Sydney Orbital (as part of the National Highway) together with the spur along Elizabeth Drive for private, public and freight transport.**

The upgrading of Elizabeth Drive will cost about \$80-85 million. The building of Stage 1 of the Western Sydney Orbital will cost about \$200 million. Together the two projects total \$280-\$285 million.

In February 1995, the Federal Transport Minister, the Hon Laurie Brereton, announced the appointment of consultants for the EIS studies for Elizabeth Drive and the Western Sydney Orbital Stage 1.

In its 1995/96 Budget, the Federal Government set aside \$260 million for these roads. This amount covers almost all of the estimated costs of providing a motorway standard link to the SWA, and will ensure that adequate road access is in place by SWA's 1999 opening.

**The Committee is satisfied that the targeting and level of funding provided by the Commonwealth for road works to SWA will facilitate the successful opening of the new airport.**

### 3.3.2.1 ELIZABETH DRIVE

The Committee investigated the proposed development of Elizabeth Drive as the major road link between:

- the SWA site and Liverpool, Fairfield, and the existing M4 (via Mamre and Wallgrove roads); and
- the main east-west feeder road for Liverpool's land release areas.

Elizabeth Drive also links Liverpool to Penrith, via The Northern Rd, and Liverpool to Blacktown, via Wallgrove Rd.

The project to upgrade Elizabeth Drive is the first work in fulfilling the Federal Government's commitment to have SWA fully operational by 1999.

Once upgraded, Elizabeth Drive will be the major east-west link between SWA and the proposed Western Sydney Orbital.

Elizabeth Drive will also be the first leg of the journey from SWA to:

- central and eastern Sydney and south-western Sydney (Elizabeth Drive, Western Sydney Orbital, M5);
- southern Sydney including KSA (Elizabeth Drive, Western Sydney Orbital, M5, M5 East); and
- Parramatta CBD (via the M4/Great Western Highway corridor).

The upgraded Elizabeth Drive will:

- service adjacent employment development areas;
- play an important role in improving the intra-regional road network;
- attract traffic from the Blacktown, Merrylands, Cabramatta, Liverpool and Campbelltown areas; and
- be a major road-based public transport link between SWA and Liverpool.

In its submission to the Committee, Liverpool Council suggested that the Federal Government's commitment to upgrade the western end of Elizabeth Drive would provide a four lane divided roadway from SWA to the important transport interchange at Liverpool station. This would combine well with an upgrade of Elizabeth Drive from Maxwells Ave, Ashcroft to the intersection with the National Highway (near Wallgrove Rd).

Elizabeth Drive, which presently varies from two to four lanes, runs 9km in a west-east direction from its intersection with The Northern Rd, past Luddenham Rd, then Mamre Rd. From its intersection with Mamre Rd, it runs 5km to the intersection with Wallgrove Rd, between Cecil Park and Abbotsbury. This 14km stretch is known as the western end. It then travels east through Bonnyrigg to Liverpool.

The part of Elizabeth Drive between Luddenham and Wallgrove Roads will be the main access route to SWA (the EIS focuses on this section), and will experience very significant traffic increases during SWA's construction and then when the airport is operational. The RTA is looking at a range of airport patronage scenarios (high, medium, low) to ensure that Elizabeth Drive is able to accommodate the range of possible outcomes.

The State Road Network Strategy identifies Elizabeth Drive as an important future element of the strategic road network.

**Although Elizabeth Drive is a State road, the Commonwealth Government acknowledged its importance as the major access road to SWA from the east and the National Highway, and, as part of the special \$260 million contribution noted above, committed funds expected to cover the full cost of upgrading Elizabeth Drive's western end to an arterial road standard compatible with the National Highway.**

**In late 1994, the Commonwealth allocated \$8 million for preliminary works on Elizabeth Drive in the 1994/95 financial year. The initial stages of the EIS were funded from this amount.**

**The Commonwealth has also contributed towards a bridge over a flood diversion**

**channel of South Creek although it would normally be a State responsibility.<sup>1</sup>**

**The Commonwealth has made a commitment that Elizabeth Drive will not be tolled.**

The Commonwealth Government intends to build a four lane freeway standard road for the western end of Elizabeth Drive, with capacity to be extended to six lanes. The RTA intends to gradually acquire a wider corridor (40.2m) giving ample scope for a six lane road with a median. The four lanes to be built in the first instance will have a very wide median, which will enable the two extra lanes to be built (whether for general traffic or as dedicated bus lanes) when necessary. A bicycle lane is planned, and bus & coach access, with some form of 'bus priority', will be available along the western end.

The wider corridor will also allow room for a 'joint use' facilities corridor ie. a corridor used jointly by providers of facilities including power, telecommunications and possibly aviation fuel.

The Elizabeth Drive EIS, which parallels that for the Western Sydney Orbital (Stage 1), was prepared for the RTA by Rust PPK, and published in late September 1995. Environmental approvals are being pursued so that construction can begin by late 1995 to accommodate SWA construction traffic.

The EIS process for both Elizabeth Drive and the Western Sydney Orbital Stage 1 will examine issues including the relationship between east-west and north-south routes and the effects of such upgradings on the present local arterial road system.

The Commonwealth and the NSW RTA have conducted public consultations regarding the proposed upgrading of Elizabeth Drive. This began with broad-ranging consultation relating to both Elizabeth Drive and the Western Sydney Orbital (Stage 1) and involving local councils.

More recently, a value management study gave the local community an opportunity to provide input so that their concerns could be addressed in the overall development strategy. The Commonwealth and the RTA have met with local resident groups and considered their concerns about the widening of Elizabeth Drive.

---

<sup>1</sup> Liverpool Council and the NSW Department of Land & Water Conservation identified a need for an additional flood crossing over South Creek. The RTA worked with these authorities to ensure that the bridgeworks were consistent with access proposals for SWA. The Commonwealth agreed to reimburse NSW for upgrading the proposed bridge from the original two lane proposal to a four lane proposal. The bridgeworks will need to take account of the possibility of periodic flooding. They will cost about \$1 million and will be jointly funded by the Federal Government and the NSW Department of Land and Water Conservation. The RTA has let contracts for these bridgeworks, and work began in the last third of 1995.

Options for minimising impacts on local residents and landowners are canvassed in the EIS, but issues of local concern include the upgrading's impact on access to:

- shops on the northern side of Elizabeth Drive;
- Kemps Creek Village; and
- the McGarvie Smith Farm and the Fleurs Radio Observatory owned by Sydney University.

The RTA identified Elizabeth Drive as requiring long-term widening and upgrading well before the proposal to develop SWA at Badgerys Creek. Independent of any needs arising from SWA, Elizabeth Drive will eventually need to be widened east of Wallgrove Rd.

## RECOMMENDATIONS

- 34. The RTA should monitor capacity on the eastern section of Elizabeth Drive with a view to widening it as a priority road work.**

### 3.3.2.2 THE NATIONAL HIGHWAY

The Western Sydney Orbital is the term commonly applied to the future National Highway between the M5 at Prestons and the M2 (or North West Transport Link) at West Baulkham Hills.

When the Western Sydney Orbital is completed, it will be the Western Sydney part of the Sydney Orbital road network being developed by the RTA to ring metropolitan Sydney and includes:

- the Western Sydney Orbital Stage 1 (Prestons to Cecil Park);
- the Western Sydney Orbital Stage 2 (Cecil Park to Dean Park);
- the proposed M2 West;
- the M2;
- the proposed Epping Road;
- Gore Hill Freeway;
- the Eastern Distributor;

- Southern Cross Drive and General Holmes Drive;
- the proposed M5 East; and
- the M5 ending at the above starting point (Prestons).

The Western Sydney Orbital will be a major new link at the highest level in the road hierarchy, probably of motorway standard, with four lanes and provision for six. There will be a quality bicycle facility and room for construction of bus lanes should they be required. Where the Western Sydney Orbital travels through residential areas, significant lengths will require noise mitigation measures, but Federal funding will cover such treatments.

The proposed National Highway route is, in more detail, as follows:

- from Prestons (south of Liverpool) to Elizabeth Drive near Wallgrove Rd;
- then parallel to and east of Wallgrove Rd to the M4 (where there will be an interchange) and Great Western Highway;
- then via Phillip Parkway corridor to Dean Park; and
- then via the M2 West corridor to meet the proposed M2 at West Baulkham Hills.

This route through the metropolitan area would, via the M2 West and the future M2 extension, provide a link to Hornsby and north-western Sydney through to the Pacific Highway (M1); and north of Sydney including Newcastle, via the F3 (Newcastle Freeway).

**The concept for the National Highway was initiated by the Commonwealth Government and developed with the input of the State Departments. All planning, design and construction will be funded by the Commonwealth Government.**

For a small part of the route, the National Highway will traverse the eastern edge of the SWA Sub-Region. Stage 1 of the Western Sydney Orbital (Prestons to Cecil Hills) is the section which will, with Elizabeth Drive, form the western-most leg of the eventual link between SWA and KSA. As noted above, the estimated \$200 million cost of Stage 1 of the Western Sydney Orbital is covered by the Federal Government's \$260 million commitment for this road and the Elizabeth Drive upgrading. Stage 1 is examined in more detail below.

The northern section of the Western Sydney Orbital (commonly referred to as Stage 2) will run north from Cecil Park, across the Great Western Highway, and then turn east to West Baulkham Hills to join with the M2.

**Work will begin on the Cecil Park to Great Western Highway (Eastern Creek/**

**Minchinbury) section of Stage 2 in 1998 and will be funded by the Commonwealth. This 10km section will cost about \$220 million. The total estimated cost of Stage 2 is about \$385 million.**

The State Road Network Strategy identifies the National Highway link from Liverpool to Hornsby (also known as the Liverpool-Hornsby Orbital) as an important element of the strategic road network. Firstly, much of Western Sydney has a stronger east-west focus rather than a north-south focus, and the National Highway will improve 'connectivity' on a north-south axis for much of Western Sydney. Secondly, it is designed to capture freight traffic moving through an area which is presently poorly served for heavy freight traffic.

The National Highway will attract traffic from the Blacktown, Parramatta, Merrylands (an interchange is planned at The Horsley Drive) and Campbelltown areas, including some from Wollongong.

It will be particularly important, however, in improving Liverpool's interconnection with the M4/Great Western Highway corridor and Sydney's north-west.

Liverpool is half way between Sydney's two airports and most interstate road freight passes through it. The National Highway will divert metropolitan traffic from the Hume Highway and the over-burdened Cumberland Highway, thus reducing road congestion in the Liverpool CBD and the separation of Liverpool's western suburbs from its centre.

Local industry will benefit from this route by serving:

- the BHP mini steel mill at Rooty Hill;
- the Huntingwood industrial estate at Prospect;
- the Wetherill Park industrial area;
- the Liverpool industrial area around Prestons; and
- industrial development around the Ingleburn area.

The National Highway will remove local freight traffic from the local and arterial road system and will also serve long-distance commercial traffic to and from Melbourne, Brisbane, Goulburn, Gosford, and Newcastle. Much of the freight traffic presently adding to congestion along Cumberland Highway and Pennant Hills Rd will use the National Highway route.

Environmental Impact Statements are being prepared for both stages of the Western Sydney Orbital.



Stage 1 by Rust PPK is expected to be completed in February 1996

Stage 2 by Sinclair Knight Merz is expected to be completed in June 1996.

Obviously, these EIS's must involve rigorous environmental assessment and a genuine and broad public participation process.

Rust PPK is also preparing an overview study of the Western Sydney Orbital and Elizabeth Drive. This examines the route's potential benefits and impacts and is being overseen by a joint Commonwealth/State Steering Committee.<sup>2</sup>

The Joint Committee's draft overview addresses:

- the extent to which east-west routes may dominate or interfere with north-south routes;
- origins and destinations of traffic likely to use the route;
- land use and traffic conflicts;
- environmental issues, including noise impacts beside the route, and proposed mitigation measures; and
- public transport proposals affecting the area.

The draft overview also examines:

- effects on the existing local arterial road system;
- likely 'through' traffic (traffic bypassing Sydney or travelling between regions within Sydney);
- interchange locations and layouts;
- likely use by freight traffic;
- impact on achievement of the NSW Integrated Transport Strategy;
- potential for public transport use (likely to serve as an important route for

---

<sup>2</sup> The Joint Steering Committee includes representatives of the Commonwealth departments of Transport, Housing and Regional Development, the Commonwealth Environmental Protection Agency, the RTA, the DoT, DUAP, Landcom, the NSW EPA, and Fairfield and Liverpool City Councils.

- regional and inter-regional buses); and
- likely impacts on land development, employment locations, etc.

Another issue canvassed in the draft overview is whether the Western Sydney Orbital should be tolled. It was found that charging a toll could lead to about 50 per cent of traffic dodging the toll gates by using suburban roads, and in August 1995 the Federal Government announced that it had decided against imposing any toll (on either Stage 1 or Stage 2).

The same study found that completion of the Western Sydney Orbital would result in \$870 million in reduced transport costs and a total benefit of \$1.2 billion to the national economy.

### 3.3.2.3 THE WESTERN SYDNEY ORBITAL -STAGE 1

As outlined above, the Western Sydney Orbital Stage 1 is that part of the National Highway which will run from the intersection of Elizabeth Drive and Wallgrove Rd (between Cecil Park and its southern neighbour Cecil Hills) to Prestons, south of Liverpool, where it will link with the M5. The exact route is yet to be determined, but will be about 11km.

Stage 1 (or the southern section) of the Western Sydney Orbital will run from Wallgrove Rd, Cecil Park, to Prestons where it will join the M5. Intersections with local and arterial roads will be strategically located.<sup>3</sup>

In late 1994, the Commonwealth Minister for Transport, the Hon Laurie Brereton, announced that three route options had been identified for Stage 1. Each of these options in the northern part of Stage 1 (Hoxton Park to Cecil Hills) will be examined to assess its impact on the rapidly expanding housing development near Cecil Park and how well it would link to an upgraded Elizabeth Drive.

The Stage 1 EIS will identify the preferred route and determine the exact alignment.

Given Stage 1's importance to improving road-based links between Liverpool and the rest of Western Sydney, Liverpool Council is represented on the Western Sydney Orbital Ad Hoc Advisory Committee which the RTA chairs on behalf of the FDoT.

Liverpool City Council, the RTA and Rust PPK have consulted with local residents regarding initial plans for the National Highway Stage 1.

---

<sup>3</sup> Interchange sites have been identified for the M5 at Prestons, Bernera Rd, Cowpasture Rd (possible), Elizabeth Drive west of Wallgrove Rd and Elizabeth Drive/Wallgrove Rd.

The combination of the Elizabeth Drive upgrade, the Western Sydney Orbital Stage 1, the existing M5 and the proposed M5 East will create a direct motorway-standard link between Sydney's two airports and between SWA and Port Botany and the Sydney CBD. As emphasised above, however, it would be incorrect to think that this new or enhanced road infrastructure was dedicated to providing a direct inter-airport link. It will serve a dual function as part of the National Highway and as the main access route to SWA.

To summarise, Stage 1 will:

- run from Wallgrove Rd, Cecil Park, through the Hoxton Park release area to the M5 at Prestons;
- facilitate access between major centres and provide a crucial link in the regional transport network, facilitating both intra and inter-regional access;
- form part of the link between Sydney's two airports and between SWA and Port Botany;
- take long-distance heavy vehicles out of Sydney's local and arterial road system;
- cost \$200-\$220 million; and
- possibly start in 1996.

It is essential that it be completed in time for SWA's opening.

**As noted above, the Commonwealth Budget announcement of \$260 million funding for road access to SWA would appear to provide the necessary funds for both Stage 1 and Elizabeth Drive.**

#### **3.3.2.4 THE M5**

The M5, also known as the South Western Motorway, was opened in August 1992.

It connects to the Hume Highway in the Liverpool Municipality at Prestons, north of The Crossroads, and runs approximately 16km east to King Georges Rd, Beverly Hills, with a tollway at Narwee.

It is a four-lane, limited access road which experiences peak-hour congestion and high off-peak traffic flows and intermittent congestion where it narrows at its eastern section.

The M5 toll will increase from \$2.00 to \$2.50 in March 1996, an increase provided for in

the contract with the tollway company, Interlink.

### 3.3.2.5 THE M5 EAST

The proposed M5 East, also known as the South West Link, will be the eastern extension of the existing M5. It will run from the M5 at King Georges Rd, Beverly Hills, to General Holmes Drive, Kyeemagh, near KSA.

The M5 East is a State Government project which will:

- provide the 'missing link' connecting Sydney's two airports by road;
- improve south-west road access to KSA and Port Botany;
- divert some heavy traffic from the overloaded Hume Highway; and
- complement the new Southern Railway and, with that railway, help resolve some of the serious transport and environmental problems in the Botany/Western Sydney transport corridor.

An EIS for the M5 East (13km from Padstow to Kyeemagh) was published in 1994 and quoted a cost of \$564 million.

The EIS process involved community consultation which included a community 'think-tank' forum. The EIS attracted substantial public comment, particularly public concern at the prospect of damage to remnant urban bushland at Wolli Creek.

In response to this concern, the State Government selected a more direct 11-12km route involving a tunnel from Bexley North/Bardwell Park to Arncliffe.

This route, announced in August 1995, avoids the environmentally sensitive areas of bushland at Wolli Creek and removes the need for a raised viaduct which would have cut through North Arncliffe and Turrella.

Between Beverly Hills and Bexley North, there will be a four lane divided road at ground level, with toll booths at Kingsgrove. At Bexley Rd, the tollway will enter twin two lane tunnels, which will run 4km through to an area east of Marsh St, Arncliffe. From here the route returns to ground level before becoming a new four lane elevated road (crossing the rail lines and Princes Highway and Cooks River on a new bridge) which runs to Kyeemagh, joining General Holmes Drive between Cooks River and the airport tunnel.

Traffic modelling for the M5 East indicates daily traffic volumes of about 39,000 on opening and, on a medium to high growth scenario, of between 51,000 and 55,000 by 2011.

There has been community and road freight industry concern about potential congestion at the junction of the M5 East and General Holmes Drive. Partly in response to such concern, tollway traffic will be able to leave the tollway to access the Princes Highway at Arncliffe and Airport Drive.

## RECOMMENDATIONS

**35. The RTA investigate how the risk of a bottleneck on the M5 East can be further reduced and to specifically consider whether another eastern terminal point would have any impact on traffic congestion.**

While the tunnel will increase construction costs by up to \$60 million, this is likely to be offset by the lower property acquisition costs for the tunnel option, and the total cost is therefore likely to remain about \$560 million.

Supplementary information to the EIS will be published for public comment in late 1995, and an EIS determination will be needed to confirm that this will be the new route.

Local councils should be consulted about how best to reduce the impact on local communities, for example by:

- the design of the M5/M5 East junction at Beverly Hills;
- the design and landscaping of necessary noise reduction measures including noise barriers at that junction;
- the design of relevant access/exit points, local intersections and underpasses/overpasses for vehicles and/or pedestrians;
- the location and design of air-vent stacks for the tunnel under Wolli Creek;
- appropriate traffic calming measures on local residential streets; and
- by beautification measures (e.g. Beverly Hills).

In August 1995 it was confirmed that the M5 East would be a tollway. The Government will call for expressions of interest from the private sector for a company or consortium to finance, design, maintain and operate the M5 East, and will seek to have the entire cost of the work (including any noise barriers and environmental restoration) covered by toll charges. This is likely to mean two separate tolls on the entire M5 motorway for the existing M5 (i.e. the south western M5) and for the new M5 East.

If the company with the contract for the M5 also won the contract for the M5 East, however,

a different toll method could be examined. The Government could consider an option of operating the toll road and letting separate contracts for its design-construction and operation-maintenance.

Construction of the M5 East is expected to begin in late 1996 and to take three years. This means that it can be completed in time for SWA's opening, provided the expressions of interest phase takes less than a year and a relatively early agreement for construction can be reached by mid-1996 or shortly afterwards.

**The Committee believes that SWA's success will, to a large degree, depend on the completion of the M5.**

### **3.3.3 RELEVANT STATE AND REGIONAL ROADS**

As noted earlier, SWA's opening will lead to pressures on the road system in and around the SWA Sub-Region. The relevant roads are examined below, as are road works expected to be conducted in the Sub-Region over the next five years. These works will provide varying levels of benefit in respect of access to SWA and therefore the Committee distinguishes which works have been programmed independently of any needs arising from SWA.

It is worth noting that the RTA consults with local councils in planning road enhancements on State and regional roads. The environmental assessment process involves both formal and informal consultation with the community including their local council representatives, and offers an opportunity for community input, whether via a formal EIS or a Review of Environmental Factors (where impacts are considered less significant).

#### **3.3.3.1 RELEVANT STATE ROADS**

Apart from Elizabeth Drive, the M4, the Great Western Highway, and the Hume Highway, the following roads are important State roads which will be affected to some extent by the development of SWA.

##### **The Northern Road**

The Northern Rd stretches from Narellan near Camden in the south through to urbanised areas of Penrith and north to Windsor Downs. It is a major road for north-south traffic through the SWA Sub-Region and provides north-west access to SWA.

The Northern Rd already provides a bypass function for the urban area, particularly for traffic between the Blue Mountains and the south, as well as a route for trucks skirting Sydney's western edge. When SWA is operational, The Northern Road will certainly attract more traffic from the west (particularly from the Blue Mountains, The Bells Line of Road, and from the Penrith-Windsor area as heritage restrictions limit traffic from the Penrith area

using the alternative Mulgoa Rd).

However, Elizabeth Drive will be the main access route from the east for passenger and freight traffic, including during the SWA construction phase.

Although The Northern Rd has been mooted as the appropriate route for freight transport access to SWA, it would only be the most direct route for freight traffic originating from the Blue Mountains and Penrith-Windsor area. Traffic heading west to SWA or east from SWA is more likely to use Elizabeth Drive and the Western Sydney Orbital than The Northern Rd and Bringelly Rd. An exception will be where industry is developed in the southern part of the airport. The clear local access point to SWA would then be from The Northern Rd.

Sections of The Northern Rd will require upgrading in the next decade or so regardless of any needs arising from SWA. For example, The Northern Rd will eventually need to be:

- widened to four lanes between Green Ave at Cambridge Park (north of Penrith) to north of Andrews Rd at Mount Pleasant (this work is expected to be completed by the end of 1997);
- upgraded to a four lane sub-arterial route from Bringelly Rd to the South Western Freeway, regardless of whether residential development proceeds around South Creek Valley; and
- enhanced at junction locations, including at the junction north of the M4.

The portion of The Northern Rd skirting the southern end of the SWA site, between Luddenham and Bringelly, is a Commonwealth responsibility and will need to be realigned to enable construction and operation of the runways and to facilitate traffic movement around the airport site.

The proposed realignment was examined by the Commonwealth, which is responsible for its timing and funding, and published as part of the 1985 EIS process. The RTA and the FAC have since held preliminary discussions about who will undertake the realignment and what arrangements will be made for the management of the realigned section, but no firm arrangements have been made to date.

The upgrading of this entire road as The Northern Road Peripheral Route, which will be linked to the Prospect Highway (Camden Valley Way to Horsley Drive) to create another orbital route, has been mooted as a future option which:

- offers a quality north-south connection, predominantly for commercial and industrial traffic;
- links SWA with other industrial areas, e.g. Wetherill Park and Erskine Park

and significant primary production areas;

- will provide opportunities for developing export markets in the fresh and processed food sectors in areas surrounding the airport (Blacktown Council);
- connects the M5 (south of Campbelltown) in the south to Windsor in the north; and
- could service the developed ADI site (however, appropriate planning instruments would need to be put in place to prevent over-development along parts of this road corridor).

The State Road Network Strategy identifies The Northern Road Peripheral Route as an additional metropolitan orbital route and an important future element of the strategic road network.

### **Bringelly Road**

Bringelly Rd is a major east-west road running from Glenfield, through intersections with Cowpasture Rd and the Camden Valley Way, to Bringelly (where it meets The Northern Rd) and beyond. It is expected to experience significant traffic increases in the next two decades. Like Elizabeth Drive, it will be used by east-west freight traffic to and from SWA. As with Badgerys Creek Rd, it will attract traffic from the Ingleburn area.

Although Elizabeth Drive and the Western Sydney Orbital will offer the main route east to the M5, Bringelly Rd could offer a strategic, if secondary, link from the SWA sub-region east to the M5 near The Crossroads.

Bringelly Rd is presently two lanes, but, regardless of any pressures resulting from SWA, is likely to require additional lanes over some of its length (and particularly to the east) in the next decade, especially if development proceeds at South Creek Valley without a rail line.

The RTA has no preliminary plans to upgrade Bringelly Rd at this time, but any upgrading works would need to take account of the possibility of periodic flooding of South Creek.

### **Cowpasture Road**

This road will be upgraded between Bringelly Rd and Elizabeth Drive, and these works are programmed independently of any needs arising from SWA. Fairfield Council suggests that the road's upgrading to four lanes between Elizabeth Drive and The Horsley Drive (i.e. north of the programmed works) is urgently required.

### **Wallgrove Road**

This two lane road connects Elizabeth Drive with the Western Freeway and beyond and is likely to experience increasing traffic pressures south of M4, although no works are programmed. The Cecil Park to Eastern Creek/Minchinbury section of the Western Sydney



Orbital will eventually offer relief to Wallgrove Rd.

### **Mamre Road**

This major north-south road connects Elizabeth Drive to the Western Motorway (M4) along the north-east side of the SWA Sub-Region and is important from a tourist perspective.

Independent of any needs arising from SWA, however, new ramps are being constructed to the Western Motorway at Mamre Rd, St Clair. This will improve linkages between the road network serving the SWA Sub-Region and the road network north of the M4/Great Western Highway corridor.

To facilitate traffic movement around SWA and through new residential development (including SWA-St Marys buses) Mamre Rd will require major upgrading.

No works are programmed or funded, but a Mamre Rd/Werrington by-pass could be designated as a supplementary north-south route that would also relieve Wallgrove Rd.

### **Mulgoa Road**

Mulgoa Rd could be an alternative for traffic from the north-west of SWA, but heritage restrictions are likely to ensure that The Northern Rd is developed as the main route from the north-west in the longer term.

Works independent of any needs arising from SWA were conducted in 1994-95 between the Western Motorway (M4 to Jamison Rd) and Penrith. Penrith Council's Local Tourism Plan acknowledges the importance of landscape programs along Mulgoa Rd from the M4 to the Great Western Highway.

### **Erskine Park Road**

This State road begins at the Western Motorway and travels south-west to meet Mamre Rd, and provides access to recent residential development in Erskine Park.

### **The Horsley Drive**

The Horsley Drive will attract traffic from the Merrylands area. An upgrading east of Wallgrove Road, with intersection improvements, is programmed independently of any needs arising from SWA. Fairfield Council regards this upgrading (particularly between Cowpasture Rd and Wallgrove Rd) as urgently required.

### **Cabramatta Road**

This road between Elizabeth Drive and the Hume Highway could experience traffic pressures in the medium term as a result of SWA, but traffic pressures as a result of SWA's opening are not expected to be significant.

### **Camden Valley Way**

The Camden Valley Way runs north-east from Camden before meeting the Hume Highway.

Overtaking lanes and intersection improvement works are programmed independently of any needs arising from SWA. 'The Way' may eventually need widening to a uniform four lanes, particularly if traffic from the Camden area uses it to access SWA via the Western Sydney Orbital, rather than using The Northern Rd.

### **Cumberland Highway**

This north-south link runs from Liverpool north past Fairfield and Smithfield over the M4 north to Pennant Hills. The southern section already suffers peak-hour congestion, but will be relieved by the Western Sydney Orbital.

### **3.3.3.2 RELEVANT REGIONAL ROADS**

The Regional Road Network in Western Sydney acts as a de facto State road system.

Regional roads are generally funded by the State (50 per cent) and Local Government (50 per cent), and Local Government manages their development and maintenance with the RTA's agreement.

A higher percentage of regional road in Western Sydney is regarded by standard criteria as in 'poor condition' in comparison with the rest of Sydney.

### **RECOMMENDATIONS**

**36. Additional funds be expended on regional roads in the SWA Sub-Region in view of the likely impact of the airport on the area's key regional roads.**

Apart from the regional roads dealt with below, Devonshire Rd, Horsley Rd, North Liverpool Rd and Smithfield Rd are also likely to be affected by SWA, although to a lesser extent.

### **Luddenham Road**

This major north-south road runs between Elizabeth Drive (from the north-west of the airport site) to Mamre Rd west of St Clair. Luddenham Rd is important from a tourism perspective, and will attract traffic between the St Marys area and SWA, as it is more direct than Mamre Rd.

The RTA advises that there is a very long-term option for a new route between Werrington via Kent Rd and a presently undefined location towards the south. This scheme was developed when it appeared that the South Creek sub-region would develop rapidly as a new urban release area, but has not been pursued of late because the sub-region was not included in the State Government's urban development program.

**Badgerys Creek Road**

The section of Badgerys Creek Rd within the airport site will be realigned by the Federal Airports Corporation to facilitate operation of the runways.

**Hoxton Park Road**

Hoxton Park Rd and Elizabeth Drive are the main east-west feeder roads for Liverpool's land release areas. It will attract Liverpool traffic using a Hoxton Park Rd, Cowpasture Rd, Elizabeth Drive route, rather than the full length of Elizabeth Drive.

**3.3.4 RTA ADVICE ABOUT LIKELY PRESSURES IN THE SWA SUB-REGION**

The Committee has received advice from the RTA about the roads which are likely to be affected by additional and lesser traffic pressure in the SWA Sub-Region.

Pressures are expected to be experienced on:

- Bringelly Rd between Camden Valley Way and Cowpasture Rd South; and
- The Horsley Drive east of Wallgrove Rd.

Roads likely to experience lesser traffic pressures to varying degrees in the medium term are:

- The Northern Rd between Penrith and Luddenham;
- Luddenham Rd from St Marys to Elizabeth Drive;
- The Horsley Drive from Wetherill Park to Wallgrove Rd;
- Cabramatta Rd;
- Hoxton Park Rd between Liverpool and Hoxton Park;
- Cowpasture Rd between Wetherill Park and Bringelly Rd;
- Bringelly Rd between Camden Valley Way and Bringelly; and
- The Northern Rd between Narellan and Bringelly.

**RECOMMENDATIONS**

- 37. The RTA consider the following enhancement works which are not funded or programmed:**
- **Bringelly Rd between Camden Valley Way and Cowpasture Rd South; and**
  - **The Horsley Drive east of Wallgrove Road.**
- 38. Monitoring will be required to provide more detailed planning data on the following roads:**
- **The Northern Rd;**
  - **Luddenham Rd;**
  - **Hoxton Park Rd;**
  - **Cowpasture Rd;**
  - **Camden Valley Way; and**
  - **Bringelly Rd.**

**3.3.5 FUNDING ADDITIONAL ROAD INFRASTRUCTURE IN THE SWA SUB-REGION**

As emphasised throughout this section on road-based transport, good quality road access to SWA will offer a range of long-term economic benefits.

It is fortunate that the Commonwealth Government has provided most, if not all, of the costs associated with upgrading Elizabeth Drive and building Stage 1 of the National Highway,

Nevertheless, good quality road infrastructure is expensive and NSW will bear many of the up-front costs and longer-term maintenance costs of ensuring that the road network of State and regional roads provides adequate linkages between SWA and key residential, industrial and employment areas.

It is difficult to assess the extent and impact of traffic increases generated by SWA. However, it is reasonable to anticipate such increases are likely to bring forward the next level of road upgrading. It will be even harder to quantify this 'interest cost' at the level of

individual roads.

While in the longer-term governments could develop road costing options involving some type of value capture taxation, this can be problematical as was noted earlier with respect to the proposed rail link to SWA.

The Committee believes that funding for road improvements in the SWA Sub-Region must be drawn from the existing RTA budget unless innovative funding mechanisms are developed which do not place an excessive additional burden on Western Sydney residents.

The Committee explores options for funding infrastructure including roads in Chapter 5 of this report.

### 3.3.6 ROAD-BASED PUBLIC TRANSPORT

The roads dealt with above will improve linkages between SWA and major transport routes. However, numerous submissions and many witnesses emphasised that transport links within Western Sydney and between Western Sydney and other regions in the metropolitan area must also be improved. This is needed to moderate growth in traffic demand and to encourage public transport use.

Increased public transport use will occur only when public transport services are adequate and provide a realistic alternative to private car use. Western Sydney already lacks public transport infrastructure and currently records low rates of public transport use, particularly amongst those commuting to work.

In the absence of a good public transport system, employment growth at and around SWA will increase the number of people dependent on cars.

The Committee believes that Sydney's roads, including freeways and motorways, need to be designed and administered with the requirements of public transport in mind.

While a new approach has been emerging in the RTA to integrate the roads and traffic system to facilitate public transport opportunities, there needs to be better coordination between all relevant authorities. Local Government should be intimately involved in this planning process.

Genuinely integrated transport planning must acknowledge the inter-relationship between different types (or modes) of transport.

**The Committee believes that the NSW Department of Transport, the RTA and State Rail should more actively cooperate in assessing the development of new transport corridors and in planning and developing transport interchanges.**

## RECOMMENDATIONS

- 39. The NSW Department of Transport and transport operators including CityRail and Sydney Buses, should cooperate in introducing integrated (inter-modal) ticketing, timetabling and promotional advertising, particularly with respect to SWA. Given the importance of private bus services in outlying areas of Western Sydney, private bus operators should, wherever possible, be included in integrated inter-modal ticketing and consulted about timetabling and invited to participate in joint information campaigns at transport interchanges.**

It is also essential to optimise the 'modal mix' (in other words, to achieve the right balance of different types or modes of transport), so that they complement each other and provide a flexible and reliable service to as many potential passengers as possible.

While unnecessary competition between public transport modes should be discouraged, competition between tollways and public transport corridors should not be prevented.

Contractual arrangements with the private sector to build motorways should not exclude the prospect of public transport corridors near that route or of public transport being granted priority, if not dedicated lanes, on that route.

The Committee looks at one such public transport corridor in close proximity to the SWA Sub-Region as an example of how these corridors can be developed.

The Hoxton Park - Parramatta - Baulkham Hills - Rouse Hill Public Transport Corridor was identified in Regional Environmental Plan (REP) 18 and reserved as a dedicated public transport corridor. It runs through areas lacking reliable public transport, coincides with existing roads for a large part of its length and was extended so that it could service the Rouse Hill Development Area (RHDA). Considerable sections of land have already been acquired, but no commitment for its development has been made.

Several submissions and witnesses including WSROC raised the possibility of light rail along this corridor. Not only is light rail an untested transport type in suburban Sydney, it can cost as much as heavy rail, with few of its benefits.

A well designed busway system along this corridor could offer adequate speed and capacity, as well as maximum flexibility, at a lesser cost.

Buses are a familiar and well-used form of public transport that will provide an important feeder role to existing and proposed heavy rail links in Western Sydney, and particularly to SWA, and would involve one less change of 'mode'.

WSROC advocates early construction of this public transport corridor on the grounds that it:

- would provide a relatively rapid transit route through some of Sydney's most car-dependent areas, including the north-west sector;
- would provide a distribution system from Parramatta station, helping to consolidate Parramatta as Sydney's second CBD;
- could extend from Hoxton Park to Rouse Hill along the corridor for the proposed Western Sydney Orbital, providing a second link between Liverpool and Hornsby via Rooty Hill, Plumpton and Quakers Hill, with connections to key employment centres such as SWA; and
- could provide the basis for a circular public transport route (or public transport 'Orbital') linking residential and employment areas of Western Sydney (Hoxton Park, Smithfield, Parramatta, Baulkham Hills, Rouse Hill, Quakers Hill, Plumpton, Rooty Hill, Eastern Creek/Wonderland, Hoxton Park).<sup>4</sup>

## RECOMMENDATIONS

**40. A Working Party involving the Department of Urban Affairs, the Department of Transport and the RTA be established to develop a strategy for the Hoxton Park-Parramatta-Baulkham Hills-Rouse Hill Public Transport Corridor, including the most appropriate transport mode, and to conduct or commission relevant feasibility studies.**

**The Committee believes that this type of Public Transport Corridor offers an excellent opportunity to improve public transport facilities in the short term without excessive expenditure.**

**It could provide a crucial intermediary measure in the SWA Sub-Region while heavy rail links to SWA are being constructed.**

**It could also serve a valuable function as a feeder to the rail link to SWA once it is in operation.**

---

<sup>4</sup> WSROC, Submission on the Road and Rail Strategic Plans, May 1995

## RECOMMENDATIONS

- 41. SWADC should develop Public Transport Corridors in the SWA Sub-Region which complement the Hoxton Park-Parramatta-Baulkham Hills-Rouse Hill Corridor in consultation with the Department of Urban Affairs, the Department of Transport and the RTA.**

### 3.3.6.1 BUSES TO AND FROM SWA

The Committee believes that the need to improve public transport links in the SWA Sub-Region and Western Sydney in general will require increased use of buses, especially in the short term while there is a lag in transport planning and funding for rail. In this way, buses can form part of an effective environmental management plan to bring Western Sydney's air quality problems under control. Buses are the form of public transport which can most readily and cost-effectively respond to peaks and troughs in demand. They are also likely to be important in providing cross-regional services and to be the principal public transport linking urban residential release areas to the nearest rail stations.

This feeder role will be particularly important to service residential development near the proposed SWA railway line, including residential development to the east of Camden. Bus services will also be needed to link the South Creek Town Centre to major centres including Penrith, Blacktown, Camden, Campbelltown and Liverpool. Many such services are likely to be run by private operators.

Until demand for a rail line is sufficient to warrant its construction, buses would be the major public transport mode carrying airline passengers etc and employees to and from SWA. As noted earlier, an important advantage of a rail link to SWA is that it could guarantee travel times because it would be delayed by road traffic congestion. Giving buses priority on the roads, however, would reduce the impact of traffic congestion on their operation.

To properly benefit the growing residential areas and industrial estates in the SWA Sub-Region and link them with the rest of Western Sydney, the NSW Department of Transport needs to consult closely with private and public bus operators about appropriate refinement of the existing regulatory regime, fare structures, facilities (including interchanges and bus shelters) and public information relating to intra and inter-regional bus services in the SWA Sub-Region.

Bus systems could be developed which would provide a 'line haul' role to SWA, with express services from major centres including Liverpool, Parramatta, Blacktown, Penrith and the Sydney CBD. The upgrading of transport interchanges at Parramatta and Liverpool stations, and the construction of a proposed new interchange at Blacktown Station (handling bus traffic from the first stage of the North-West Sector development) will facilitate such



services.

Bus priority can involve building additional lanes on new or existing roads or giving priority to buses on existing lanes. Where there is insufficient space to add extra lanes, lanes can be dedicated (for some or all of the time) to buses and other high-occupancy vehicles. Where priority lanes would not offer buses any time advantage over other traffic, one or more of the following strategies could be utilised: right of way, priority signals, short lengths of additional lane at lights and bus bays to allow express buses to pass stopping buses. In general, there is an opportunity with new roads to widen them in the longer term by creating exclusive bus lanes. With freeway-standard roads, there is the opportunity to re-linemark those roads to use shoulders as bus lanes or priority lanes.

As emphasised by the Bus & Coach Association (NSW) in its submission to the Committee, bus and coach-based transport will require priority on approach routes to SWA and on the airport site in order to provide an effective level of service.

The Bus & Coach Association seeks bus priority between:

- SWA and the Sydney CBD;
- SWA and KSA;
- KSA and the Sydney CBD;
- SWA and Liverpool CBD/station; and
- SWA and the Main Western Line (probably at St Marys interchange).

Local Councils have also emphasised the importance of bus priority on major roads in Western Sydney, including on the Hume Highway, particularly at peak periods.

The RTA's position on SWA is that:

- bus and coach access must be considered in all aspects of planning access to SWA;
- bus priority should be provided wherever possible on roads planned to serve SWA; and
- opportunities for exclusive bus/coach lanes should be 'left open' on major road works planned to serve SWA, particularly on the National Highway.

Where there is congestion, it is general RTA policy to give high-occupancy vehicles priority.

The Committee has received evidence that the RTA:

- is working with Liverpool Council and the Department of Transport in investigating the need for bus priority generally, focussing on the Liverpool city centre and the proposed bus-rail interchange there;
- will work towards the most appropriate type of bus priority from Elizabeth Drive between Wallgrove Rd and Liverpool CBD;
- notes the success and profitability of State Transit's Airport Express bus service between the Sydney CBD and KSA (as well as the success of coach connections between KSA and tourist hotels); and
- recognises the potential of express bus/coach services between SWA and both the CBD and KSA.

Improved public transport measures, including bus priority and public transport interchanges, involve substantial up-front costs for very real benefits. However, these benefits can be longer-term and difficult to accurately evaluate and cost, and may be taken for granted. The NSW Government will need to examine how best to finance such enhancements, and whether, for example, a proportion of fuel taxes, registration fees and tolls should be dedicated to public transport. It should be noted that there is some scope for private sector investment in bus interchanges in the proposed residential development areas in the SWA Sub-Region.

## RECOMMENDATIONS

- 44. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that, in order to facilitate the efficient and speedy arrival and departure of interstate and international visitors, SWA infrastructure includes:**
- **adequate kerb length along international and domestic terminal frontages for the setting down and picking up of passengers in order to minimise vehicle congestion at arrival and departure areas;**
  - **adequate waiting/storage areas for private hire vehicles, with the storage area located close to the terminals;**
  - **signs clearly indicating the authorised users of kerb-side and temporary storage zones; and**
  - **adequate kerb space and vehicle storage space for taxis, buses, coaches and private vehicles.**
- 45. The Department of Transport and the NSW Taxi Industry should immediately develop specific plans to cope with extra services required for the Para-Olympics in Sydney in 2000.**

### 3.3.6.4 CAR POOLING

As noted earlier, public transport should provide ready access to and from SWA for airport employees. To further reduce the number of private vehicles travelling to SWA, however, large employers at or near the Airport should be encouraged to develop car pooling or "rideshare" initiatives. The RTA could assist such companies in demand assessment, planning and evaluating any such service to employees.

## RECOMMENDATIONS

- 46. The SWADC should encourage the introduction of car pooling or mini-bus services in employment zones in the SWA Sub-Region to reduce car dependency.**

### 3.3.6.5 BICYCLES

There is an increasing recognition of the potential of cycling to reduce reliance on private exhaust vehicles, particularly for employees living within a 5-10km radius of their workplace. The RTA is currently improving bicycle access on major roads around Sydney, including the M4 and M5.

Whilst it is highly unlikely that airline passengers will travel to SWA by bicycle, bicycle access should be available, particularly for those employees who live within a 10km radius of SWA (for example, a cycleway has already been built at Erskine Park) or for those people who can combine public transport with bicycling (the dual mode of 'bike and ride').

There is no specific Commonwealth funding presently available for bicycle ways, and it is understood that the Commonwealth regards them as the responsibility of State and Local Government. Where new road construction is planned, however, the Commonwealth does generally agree to incorporate bicycle lanes. Similarly, new construction on State roads generally makes space available for bicycles.

The Western Sydney Orbital will have a high quality bicycle facility (possibly an off-road veloway), and bicycle facilities will be included in the upgrading of Elizabeth Drive. As emphasised below, to capture the full value of these facilities, SWA should have significant bicycle infrastructure to link with and enhance the local bicycle network.

Bicycling to SWA should be made as safe and convenient as possible, and, to this end, the following should be provided at strategic locations:

- secure bicycle lockers at SWA and at relevant transport interchanges and major railway stations (e.g. Parramatta, Glenfield and Liverpool);
- on-board bike racks on trains/buses (for 'bike and ride' trips);
- harmonisation of bicycle routes from residential areas to local bus stops or stations, and routing these cycleways through relatively safe areas; and
- end of trip shower/change room facilities at SWA.

Bicycle NSW notes that the framework for bicycle facilities has already been developed in a project for Schiphol Airport in the Netherlands and that this involved a bicycle plan providing planning, consultation and implementation roles in the Airport's development.

Bicycle NSW suggests that:

- the Schipol Airport example could be adapted for SWA's development to promote the efficient and cost-effective integration of bicycle transport into SWA;

- bicycle infrastructure on roads leading to SWA should be included in relevant roads funding, and not be taken from the RTA's bicycle budget for Sydney;
- relevant funding should not be seen as a special case but be automatically included as part of the transport requirements of such major infrastructure projects as SWA, and could be drawn from a variety of Federal, State and Local Government sources, including environmental funds and the Building Better Cities Program;
- the process of developing bicycle facilities to and at SWA could be facilitated through the establishment of a steering committee; and
- Local Government's role will be to provide, with Federal and State help, staged funding to integrate SWA with their local bicycle networks.

The Schipol Airport scheme appears to be the only scheme of its kind in the world for promoting bicycle travel for airport employees. Whilst the general aim is certainly one worth promoting, it should be noted that this scheme had the twin advantages of being launched in a country with well-developed bicycle facilities and at an airport around which many employees live within cycling distance from their work.

Whilst these advantages are likely to be enjoyed to a lesser extent at SWA, the concept of a special project group being established to draw up a plan to promote bicycle use to and around SWA is supported.

## RECOMMENDATIONS

- |                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>47. A special project group comprising the RTA, the Bicycle Council, the FAC and Bicycle NSW be established to develop a bicycle plan for SWA using the Schipol Airport scheme in the Netherlands as its model.</b></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **3.4 AVIATION FUEL SUPPLY TO SWA**

An important question in planning infrastructure for SWA is how aviation fuel will be supplied to the new airport, especially given the increased awareness of environmental issues such as air quality in Western Sydney.

Aviation fuel can be supplied to airports by a dedicated pipeline or transported by road using specially designed B-double trucks. These trucks have been operating in the Sydney area for several years with an excellent safety record.

In essence, the choice between these two forms of aviation fuel supply is a trade-off between the revenue costs of trucks and wages against the capital costs of a pipeline and when it would be justified in terms of volume.

At KSA, the high volume of aviation fuel required by aircraft operations has warranted the construction of a pipeline. Ampol, BP, Mobil and Shell currently supply aviation fuel to KSA. They jointly use a hydrant installation (called the Joint User Hydrant Installation or JUHI) to supply fuel via terminal aprons to both international and domestic airline operators. Fuel is supplied to the JUHI via pipelines from both Sydney refineries (Shell Clyde and Ampol Kurnell). If the volume supplied to KSA was delivered by road, it would require 80 B-Double truck movements per day.

This high volume at KSA is, to a large extent, a product of the recent explosion in international tourism in Australia centred around Sydney. Otherwise, Australia has a long history of aviation fuel supply by road with pipelines being a relatively recent innovation. The KSA pipeline from Clyde was not constructed until 1977. Similarly, trucks serviced Tullamarine Airport until 1979. Medium sized airports such as Adelaide and Cairns still use trucks to supply fuel.

The amount of aviation fuel required by an airport depends on whether its operations are international or domestic/freight. For example, the average international aircraft requires 55,000 litres uplift whereas a domestic and freight aircraft require only 7,000 litres uplift. Thus, a predominantly domestic airport like Adelaide requires about 140 million litres of aviation fuel each year while Cairns, with a much larger international component to its operations, requires 330 million litres per year, which is supplied by 20 B-double trucks.

Due to the relatively volatile nature of aviation fuel, there would be limited opportunities to reduce the costs of a pipeline by sharing part or all of a pipeline corridor or by using state of the art pipeline technology (involving separate valved compartments) to share the actual pipeline with other providers of products/services.

Oil companies considering a pipeline to supply aviation fuel to an airport may band together to jointly build and operate a pipeline, or they may contract out the pipeline's construction, operation or maintenance. Where possible, a pipeline would be built along public access routes such as roads.

Where it could not be routed along roads etc, its builders or operators would negotiate an 'easement' with private land holders - that is, a corridor along which the oil companies could build the pipeline and gain access at any time for maintenance work. Land holders would be compensated for allowing the pipeline to go through their land. Where agreement could not be reached, there may be regulatory provision for compulsory acquisition of easements in some circumstances.

Whilst the provision of infrastructure required for the supply of aviation fuel to airports is a matter for the private sector, the public sector has some regulatory role.

In NSW, the Office of Energy administers the Pipelines Act 1967 which:

- facilitates acquisition of easements; and
- ensures that pipelines are safely built, operated and maintained.

Before building a private sector pipeline of the length required from the Western Sydney refineries to SWA, the proponent would have to submit the proposal to the Minister and apply for a permit to enter lands to determine the pipeline route. Depending on the route's environmental sensitivity, an Environmental Impacts Assessment may be required. Once a permit is granted, the proponent finalises the route and acquires the relevant easements (in NSW, the Pipelines Act provides for compulsory acquisition in certain circumstances). The pipeline licence may be subject to certain conditions covering, for example, the frequency of routine maintenance and the environmental impacts of construction and maintenance.

A pipeline could be built from fuel terminals in the Western Sydney Region to SWA. A corridor from Silverwater/Clyde to SWA could follow the M4 to Mamre Rd and then follow Elizabeth Drive.

The issue for the oil companies, however, is when the volume of fuel supplied to SWA is likely to warrant the expense of building a pipeline.

In its submission to the Committee, Shell, the current operators of the aviation fuel supply facility at KSA, stated that they did not believe that aircraft movements at SWA would warrant the installation of an aviation fuel pipeline for at least another 15 years (or 2010).

Shell noted that:

- pipeline supply to SWA is more complex due to the distance between SWA and the refineries;
- rail supply is not considered a viable alternative to road transport for the distance involved between the oil refineries and SWA (there are no aviation fuel loading facilities at any Oil Company rail gantry in the Sydney area);

- pending construction of a pipeline, state-of-the-art B-double trucks will transport aviation fuel to SWA from existing Western Sydney terminals (i.e. Shell Clyde, BP Auburn and the joint Mobil/Ampol facility at Silverwater); and
- roads around the SWA site are approved for B-Double operations.

Shell anticipates 8 B-Double movements per day when SWA reaches the current volume of Adelaide Airport.

Shell has made some preliminary investigations into potential routes and will hold further talks with the RTA and other relevant authorities to examine possible pipeline routes and to establish suitable easements. Any pipeline construction will:

- use the latest construction methods to minimise environmental impacts and ensure that public safety is not put at risk; and
- conform to requirements imposed by the relevant regulatory authorities.

Shell concludes that, should Government authorities want to see a pipeline sooner than suggested by normal commercial demand, then those authorities should pay the extra cost of expediting pipeline construction.

**The Committee believes that the operation of SWA as a major international airport will quickly see it outstrip domestic-based airports such as Adelaide. This will result in much greater volumes of aviation fuel being required at SWA.**

**Therefore, the Committee believes that Cairns airport provides a much better model for the likely development of SWA than Adelaide.**

**Already, Cairns outstrips Adelaide as an international airport with an estimated 450,000 international passengers in 1992/93 compared with 234,000 at Adelaide. This is despite Adelaide processing more passengers in total: 2,552,000 passengers in 1992/93 compared with 1,183,000 at Cairns.**

**The feasibility of a pipeline for the 7km from the refinery to the airport at Cairns is currently being investigated and plans for a pipeline at SWA should be expedited.**

**The Committee believes that the role of SWA as a major international airport combined with environmental concerns over air quality from motor vehicles in the SWA Sub-Region necessitates expedited planning so that an aviation fuel supply pipeline can be brought into operation at the earliest date. This means identifying a route for the pipeline and determining to what extent compulsory acquisition powers will be required to facilitate the provision of a pipeline easement.**



The feasibility of transporting aviation fuel to SWA by rail once the line between Glenfield and SWA is constructed should also be thoroughly explored.

### RECOMMENDATIONS

- 48. The NSW Government should enter into negotiations with the Commonwealth and oil companies to plan for the early installation of an aviation fuel supply pipeline to SWA. These negotiations should include input from the RTA, the SRA and NSW Department of Transport on the best possible routes for an aviation fuel supply pipeline to SWA.**

## **3.5 ELECTRICITY AND GAS SUPPLY**

The Committee investigated the options for supplying SWA with energy. TransGrid (formerly the Electricity Transmission Authority) is responsible for the provision of power down to 132kV. Below this level, Prospect Electricity is responsible for power supply. The provision of power to the SWA site and surrounds is therefore discussed in two sections:, the first in relation to TransGrid; and the second in relation to Prospect Electricity.

### **3.5.1 RELOCATION OF THE TRANSMISSION LINE CROSSING THE SWA SITE**

The Sydney West-Yass 330kV transmission line currently crosses the SWA site in a north-south direction near Anton Road. TransGrid points out that this line is a vital link in the NSW power supply system because it:

- supplies power from the Snowy Mountains hydro electric scheme to Sydney at times of heavy system load;
- supplies power to the southern part of the State (Canberra, Wagga and Albury); and
- enables the export of power to Victoria at times of light system load.

It is intended to upgrade this to 500kV and to divert the line south around the airport site to the Kemp's Creek Sub-Station.

The implementation of the National Grid may require the links with the Victorian supply to be strengthened.

The power lines must be relocated because they:

- physically cross the north of the site;
- create a height obstacle for airport operations; and
- pose operational problems in that power lines are used for transmitting control signals and associated conversation. This could affect the effective operation of navigational aids proposed for the airport.

The decisions regarding location of navigational aids and location of the transmission line need to be considered in conjunction.

In 1992 TransGrid conducted a feasibility study on options for the relocation of the line for

the Commonwealth Department of Transport. Following advice that SWA was to be fast-tracked, TransGrid has reviewed the feasibility study. The feasibility study proposed three options for the relocation of the line:

**Option 1: Minimum Diversion**

This would involve the lowering of three towers to allow for immediate operation. It would take 6-8 months and cost \$500,000.

**Option 2: More Extensive Diversion**

This would require the re-routing 15km of line, all overhead.

**Option 3: Cable Diversion**

This would involve re-routing 5km of line - half underground, half overhead. It is proposed that half could be underground to allow for development along or near the Northern Rd around Luddenham.

The exact re-location route is yet to be determined.

TransGrid's preferred option is Option 2. It is an extensive diversion which was originally costed at \$14.3 million and which would take an estimated 5.9 years to complete.

TransGrid acknowledge that the Commonwealth Government should not be required to meet the costs of any upgrading work over and above the cost of relocation.

This option would allow TransGrid to plan for the long term energy requirements of NSW. Transgrid explains this position in its submission:

...it must be acknowledged that the line involved would be affected by TransGrid's long term development objective of establishing a double circuit 500kV transmission line connecting its Marulan substation near Goulburn with its Kemps Creek substation some 6km east of the airport site. This would be required for any major power station development in the south or west of the State or for any significant reinforcement on the NSW-Victorian interconnection. Such interconnection reinforcement is not expected to be required until after the year 2000. (TransGrid submission, 1995:3)

**The Committee discovered that there were a number of unresolved issues regarding the relocation of the transmission lines on the SWA site. These issues are summarised below.**

**Planning/Timetable**

Ordinarily, the work associated with the relocation of the line would take 5-6 years. This time-frame would allow for planning, community consultation, exhibition of the EIS and the actual relocation of the line. Any significant relocation of the line requires TransGrid to undertake an Environmental Impact Statement on the work. Community consultation will

**RECOMMENDATIONS**

**42. The NSW Department of Transport in consultation with private and public bus operators develop strategies for bus services to and from SWA and in the SWA Sub-Region which:**

- **give priority to buses on all routes to major population centres;**
- **provide for a 'line haul' role from SWA with express services to major population centres such as Liverpool, Parramatta, Blacktown, Penrith and the Sydney CBD along the lines of State Transit's Airport Express bus service between the Sydney CBD and KSA;**
- **will serve future residential development along the proposed railway line to SWA in the period until its construction, including residential development on Camden's eastern side; and**
- **link the proposed South Creek Town Centre to major centres including Penrith, Blacktown, Camden, Campbelltown and Liverpool.**

**3.3.6.2 THE ON-SITE TRANSPORT PACKAGE AT SWA**

As emphasised by the Bus and Coach Association in its submission to the Committee, on-site public infrastructure at SWA such as bus terminals must be first class, so as to confirm the use of public transport as the preferred choice of travel to SWA. Otherwise, people will continue to believe that public transport is not a viable alternative.

**RECOMMENDATIONS**

**43. The NSW Government should enter into negotiations with the Commonwealth with a view to ensuring that the FAC develops an on-site transport policy package to reduce noise and air pollution around the SWA site by restraining on-site use of petroleum powered vehicles. This package could include:**

- **mini-bus shuttles for employees and others travelling around the site; and**
- **promoting the use of bicycles to and around the site.**

The Committee looks in more detail at the opportunities for bicycle use in a subsequent section.

### 3.3.6.3 TAXIS & HIRE CARS

Inevitably, a significant proportion of air travellers using SWA will use taxis because they will be a convenient method for travelling to and from the airport. Taxis provide more security, especially for overseas visitors with little knowledge of local geography.

The 1985 EIS estimated that only 5 per cent of those using land transport to get to and from SWA would travel by taxi, given the length and cost of the trip between the Sydney CBD and SWA (estimated at a minimum of \$60 at current prices, but could be up to twice that during congested periods). Some commentators regard this level as an underestimate of taxis' potential share of passengers. Regardless of the overall percentage, however, a significant proportion of business travellers and overseas tourists, possibly up to 40 per cent, are likely to use taxis.

The number of overseas tourists using taxis to and from SWA may be high during the Sydney 2000 Olympic Games, despite the likely availability of express bus shuttle services to the Olympic Village and the Sydney CBD.

At all times, but especially during the Para-Olympics, special purpose taxis will play an important role in the transport of persons with physical disabilities.

The NSW Department of Transport and the Taxi Industry must not only plan that enough taxis and drivers will be available 'around the clock', but that the taxi drivers are well suited and trained to act as 'goodwill ambassadors'.

Hire car services must also be available 24 hours a day.

The Motor Traders Association of NSW submission to the Committee suggested that:

- set down and pick up areas should be covered;
- a shortage of designated waiting areas would force limousines to use zones allocated for public use, with an obvious increase in congestion in those areas; and
- the requirement for temporary vehicle storage relates to passenger arrivals because departing passengers need only be set down at the kerb side outside the appropriate terminal.

need to be undertaken in accordance with the Guidelines for Development of Electricity Systems, Community Planning and Environmental Considerations (NSW Department of Planning and the Electricity Council of NSW, 1992). TransGrid has emphasised the need for community consultation prior to the preparation and display of the EIS. This means that route selection takes between nine and 12 months.

#### **Possible Disruption of Power to south-western NSW**

The disconnection and removal of power lines would be carried out after present residents had left the SWA site. The timetable for the departure of existing residents needs to be determined in order to facilitate the supply of power to the site.

#### **Overhead/Underground Line**

TransGrid has raised the issue of community concern regarding overhead power lines. These concerns focus on the visual impact of the lines as well as the effects of electro-magnetic fields generated by power lines on the health of human beings. In 1991, Sir Harry Gibbs conducted an Inquiry into Community Needs and High Voltage Transmission Line Development. He concluded that there was no definite evidence to prove a link between cancer and the existence of overhead power lines. However, he recommended that authorities adopt a policy of "prudent avoidance". TransGrid have adopted a policy designing lines that do not add to normal exposure and of avoiding locating people near power lines.

#### **New Technology**

TransGrid has noted that cable technology is now advanced. However, TransGrid is reluctant to pursue new and untested technology. TransGrid would like to proceed with oil filled technology.

#### **Access to Lines**

Access to lines is needed for maintenance. This means that an easement of 60m is required around the line, ie. 30m each side. The presence of the power lines will restrict activity around the lines, for example, large irrigating machines or cranes cannot operate around lines as it is unsafe. Dams cannot be excavated beneath lines.

### **3.5.2 THE POTENTIAL COST OF RELOCATING THE TRANSMISSION LINE**

In the 1995 Commonwealth Budget, \$23 million was allocated for environmental studies, the relocation of residents and the relocation of power line. This represented an increase of \$7 million on the previous allocation in the 1992 Budget.

The costings for the three options for relocation of the transmission line from the SWA site in 1992 dollars and 1995 dollars are given in the following table.

**TABLE 4: COSTINGS FOR RELOCATION OF TRANSGRID POWER LINE**

OPTION	1992 \$millions (a)	1995 \$millions (b)
OPTION 1	0.5	0.53
OPTION 2	14.3	15.20
OPTION 3	16.4	17.50

Source:

(a) TransGrid submission.

(b) Treasury estimates.

TransGrid emphasise two issues that require priority when making decisions about relocation of the line. They are:

- the need to consider future upgrading requirements; and
- the need to determine the best location for the line.

The Committee believes that the opportunity for commercial/industrial development along The Northern Road must be maintained.

Development in the region along The Northern Road will occur as industry is attracted by SWA and associated infrastructure in the SWA Sub-Region. The relocation of the line at only a minimum distance from the SWA site to meet clearance requirements might impede this development unless buffer zones or green belts are provided on both sides of the line.

**The Committee is concerned at the timetable for TransGrid's preferred option for the relocation of the transmission line from the SWA site: a timetable of 5.9 years would mean that this crucial work was not be completed by 1999 for the opening of SWA.**

**Any final decision on the relocation should not compromise the long term energy requirements of NSW.**

**However, there is a need for quick action to ensure that the relocation of the transmission line does not jeopardise the opening of SWA.**

## RECOMMENDATIONS

- 48. TransGrid and the Commonwealth Department of Transport enter into urgent negotiations in order to:**
- **ensure that the relocation of the transmission line from the SWA site is completed as soon as possible;**
  - **consider future upgrading requirements when relocating the transmission line;**
  - **determine a location for the transmission which will not provide an obstacle to future development in the SWA Sub-Region;**
  - **ensure that buffer zones or green belts are provided on both sides of the transmission line; and**
  - **give consideration to the findings of the Inquiry into Community Needs and High Voltage Transmission Line Development (1991) in relocating the transmission line.**

### 3.5.3 ELECTRICITY SUPPLY REQUIREMENTS FOR SWA

Power supply will be needed at the SWA site as soon as construction begins. When the airport opens, power will be needed for airport operations and associated commercial and industrial activities which will be drawn to the SWA Sub-Region.

The design criteria for electricity supply in the Concept Design Study for SWA used maximum demand figures based on typical demands per square metre for the different buildings on the site. The following projections were used:

- Terminal buildings: 220 VA/sq/m;
- Maintenance/Administration Buildings (office and stores): 120 VA/sq/m; and
- Control Tower: 300 VA/sq/m.

These typical unit rates were derived from data on commercial office electricity usage and typical power requirements at KSA.

The following design criteria were also considered:



- duplication of incoming supply to substations and physical separation of the incoming supplies;
- establishment of ring mains for distribution of HV supply to the various load centres in relation to development options, reliability and cost benefits;
- segregation of terminal services into essential and non-essential loads; and
- 22kV reticulation in accordance with Prospect Electricity's future plans for a 22kV system.

The current power supply to the SWA site was designed to meet rural requirements and is therefore grossly inadequate for airport construction and operation.

The construction and operation of SWA will require:

- provision of a main supply;
- re-arrangement of existing mains; and
- temporary arrangements for initial construction work.

#### **The Provision of Main Supply and Re-arrangement of Existing Mains**

The supply of adequate power to SWA will require the establishment of a hybrid zone substation (132kV/22kV and 33kV/11kV/-11kV/22kV) and 132kV transmissions mains.

At this stage, it is proposed to have mains on both sides of Elizabeth Drive as follows:

- on the southern side of Elizabeth Drive from Mamre Road to the Airport Zone 2km of mains will be put in place. These will be single circuit construction on wooden poles and will require the existing 11kV and low voltage mains to be rebuilt in joint use with new 132kV mains; and
- the remaining 5km of 132kV mains will be of double circuit construction (ie 132kV and 33kV mains together on the same set of poles on the southern side of Elizabeth Drive). To enable clearances to be adhered to, the existing 11kV and low voltage mains (which are presently on the same set of poles as the existing 33kV mains) will need to be transferred to the northern side of the roadway.

Therefore, both sides of Elizabeth Drive from Devonshire Road to the proposed Airport Zone Substation will contain overhead mains.

These plans assume that:

- it will be acceptable for there to be overhead mains on both sides of Elizabeth Drive;
- the establishment of the 132kV and 33kV transmission supplies will be the subject of a 'favourable' EIS;
- it will be possible to construct overhead lines past the access road construction at Elizabeth Drive; and
- the 18m poles along Elizabeth Drive will not interfere with proposed flight paths.

The Airport Zone Substation which is required will comprise two power transformers and one auto-transformer. The substation will be brick, and owned and maintained by Prospect Electricity.

The primary supply will be via the 132kV/22kV transformer and 2 X 22kV feeders into the airport site. The secondary or alternate supply will be via the 33kV/11kV power Transformer and 11kV/22kV auto-transformer. The substation arrangement provides firm transmission capacity capable of providing a continuous power supply during periods of planned maintenance or unplanned interruption (eg storm).

### **3.5.4 ELECTRICITY SUPPLY: UNRESOLVED ISSUES**

The Committee investigated a number of unresolved issues with regard to electricity supply to the SWA site.

#### **Need for a Clear Site during Construction Work**

Currently, previous land owners have entered into lease arrangements with the Federal Government. In order for construction to begin, on-site power will need to be supplied. This will require existing residents vacating the site.

#### **Clearance constraints**

Clearance constraints mean that the last 5km of power poles will need to be located on the northern side of Elizabeth Drive.

Usually the construction of overhead mains on both sides of a roadway is not acceptable. In addition, the plans and cost estimates given by Prospect Electricity are based on the assumption that the 18m high poles along Elizabeth Drive (including poles located past the access road), will not interfere with proposed flight paths.

If underground power needs to be supplied, this will be at an additional cost of \$1 million per kilometre. It is possible that the last 2km of power supply will need to be underground at a cost of \$2 million over and above the \$5.5 million original (and 1995) estimate.

### **Environmental Issues**

An EIS will need to be undertaken. This usually comprises 10 per cent of costs and has not yet been factored in to the total cost. The preparation of an EIS will take approximately 18 months.

### **Use of Transport Routes**

A decision regarding the use of the orbital corridor for future power supply has yet to be finalised. While use of transport routes for the co-location of power cables is acceptable, safety issues need to be addressed.

### **Financial Matters**

The current estimate by Prospect Electricity for the provision of power to the SWA site is \$5.5 million. This does not include a possible \$2 million for underground supply (that is, an additional \$1 million for each kilometre of cable placed underground). Nor does the cost estimate include the cost of the relocation of the transmission line.

### **Planning/Timetable**

The provision of power to SWA and the SWA Sub-Region will require:

- a planning and design stage;
- building of power transformers (18 months);
- EIS statement (18 months); and
- construction (two years from date of approval).

Because of these lead times, the Committee believes that formal notification by the FAC to Prospect Electricity regarding power requirements is urgently required.

### **Future Power Requirements**

Ultimately, there may be a need to augment Kemps Creek Zone Substation to 132kV and as part of this a further 132kV line to the east will be needed. Prospect Electricity would like provision for this line to be made on the opposite side of the transport corridor. The new line will need to be linked to the West Liverpool Substation. Prospect Electricity envisages a 132kV line in the orbital transport corridor from Cecil Park to the substation at Hoxton Park. The lines will consist of high concrete poles up to 20m, approximately 100m apart. These poles can be used to support traffic route lighting.

### **Energy Conservation and Demand Management**

The Inquiry into Community Needs and High Voltage Transmission Line Development noted that, "electricity generation in New South Wales contributes approximately half of the carbon dioxide emitted from the combustion of fossil fuels and Carbon Dioxide contributes approximately half of the greenhouse effect" (Gibbs,1991:10). The Inquiry identified the following ways to give effect to the NSW Government's policy of reducing carbon dioxide emissions:

- improving the efficiency of energy production;
- increased utilisation of renewable energy;
- improving the efficiency of energy use; and
- use of NSW-produced electricity using black coal (compared with the use of brown coal in Victoria).

Demand management strategies include interrupt ability contracts, off-peak water heating, appliance efficiency rates, demand tariffs and time-of-use tariffs for commercial and industrial customers.

A number of submissions to the inquiry argued that the need for transmission lines could be avoided by using underground cables. According to the Australian Underground Construction and Tunnelling Association technologies are available and cost effective for constructing, installing and servicing high voltage power lines beneath the surface. The placement of underground cables has often been rejected on two grounds: first, on the basis of cost; and, second, on the basis of technical feasibility.

It has been argued that the cost of placing cables underground is much higher than the cost of erecting transmission lines; indeed, between 13 and 20 times higher (1991:30). On the other hand, there is the view that while the cost of under-ground cables appears high, this is an up-front cost and the costs of the underground cable strategy may appear lower if life cycle costs and costs to the community are considered.

**The Committee believes that there is an urgent need for better consultation between responsible parties on planning for power requirements at SWA if lead-times for its provision are to be met by 1999.**

**RECOMMENDATIONS**

- 50. TransGrid, Prospect Electricity, the FAC and the Commonwealth Department of Transport enter into urgent negotiations to ensure that:**
- **plans for electricity supply to the SWA site are finalised as soon as possible;**
  - **funding is supplied so that the EIS on electricity supply can be executed as a matter of urgency;**
  - **safety issues are addressed with regard to the location of overhead power lines near transport corridors;**
  - **plans are developed in conjunction with the SWADC for future electricity requirements in the SWA Sub-Region;**
  - **energy conservation and demand management strategies are integrated into developments at SWA and (in conjunction with the SWADC) in the SWA Sub-Region; and**
  - **the possibility of using underground cables for electricity supply is fully costed and canvassed.**

**3.5.5 GAS SUPPLY TO SWA**

The Committee also looked at the options for utilising cheap and clean gas at SWA and in the SWA Sub-Region.

Gas can be used, among other things, for catering, power generation and air conditioning.

No decision has yet to been made about which power sources will be used for various activities at SWA.

However, AGL is keen to provide commercially competitive products which:

- promote options for power generation;
- are environmentally acceptable; and
- use best technology.

AGL is keen to use SWA as a showpiece. The company won the bid to provide energy supply for the Olympics site where it will provide solar heating to increase water heating capacity.

In the provision of gas to SWA and the SWA Sub-Region, AGL have pointed out that:

- areas in the west are not adequately served (Glenmore Park, Jamieson Town) so upgrading of gas supply needs to take into account demands created by this new urban development;
- SWA will require multi-million dollar expansion of existing gas supply;
- existing pipes are likely to be too small and hence larger size pipes will be needed;
- pipelines along Elizabeth Drive towards Martins Road are likely to be affected by construction work and thus will need to be relocated; and
- a relatively short lead time to provide supply (9 months) will be required for construction.

AGL has advised that a firm cost estimate for the provision of gas cannot be provided as this will depend on the nature and extent of use of gas as a source of power. Cost will be subject to negotiation.

**The Committee believes that the opportunities offered by gas as a form of energy should be fully investigated by the SWADC as part of a general strategy to develop efficient use of energy in the SWA Sub-Region.**

## RECOMMENDATIONS

- |                                                                                               |
|-----------------------------------------------------------------------------------------------|
| <p><b>51. SWADC develop a strategy for efficient use of energy in the SWA Sub-Region.</b></p> |
|-----------------------------------------------------------------------------------------------|

## **3.6 WATER SUPPLY AND SEWERAGE SYSTEMS AT SWA**

This chapter briefly reviews the water and sewer services needed for SWA and potential associated development based on information provided by Sydney Water and the Commonwealth Department of Transport.

Only a small area of the SWA Sub-Region is served by a reticulated water supply system. Most of the Sub-Region relies on rainwater collection and ground water for its supply. The village of Luddenham is served by a water supply pipeline from the Warragamba township. This pipeline extends east of Luddenham beside the SWA site. It is clear that major new water supply infrastructure will be required for SWA and the SWA Sub-Region.

The Committee considers water quality issues in considerable depth in section 4.5 of this report in its assessment of environmental issues relating to SWA and the SWA Sub-Region.

### **3.6.1 WATER SUPPLY**

The 1985 EIS developed a water supply strategy for SWA based on possible maximum water requirements using KSA as a model. Requirements for tourist, transport, warehouse and light industrial developments adjoining the airport were assessed as equivalent to a population of 10,000 people.

On this basis, the 1985 EIS concluded that 3.8ML of water per day would be required for SWA at its ultimate stage of development. Maximum consumption would be 9ML per day with a maximum peak-hour consumption of 0.75ML.

Adjacent development would average 6ML per day with a maximum consumption of 11ML per day and a maximum peak hour consumption of 0.83ML.

The 1985 EIS also noted that additional special storage would be needed for fire fighting. Based on CAA criteria, more than 450,000 annual passenger movements are needed before full Rescue and Fire Fighting Services (RFFS) are provided. Full RFFS will be essential for SWA to operate as a major international and freight airport.

The Commonwealth is providing a water system for the first stage of development at SWA which caters for an airport capacity of about 750,000 passenger movements to meet domestic, industrial and fire fighting pressure requirements.

The Concept Design Study for SWA indicates that water supply for the airport will be taken from the existing Cecil Park system via two 150mm diameter mains in Badgerys Creek Road.

The two existing mains will feed a booster pump station at the corner of Badgerys Creek Road and Gardiner Road.

Water will be pumped to two reservoirs (capacity 1.0ML) via a 250mm diameter main. These reservoirs are designed to comply with AS 2118 (Automatic Fire Sprinkler System) and will be located at the intersection of the Northern Rd and the access road to the Charter/Commuter Centre.

The rising main will use the existing 200mm diameter main constructed along the access road in the early works. It will then run along the perimeter road and the Northern Rd access.

The reservoirs will feed a 250mm diameter gravity main which runs along the Northern Rd access and the main access road to the corporate aviation area.

The gravity main services the Charter/Commuter Centre, Airline Terminal Complex and corporate aviation areas and will be cross-connected with the rising main to form a backup ring main.

## RECOMMENDATIONS

- 52. The NSW Government should seek assurance from the Commonwealth Government that the proposed water supply system for SWA:**
- will be capable of handling the publicly-announced figure of 1 million passenger movements by 1999; and
  - can be quickly upgraded to handle increases in passenger numbers.

### 3.6.2 SEWERAGE SYSTEM

The Committee has closely examined the proposed sewerage system in terms of its environmental impact at 4.5.10 of this report and made a number of recommendations designed to ensure that SWA can handle significant passenger numbers from Day One of operations in 1999.

The Committee outlines the proposed sewerage system for SWA in this section.

The SWA Sub-Region is not served by a reticulated sewerage system. As there are no municipal or Sydney water services on the SWA site, sewerage collection, treatment and disposal will need to be undertaken on-site. Thus, the SWA site will be initially serviced by an on-going package treatment plant, independent of the SWA Sub-Region.

The 1985 EIS suggested that an ultimate population capacity of 30,000 people should be used as a comparative figure for the required sewerage system at SWA. This figure was for the operation of the airport at its ultimate capacity of 13 million passenger movements per year



and included 10,000 equivalent population for development in the SWA Sub-Region.

Sewage from the airport will be collected via a 225/300 mm diameter gravity trunk sewer, which would run from the Charter/Commuter Centre area, alongside the perimeter road to the airline terminal and corporate aviation areas to the sewerage treatment plant (STP).

The STP is located adjacent to the perimeter road between Taylors Road and Badgerys Creek Road. It will initially comprise an extended intermittent aeration package plant capable of handling an equivalent population of 2,000 people. This will cater for an airport capacity of 750,000 passenger movements per year.

The modular sewerage treatment plant proposed in the Concept Design Study can be expanded with demand at SWA.

In line with the Government's policy to make SWA a 'green airport', effluent will be recycled. The alternatives for this include spray irrigating effluent on to the grassed flank areas around the runways and taxiways or pumping effluent to a suitable area within the airport site for trickle irrigation of crops and/or pasture.

Whatever recycling and disposal options are chosen, it will be essential that effluent does not enter water courses in dry or wet weather. First flush wet weather storage and effluent disposal should also be provided.

The Committee looks at these matters in detail at 4.5.10.

For increased international operations, SWA will need a small pump station to pump sewage from the CAA complex via a rising main to the gravity sewer.

When preparing plans for water, sewerage and drainage services, the **Regional Environmental Plan (REP) No 20 Hawkesbury-Nepean River** will need to be taken into account. It contains new provisions for wetlands by requiring an EIS for development of wetlands permanently filled with water. Concurrence of the Hawkesbury Nepean Catchment Management Trust will be needed for a range of proposals which may have an impact on the river. These proposals might include sewage treatment plants, waste management facilities, etc.

The South Creek Valley RES (1991) suggested that some initial development in South Creek Valley could be accommodated by spare capacity in the West Camden Sewage Treatment Plant. This capacity still exists and the Committee believes that it should be utilised.

### **3.7 HEALTH AND EMERGENCY RESPONSE ISSUES**

Some witnesses and submissions raised safety concerns (in addition to those relating to pollution) regarding the potential for aircraft crashes or loss of aircraft parts over residential areas and major items of State infrastructure, including Warragamba Dam (which supplies 70 per cent of Sydney's water), Prospect Reservoir, and various power facilities.

The Committee was concerned at any proposal to direct flights - especially night flights - over Warragamba Dam and Prospect Reservoir.

Clearly, flight paths over less populated areas are preferable. However, it is also clear that potential alternative routes raise other potential problems. Such issues of concern should be addressed in airport operational planning and regional planning, together with consideration of emergency response planning for SWA, including any related regional infrastructure requirements.

With regard to health and safety matters, the NSW Department of Health advised the Committee that the State Disaster Plan would be adapted to meet the requirements of SWA. The FAC is responsible for development of the State Disaster sub-plan for KSA and would be expected to develop a sub-plan for SWA. The NSW Department of Health advise that the requirements of the State Disaster sub-plan for SWA must be compatible with the development of SWA as a major international and freight airport.

In the event of a large scale emergency involving casualties, the NSW Multiple Casualty, Emergency and Disaster Medical Response Plan (Medplan) would be activated. This is supplemented by local health service, hospital and ambulance plans.

A network of existing facilities, including Liverpool, Nepean and Westmead hospitals, and a series of district hospitals, including Fairfield and Campbelltown, would be involved in the Medical Response Plan and would provide adequate support.

Health services for the SWA Sub-Region are sufficient to service existing needs and initial development but would need review as soon as substantial residential development occurred.

As a rough indication, a population (residents and local work force) of about 35-40,000 could be expected to generate demand for a new local hospital costing approximately \$20 million. A population of 70-80,000 people would require a \$40 million facility. Prior to a threshold population of 35-40,000 being reached, residents would be encouraged to use existing hospitals and new community health centres.

The NSW Police Service indicated that it was reviewing emergency requirements in the context of policing and accommodation requirements for SWA.

**RECOMMENDATIONS**

- 53. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the use of airspace above Sydney water supplies is minimised.**
- 54. The SWADC should liaise with:**
- **the NSW Department of Health in the preparation of a regional health plan which will ensure that initial residential development in the SWA Sub-Region has ready access to major health facilities;**
  - **the NSW Department of Health to plan for the timely construction of a hospital for the SWA Sub-Region in a central location once a population of between 35,000 and 40,000 people is reached; and**
  - **the FAC and NSW emergency service providers in the preparation of the State Disaster Sub-Plan for SWA and the SWA Sub-Region.**

### 3.8 RELOCATION ISSUES

The Committee examined the possible repercussions of Sydney West Airport on facilities operated by the University of Sydney in the SWA Sub-Region.

The University operates the following facilities in the SWA Sub-Region:

- Fleurs Radio Observatory (currently used by the University of Western Sydney for radio-astronomy teaching and research purposes);
- McGarvie Smith and Fleurs Farms (commercial dairy farm and beef cattle production for veterinary science teaching and research purposes);
- three farms at Bringelly (sheep, goats, dairy); and
- a complex at Cobbitty/Camden which includes residential facilities for veterinary students. Final year veterinary science students are required to attend these facilities to gain practical experience as part of their degree course.

These facilities are all considered likely by the University of Sydney to be affected to varying degrees by aircraft noise, water run-off and road access issues. The 1985 EIS identified a number of other research and technical facilities in the vicinity of Badgerys Creek which may need to relocate due to electromagnetic interference or noise.

The University of Sydney believes that it may be faced with relocating its entire operation in the Badgerys Creek vicinity to another site, possibly near associated resources at Camden. The University indicated that the capital outlay involved in relocation cannot be predicted at this stage because costs will depend on the extent of the impact that the airport will have on its operations.

#### RECOMMENDATIONS

- |                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>55. The SWADC consider the possible impact of airport operations on research and technical facilities operated by the University of Sydney and other organisations in the SWA Sub-Region in preparing its strategic plan and that this impact be reviewed in the light of actual airport operations.</b></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.9 RESIDENTIAL DEVELOPMENT IN THE SWA SUB-REGION

This section examines recent and proposed residential growth in the Local Government Areas surrounding SWA. It outlines how LGAs in the Greater West have grown rapidly in recent years and how they will continue to be subject to intense pressure to cater for further extensive growth in coming years. This pressure stems from the existing Urban Development Program (UDP) and from the South Creek Valley RES (1991) which proposed large-scale development on rail routes to SWA.

The Committee investigated the population growth in Western Sydney in recent years as a precursor to determining the level of new residential development that could be sustained in the SWA Sub-Region. The Committee also took into account the need to provide enhanced employment opportunities for existing residents in Western Sydney before embarking on further residential growth.

The Committee believes that it would be inappropriate for the employment opportunities opened up by SWA to be immediately offset by new residential development. The Committee makes several recommendations in this section in relation to residential development in the SWA Sub-Region so that future communities can enjoy a quality of life commensurate with the rest of Sydney without suffering from problems caused by over-development, airport noise or adverse environmental impacts.

#### 3.9.1 POPULATION GROWTH IN WESTERN SYDNEY

The fastest growing Local Government Areas in the Sydney region in numerical terms between 1986 and 1994 have been Blacktown, Fairfield, Penrith and Campbelltown. Fairfield and Blacktown ranked first and third in NSW in terms of population number increases.

The Committee looked at the specific growth of the three LGAs which are most likely to be affected by the operations of SWA.

Liverpool's population grew by 14.2 per cent (or 13,250 people) in the period 1986 to 1994. This growth was well above the overall growth rate in the NSW population of 11.1 per cent. This rapid residential growth in recent years is reflected in the number of building approvals, which have risen by 31 per cent from 1,765 in 1993 to 2,313 in 1994. Liverpool Council expects these trends to continue, especially given planned urban developments (**Liverpool Council, 1995a:7**). The number of approvals for commercial and industrial buildings decreased slightly between 1993 and 1994 (2.5 per cent) with 237 approvals. The value of building approvals, however, increased by 50 per cent from \$42 million in 1993 to \$64 million in 1994.

In 1994, Penrith had 163,000 residents making it the sixth largest municipality in NSW. At current growth rates, the population will exceed 190,000 by the year 2000 (a 14 per cent

increase). Penrith's growth rate has doubled since 1976 when its population was about 80,000 people. Between 1986 and 1994, the population has increased by 20 per cent (Plant Location International, 1992:Fig. 3.1).

Wollondilly Shire has a population of 33,500. There are about 2,500 people in Silverdale and 2,000 people in Warragamba. In its submission, Wollondilly Council noted that the shire has experienced considerable growth over the past 20 years. During the 1970s additional land was released, followed by further releases of more than over 200 lots, each 0.4ha, during the 1980s (in Ridgehaven Road area).

**TABLE 5: POPULATION GROWTH IN WESTERN SYDNEY, 1986-1994**

LGA	1986(a)	1991(b)	1994(c) (est)	No. increase 1986-95	% Increase
Blacktown	193,735	211,705	228,400	34,665	17.9
Fairfield	153,531	175,145	186,100	32,569	21.2
Penrith	135,373	149,619	163,500	28,127	20.8
Campbelltown	121,472	137,882	149,100	27,628	22.7
Parramatta	129,683	132,810	137,450	7,767	6.0
Baulkham Hills	103,607	114,032	125,550	21,943	21.2
Liverpool	93,500	98,162	106,750	13,250	14.2
Holroyd	79,152	79,145	82,300	3,148	4.0
Blue Mountains	64,147	69,452	74,100	9,953	15.5
Hawkesbury	43,663	51,323	56,200	12,537	28.7
Wollondilly	24,988	30,254	33,100	8,112	32.5
Camden	18,903	22,468	26,950	8,047	42.6
Greater Western Sydney	1,161,754	1,271,997	1,369,500	207,746	17.8
Sydney Statistical Division	3,364,858(d)	3,538,749	3,738,500	373,642	10.7

Source:

(a)ABS 1986 Census

(b)ABS 1991 Census

(c)1994 ABS Estimated Resident Population by Age and Sex -Statistical Local Areas Preliminary Cat No. 3209.1 June (1995 estimates not yet available)

(d)Census Counts for Small Areas NSW Cat No 2730.1, 1993

### **3.9.2 THE IMPORTANCE OF RESIDENTIAL DEVELOPMENT TO THE SWA SUB-REGION**

Pressures to increase residential development around SWA have two sources:

- increased population within the Sydney region; and
- the need for a sufficient population near to SWA to economically justify, in the short term, infrastructure required for the airport. This applies principally to the rail system.

Residential development around SWA is relevant to the Committee's terms of reference because any increase in the population will, on the positive side:

- create enough population to economically justify SWA infrastructure such as a rail line; and
- ameliorate the State's shortage of land needed for housing development;

On the negative side (unless well managed), residential development and associated population increase will:

- create a large demand for jobs in a region which is under-supplied with jobs and has a high unemployment rate. The jobs generated by the airport, while significant, will be insufficient to fully satisfy demand;
- generate a need for considerable social infrastructure;
- create communities potentially affected by noise if housing is located too close to SWA; and
- adversely affect the quality of the environment if the increase in population is too large.

### **3.9.3 PLANS FOR RESIDENTIAL DEVELOPMENT IN NSW AND WESTERN SYDNEY**

The Committee looked at plans for handling the substantial pressure for residential development expected in New South Wales in coming decades, a large proportion of which is earmarked for Western Sydney and the SWA Sub-Region.

The Metropolitan Planning Strategy for the Sydney region in 1988 projected Sydney's population to grow by 28.5 per cent from 3.5 million to 4.5 million by 2006. In 1995, the

Department of Planning released "Cities for the 21st Century", a document which outlined an integrated "whole of government" approach to planning and managing the Greater Metropolitan Region.

"Cities for the 21st Century" sets down goals for various aspects of urban living, including housing targets, forms and distribution, and employment targets and type.

The vision for the Sydney region is based upon four objectives: equity, efficiency, environmental quality and 'livability' or quality of life.

The key principles which underpin the individual strategies are:

- more compact cities;
- an ecologically sustainable region; and
- effective implementation by integration of economic development, environmental management, transport and land use planning.

"Cities for the 21st Century" anticipates that Sydney's rate of growth will slow so its population will not reach 4.5 million until 2021. However, a significant proportion of the increase in population that is projected to occur will be housed in the Greater West.

To help house these people in the Sydney region, approximately 500,000 new dwellings will be needed. It is intended that the distribution of these dwellings will be more compact than has traditionally been the practice in Australia.

Compact cities means:

... taking up less land; getting more out of new and existing land and infrastructure (including cost-effective provision arrangements); improving access between jobs, housing and services by locating these activities closer together and providing better transport links; and promoting equity in access opportunities. (Department of Planning, 1995a:4)

This means in principle:

- increasing the proportion of all new dwellings built each year in multi-unit forms to 65 per cent of the total by the third decade of the 21st century; and
- increasing the average neighbourhood dwelling density of new housing estates on greenfield sites to 15 dwellings/hectare over the next decade.

The proposed location of these compact urban units is governed by the Urban Development



### Program (UDP).

The UDP covers a five year development program which sits within the longer term and broader Metropolitan Strategy for the Sydney region. It is a program which coordinates the planning and servicing of new residential land in identified urban release areas of the Sydney region. The UDP accounts for 40 per cent of new dwellings commenced in Sydney each year.

The UDP will substantially increase the number of people living in Western Sydney, particularly Liverpool LGA.

One third of the new multi-unit housing proposed under the Compact Cities program will be built on greenfield sites, mainly in Sydney's north-west and south-west. Indeed 337,000 dwellings will be located in outer areas of Sydney. The existing UDP areas are expected to contribute 120,000 dwellings with the potential for another 50,000 outside the existing UDP depending on environmental, economic and transport considerations.

In the five years from 1994/95 to 1998/99, the projected total lot production in LGAs around SWA will yield 33,510 lots with remaining lots available totalling approximately 48,000. When fully developed, these release areas will provide 89,600 dwellings.

**TABLE 6: LOT RELEASES UNDER THE UDP**

LGA	5 Year Total Lot Production 1994/95-1998/99	% of total of these LGAs	Remaining Lots	% of total of these LGAs	Potential Dwellings
Liverpool	9,250	28	13,870	28	24,920
Fairfield	1,650	5	1,190	3	3,230
Campbelltown	1,700	5	4,350	9	6,190
Camden	4,310	13	8,790	18	13,700
<b>Sub-total</b>	<b>16,910</b>	<b>50</b>	<b>28,200</b>	<b>58</b>	<b>48,040</b>
Blacktown	8,370	25	9,610	20	21,050
Penrith	3,100	9	2,250	5	5,690
Baulkham Hills	5,130	15	8,230	17	14,820
<b>Sub-total</b>	<b>16,600</b>	<b>50</b>	<b>20,090</b>	<b>42</b>	<b>41,560</b>
<b>TOTAL</b>	<b>33,510</b>	<b>100</b>	<b>48,290</b>	<b>100</b>	<b>89,600</b>

Source: Department of Planning, 1995b.

Note: (1) figures rounded

(2) figures for ADI site yet to be determined

In the short term, there will be a significant impact on Liverpool and Blacktown LGAs as a result of the UDP. If the UDP is implemented as originally proposed, Liverpool will contribute 28 per cent of lots and Blacktown 25 per cent of lots in the seven Western Sydney LGAs earmarked by the UDP for population growth. Thus, Liverpool and Blacktown LGAs alone will contribute 53 per cent of lots released in Western Sydney under the UDP until 1999.

**The Committee is particularly concerned about projected UDP growth in Liverpool LGA, which will also be under pressure to accommodate residential development in the SWA Sub-Region.**

For Liverpool, the effect is likely be a population increase of between 28,000 and 37,000 in the short term (using three to four people per dwellings as a basis for calculation), and between 74,000 and 110,000 in the longer term.

Blacktown and Camden will also experience substantial increases in numbers as a result of the UDP (see the following).

**TABLE 7: LOT PRODUCTION AND POTENTIAL POPULATIONS UNDER THE UDP**

LGA	Lots Produced in the 5 Years 1994/95-1998/99	Potential Estimate at 3 People Per Lot for 1994/95-1998/99 (1) (2)	Remaining Lots	Population Estimate at 3 People Per Lot for Remaining Lots (1) (2)	Total Potential Dwelling Numbers	Total Potential Population at 3 People Per Dwelling (1) (2)
Liverpool	9,250	27,750	13,870	41,610	24,920	74,760 (3)
Fairfield	1,650	4,950	1,190	3,570	3,230	9,690
Campbelltown	1,700	5,100	4,350	13,050	6,190	18,570
Camden	4,310	12,930	8,790	26,370	13,700	41,100
<b>Sub-total</b>	<b>16,910</b>	<b>50,730</b>	<b>28,200</b>	<b>84,600</b>	<b>48,040</b>	<b>144,120</b>
Blacktown	8,370	25,110	9,610	28,830	21,050	63,150
Penrith	3,100	9,300	2,250	6,750	5,690	17,070
Baulkham Hills	5,310	15,930	8,230	24,690	14,820	44,460
<b>Sub-total</b>	<b>16,600</b>	<b>50,340</b>	<b>20,090</b>	<b>60,270</b>	<b>41,560</b>	<b>124,680</b>
<b>TOTAL</b>	<b>33,510</b>	<b>101,070</b>	<b>48,290</b>	<b>144,870</b>	<b>89,600</b>	<b>268,800</b>

Source: Department of Planning, 1995b.

Note:(1) there can be more than one dwelling per lot. Therefore the numbers of potential dwellings is higher than the number of lots. The UDP only gives total number of potential dwellings not the number likely to be available in the short and longer term. Therefore population numbers have been estimated on the basis of lot numbers (short and longer term) as well as the total number of dwellings likely to be available when all land is released. (2) The estimate of three people per lot is considered a conservative estimate (see note (3) below). (3) Liverpool (1993) calculated the population increase in their LGA would be 110,834 in the period 1992-1997 using *3.7 people per dwelling* as a basis for calculation.

The UDP plans to concentrate new residents in Liverpool LGA into five key areas: Hoxton Park (Aerodrome), Prestons, West Hoxton Park (Carnes Hill) and Cabramatta Creek. These areas and other areas such as Casula East, Casula West, Edmondson Park and Hinchinbrook are all within 5km of the proposed railway line from Glenfield to SWA.

Prestons, Aerodrome (Hoxton Park), Carnes Hill and Edmondson Park will account for 73 per cent of potential dwellings to be constructed under the UDP for Liverpool. About half of the lot production for Carnes Hill and Prestons will be completed by 1998/99. Lots in Hoxton Park and Edmondson Park are scheduled for release after that time.

Cecil Park (Cecil Hills' estate Elizabeth Park) located to the north of the LGA on Elizabeth Drive is currently being developed. It is estimated that this area will have between 4,000 and 5,000 residents.

The key areas in Blacktown and Penrith scheduled for development are Rouse Hill (Blacktown), the ADI site at St Marys (in both LGAs) and Glenmore Park (Penrith).

The first stage of the Rouse Hill development is now underway. A dedicated bus way will link Rouse Hill to a new interchange and railway station at Blacktown. A public transport corridor is planned to link Parramatta and Mungerie Park. The second stage of Rouse Hill's development will be located along the Richmond rail line. The Rouse Hill development will house more than 200,000 people, although the timing for Stage 2 is yet to be determined.

The 1,535hs ADI site at St Marys was previously a munitions manufacturing site. An RES is now being prepared for its re-development with the aim of integrating new housing supplies with the provision of local employment, social facilities, public transport and appropriate infrastructure. The short and long term lot production, potential dwellings and estimates of population for these release areas are set out in the following table.

**TABLE 8: SIGNIFICANT RELEASE AREAS UNDER THE UDP**

Release Area	Lots Produced in the 5 Years 1994/95-1998/99	Remaining Lots	Potential Dwellings	Pop. Estimate (at 3 people per dwelling)	Pop. Estimate (at 4 people per dwelling)
Liverpool					
Aerodrome	250	3,250	3,850	11,550	15,400
Cabramatta Creek	1,500	900	2,520	7,560	10,080
Carnes Hill	2,070	1,830	4,300	12,900	17,200
Prestons	1,400	3,100	5,000	15,000	20,000
Casula East	430	70	600	1,800	2,400
Casula West	50	70	150	450	600
Edmondson Park	0	3,800	3,800	11,400	15,200
Hinchinbrook	1,100	410	1,600	4,800	6,400
Cecil Park	1,000	0	1,100	3,300	4,400
<b>Sub-total</b>	<b>7,800</b>	<b>13,430</b>	<b>22,920</b>	<b>68,760</b>	<b>91,680</b>
Blacktown					
Rouse Hill	4,960	6,840	14,150	42,450(2)	56,600
ADI Site(4)					

Source:(a): Department of Planning, 1995b. (b): Liverpool (1994b:6)

Note:

(1) There can be more than one dwelling per lot. Therefore the numbers of potential dwellings is higher than the number of lots. The UDP only gives total number of potential dwellings not the number likely to be available in the short and longer term. Therefore population numbers have been estimated on the basis of lot numbers (short and longer term) as well as the total number of dwellings likely to be available when all land is released.

(2) The estimate of three people per lot is considered a conservative estimate (see note. Liverpool (1993) calculated the population increase in their LGA would be 110,834 in the period 1992-1997 using 3.7 people per dwelling as a basis for calculation.

(3) The Department of Planning notes that the two stages of the Rouse Hill development can house over 200,000, indicating quite high densities.

(4) Lot potential to be determined.

**As well as the proposed development in Liverpool, Blacktown and Penrith LGAs, there will be significant development to the south of SWA in the longer term.**

Development in Camden will escalate over the longer term with a possible population increase of almost 40,000 people (assuming three people per dwelling). Three areas, Narellan, Spring Farm and Harrington Park will produce 11,600 lots and will absorb possibly 86 per cent of the increased population in these land releases.

The key release area in Campbelltown LGA will be Menangle Park, which will be developed after 1999. It is located south of Narellan and will have 3,000 lots.

The Department of Planning has identified the need for urban and transport planners to be

aware of the potential impact of developments to the south of SWA.

Like other areas to the immediate south and north of the SWA site, Camden and Campbelltown are poorly serviced by public transport. A task force is to be set up to investigate the opportunities for improving public transport options.

As in other adjacent areas, SWA is already seen as providing a major opportunity for facilitating transport links in the region to the south.

**The Committee believes that the location of the rail line to SWA is crucial, especially for the population of Camden.**

**The rail line to SWA must be situated as far south as possible in order for people around Camden to gain access to significant new public transport links.**

**The Committee has recommended elsewhere in this report that the best option for an initial rail line is Glenfield-SWA including a station at a new South Creek Valley Town Centre.**

**The prudence of this recommendation is reinforced by the public transport needs of residents in Camden.**

**A rail station at South Creek Valley Town Centre will provide a transport node for residents in Camden LGA to join the Sydney metropolitan rail system by means of a bus service to that station.**

#### **3.9.4 PLANS FOR RESIDENTIAL DEVELOPMENT IN THE SWA SUB-REGION**

Population increases resulting from the UDP are not the only potential source of residential growth in the SWA Sub-Region. It has been a target for large-scale residential development in the past. These plans have been deferred but not abandoned. The Committee believes that it is crucial to look at the history of these plans to develop the SWA Sub-Region and why they were deferred in order to strike a sustainable balance between the economic and environmental imperatives governing development.

Development was originally planned for the Bringelly Sector of the SWA Sub-Region in Liverpool LGA by the Department of Planning in "Sydney into its Third Century: Metropolitan Strategy for the Sydney Region" (1988). In 1989, it was announced that the potential of a region known as "South Creek Valley" (SCV) would be investigated as a development area. This expanded area included part of the Bringelly sector, parts of Luddenham, Horsley Park and Cobbitty. The South Creek Valley Sector (SCVS) therefore included parts of Liverpool, Penrith and Camden LGAs.

It was decided to investigate South Creek Valley as a potential area for development because of the need to:

- increase the supply of affordable land for housing;
- to create local employment opportunities;
- capitalise on the development potential of high quality education facilities; and
- accelerate planning for services and infrastructure, especially as these would be needed for SWA anyway. (Department of Planning, 1991b:6).

At that time, the SCVS was seen as having a number of advantages:

- large land holdings which can be economically and efficiently serviced;
- proximity to existing and potential major developments, such as the Sydney West Airport site and the Werrington and Macarthur campuses of the Western Sydney University;
- existing physical infrastructure which can service initial development; and
- proximity to the sub-regional centres of Campbelltown and Penrith.

A Regional Environmental Plan (REP) for the SCVS was produced in 1991. REPs are a "middle step" between broad planning strategy and the nomination of lands as potential lots for release under the UDP.

The REP recommended that 10,000ha in SCVS was capable of development and that it could sustain a release of 12,000 to 15,000 lots. The REP recommended an average lot density of 15 lots per hectare.

**The proposal for the SCVS was deferred in 1992 because of concerns about the impact of development on air quality and to a lesser extent, on water quality.**

Revised plans for the development by the Department of Planning envisage utilising the "compact city" with its "transit-oriented development". They state:

The recent decision by the Commonwealth Government to accelerate development of Sydney West Airport and the related investigations of a rail corridor to the Airport may provide the opportunity for further urban development in this locality. While there are likely to be substantial economic and environment caveats on further development, should the rail line proceed, it may be possible to build a new urban

community based on a heavy rail line incorporating the principles of "transit-oriented development". (1995: 98)

The principles of such development are to:

- organise growth on a regional level to be compact and transit supportive;
- place commercial districts, housing, jobs, parks, and civic uses within walking distance of transit stops;
- create pedestrian-friendly street networks which directly connect local destinations;
- provide a mix of housing types, densities, and costs;
- preserve sensitive habitat, riparian zones (rivers and creek banks associated lands) and high quality open space; and
- make public spaces the focus of building orientation and neighbourhood activity.

These plans by the Department of Planning for large scale populations around SWA will significantly increase population numbers and escalate growth rates.

A target population for SCVS of about 200,000 has been consistently proposed by the Department of Planning. This level of development was initially proposed in the updated 1988 Metropolitan Strategy (see Table 7). The RES for the SCVS (1991) reviewed various options for the possible target populations for the sector. The review included assessing how many dwellings per hectare could be achieved and how many people there might be per dwelling. Population estimates ranged from 161,100 to 210,000. The density option preferred was between 182,238 and 200,830. This option assumed that there would be between 3.1 and 3.5 people per dwelling in low density areas and only 2 people per dwelling in medium density areas. These estimates were based on assumptions about different densities and are outlined in the following table.

**TABLE 9: DENSITY OPTIONS FOR RESIDENTIAL DEVELOPMENT IN SCV AS PROPOSED BY THE RES**

RES Option	Low Option	High Option	Preferred Option
3.1 persons per dwelling	161,100	186,000	-
3.5 persons per dwelling	181,900	210,000	-
Mix- 3.1 and 3.5 persons per dwellings for low density areas and 2.0 people per dwelling in high density areas			182,238-200,830
ha available	5,197	6,000	5,193

Source: Department of Planning, 1991b.

Note: low density=10 dwellings/ha. Medium density = 35 dwellings/ha.

Had the SCVS plan proceeded in its original form, estimates for the increase in population in the SCVS ranged from a low 161,000 to 210,000 (Department of Planning, 1991b:131). Even without the population growth generated by lands released under the existing UDP this would have the effect of increasing the population by 200,000 to 300,000.

The Committee believes that the deferral of proposals for large-scale residential development in South Creek Valley in 1991 because of concerns over air and water quality should have resulted in a complete revision of residential development plans in Liverpool LGA.

However, the Committee believes that there are still plans to place up to 180,000 people in Liverpool LGA.

There are two currently separate plans for residential development in Liverpool LGA:

- UDP proposals to develop a "residential corridor" for some 18,550 dwellings with an estimated minimum population of 74,200 people in the areas of Aerodrome (Hoxton Park), Carnes Hill, Prestons, Edmondson Park, Hinchbrook; and
- proposals by the Task Force for the Sub Region Surrounding Sydney West Airport for residential development around each of five rail stations in the SWA Sub-Region to house 20,000 people per station (total 90,000 to 100,000).

Together these plans could lead to 180,000 new residents being housed in Liverpool over the next 15 years, increasing Liverpool's population by almost 200 per cent. This development would be most intense in the southern part of Liverpool LGA, raising questions about the ability of social, economic and transport infrastructure to cope.



The Committee sought the opinion of Liverpool Council about the proposed scale of residential development in its municipality.

Liverpool Council sees SWA and its associated development as an opportunity for economic development in Western Sydney. In particular, SWA is seen as a major stimulus for job creation.

In Liverpool Council's view, the railway is one of the most important issues, if not *the* most important issue, associated with the development of SWA, if not the most important issue. It influences or dictates:

- air pollution problems/levels;
- residential development in the south-west;
- population distribution within Liverpool LGA;
- location of employment areas; and
- the management of rural lands.

The major concerns of Liverpool Council are:

- the environmental impacts on water and air quality;
- the social impact from high population numbers, rapid growth rate and insufficient social infrastructure; and
- the economic impact of insufficient jobs for a population of possibly 300,000 or even 400,00 in Liverpool LGA.

Liverpool Council, in its latest Strategic Plan (1994a), supports the development of SWA on the condition that UDP land releases in Liverpool LGA are down-scaled. It has rejected full scale urban development in South Creek Valley Sector and wishes to retain Edmondson Park as a buffer or "green belt" with Camden LGA.

The rationale for this policy lies in the concern of Council about the impact on the environment of over-development generated by arbitrary maximum population targets set by State authorities of the previous Government (Strategic Plan, 1994a: 29).

The Council believes that these consequences include the worst extremes of river pollution, photochemical smog and bushland degradation.

Liverpool Council's Strategic Plan states:

Our population target of 190,000 people, compared to the State Government's upper limit of near 300,000 is much more consistent with environmental limits and the capacity to service new housing estates. The State's planners should no longer see Liverpool as ripe for unlimited growth. Through the 1990s the costs to Liverpool of population growth - air and water pollution, unemployment and the backlog of basic services - will need to be managed and controlled to an acceptable limit. In particular, the State Government needs to address the serious problems of water pollution in the Georges River, Cabramatta Creek and South Creek catchments. (Liverpool Council, 1994a:29)

**Liverpool Council's position is that it will agree to proceed with limited, higher density residential development surrounding the stations on the proposed rail link to SWA.**

Liverpool Council has recently developed a Draft Local Environmental Plan which outlines specific land uses in precincts throughout the municipality. This Draft LEP consolidates previous LEPs and was exhibited in November, 1994. Council received 80 submissions, many concerning the airport and anticipated noise levels.

At this stage the Plan retains existing zoning, with the exception of Badgerys Creek "precinct" which has its own zoning (5(e)). This strategy has been adopted by Council to contain urban development in the SWA Sub-Region to control noise, water and air pollution and to prevent escalation of economic and social problems caused by excessive population growth.

Liverpool Council also wishes to maintain and enhance the rural nature of the western half of Liverpool LGA. In 1994, Council undertook a Rural Lands Study to:

- identify opportunities for and constraints on urban development, rural residential development and agriculture land use;
- identify opportunities for environmental protection;
- identify the needs of the community; and
- provide Council with a basis for statutory planning controls for rural lands. (Fox, 1994:1)

Among its findings, the study found that agricultural production in Liverpool LGA was already quite significant in terms of its contribution to the Sydney region's food production. It also indicated that areas to the east of SCVS in particular had considerable potential for such production. These findings are discussed in at 3.10 of this report.

**The Committee does not believe that plans for large-scale residential development in Liverpool LGA are feasible given the environmental pressures on the SWA Sub-Region**

and the existing capacity of social infrastructure.

**The Committee has considered ways in which population increases in Liverpool LGA could be limited while providing a level of residential development in the SWA Sub-Region which would facilitate the construction of a viable rail link to SWA and minimise environmental pressures.**

**Central to this strategy is restricting the spread of residential development in the SWA Sub-Region by increasing population density around rail stations on the Glenfield-SWA line.**

"Cities for the 21st Century" set down a planned density of 15 dwellings per hectare on greenfield estates such as the SWA Sub-Region (1995a:7). This is low density (although the levels have risen from 10 dwellings per hectare). A density of 35 dwellings per hectare is regarded as medium density and in practical terms would mean town-house type development. Higher ratios (high density), for example, more than 60 dwellings per hectare would mean small home unit type development. Given the environmental pressures on the SWA Sub-Region, it is possible that the highest possible density of 60 dwellings per hectare may be proposed around rail stations to SWA.

Historical trends in Western Sydney suggest that young families are likely to occupy a considerable proportion of the housing in the SWA Sub-Region. An occupancy/density rate of two or three people per dwelling (as previously used in studies for South Creek Valley) in a high density scenario may underestimate the actual numbers of people living in units or town houses. This would result in crowding and diminished quality of life. A lower density may be appropriate for young families, although this may mean that residential development exceeded a 2km distance from the nearest rail station. This strategy would also mean that further consideration would need to be given to providing public transport to rail stations.

## **RECOMMENDATIONS**

- 56. The residential development in the SWA Sub-Region should be located along the proposed rail line to SWA using the following parameters:**
- given the environmental pressures on the SWA Sub-Region, residential development should be limited to a level sufficient to make the building of the rail line economically feasible;
  - any plans for high density housing (60 dwellings per hectare) around rail stations to SWA should be strictly limited;
  - there should be medium to low density development to cater for young families, even if it means that the edge or fringe of development will exceed 2kms from the nearest rail station; and
  - the population in the SWA Sub-Region should be limited to a total of between 90,000 and 100,000 people.
- 57. Liverpool LGA should be allowed to withdraw areas from the Urban Development Program to compensate for an increased population of 90,000 to 100,000 people along the proposed rail line to SWA and that the total population of Liverpool LGA should not exceed 200,000 people.**
- 58. The limit of 200,000 people in Liverpool LGA should be achieved, in part, by:**
- abandoning urban releases for Edmondson Park (Precinct 6) (maintaining this area as a "green zone") and pursuing rural-residential sub-division sizes; and
  - scaling back the land release for Precinct 3 (Aerodrome) from 4,700 to 2,000 lots preventing residential development adjacent to Hoxton Park Aerodrome and minimising future aircraft noise exposure.

## **3.10 ECONOMIC DEVELOPMENT IN THE SWA SUB-REGION**

### **3.10.1 INTRODUCTION**

The Committee strongly supports the development of SWA as a catalyst for economic growth in Western Sydney and believes that the airport will generate a significant number of jobs both in the short and long term if the opportunities which it creates are properly managed to maximise economic development.

The nature and number of jobs generated by KSA provide some idea of the possible impact which SWA may have on employment opportunities in Western Sydney.

A project conducted by the Institute of Transport Studies (1993) found that, taking into account multiplier effects, KSA has generated:

- 29,000 jobs in the airport region;
- a total of 59,000 jobs across Sydney;
- \$3.5 billion in annual expenditure;
- a vital freight forwarding industry (12 per cent or about 3,000 jobs);
- export-oriented industries and helped them maintain effective links with trading partners; and
- significant tourism benefits.

In this section, the Committee examines some of the economic problems facing Western Sydney and reviews projections of the number and types of jobs that might be created by SWA. The Committee makes recommendations aimed at ensuring the economic development potential of SWA is maximised and dovetails with existing employment and economic development programs.

It is important to note that SWA is one of a series of significant initiatives which will promote development in Greater Western Sydney. As the Greater Western Sydney Economic Development Board noted in its submission to the Committee, these initiatives include:

- National Highway Link;
- ADI site at St Marys;

- Norwest Business Park, Castle Hill;
- Rouse Hill Development;
- Liverpool Integrated City Project, including the-Moorebank Business Park;
- identification of Parramatta as Sydney's second CBD;
- development of secondary centres at Penrith, Liverpool, Blacktown and Campbelltown; and
- development of UWS.

The Committee believes that planning for SWA should be managed to strengthen the economic growth of existing industrial estates in Liverpool, Blacktown, Penrith and Campbelltown as well as to develop sub-regional centres in SCVS.

The existing centres have been identified in "Cities for the 21st Century" as sites for the growth of commercial and retail activity which will generate jobs for people living in adjacent suburbs.

The Committee believes that these existing estates should be fully utilised as part of the strategy to create employment opportunities in Western Sydney which will overcome the region's historical lack of jobs.

The Committee shares the goal articulated by the Greater Western Sydney Economic Development Board in its Economic Development Statement for Greater Western Sydney of using economic opportunities such as SWA to make the region a desirable place to live, work and visit, and a competitive location for investment and enterprise.

In the following sections, the Committee investigates the high demand for jobs in Western Sydney and provides an overview of job opportunities, export growth, agricultural activity, and the impact SWA is likely to have on the region. Exploiting this potential in terms of land use planning is then assessed. The Committee then canvasses the options for future land use planning in the SWA Sub-Region to foster economic development, export growth and tourism.

### 3.10.2 ECONOMIC PROBLEMS FACING WESTERN SYDNEY

Western Sydney has been facing major problems in its economic development. On the one hand, there has been an significant and increasing demand for jobs in Western Sydney. On the other hand, there have been problems with restructuring industries. Job supply has not been able to keep pace with the growth in the work force.

The **high demand for jobs** in Western Sydney has been created by two factors:

- a high rate of growth in work force numbers (that is, persons aged between 18 and 65); and
- this rate of growth outstripping job supply leading to a high unemployment rate.

The **supply of jobs** has not been able to meet this demand for four major reasons:

- the location of Sydney's job supply;
- a slowing of growth in manufacturing jobs;
- a slow rate of take up and growth in industrial estates; and
- the nature of industries locating to Western Sydney.

The **challenge** facing Western Sydney is to:

- help create jobs for the existing work force;
- generate jobs for the future work force attracted to the new residential areas;
- consolidate the advantages from existing industrial estates;
- target development in these industrial estates to exploit opportunities that SWA would present;
- locate new industry and commerce to maximise the future benefits from SWA; and
- take full advantage of the export opportunities and tourism market likely to be created by SWA.

### 3.10.3 EMPLOYMENT NEEDS OF WESTERN SYDNEY

The increase in unemployment in Western Sydney has been far greater than the increase in employment between 1986 and 1991. That is, there has been a rate of growth in the work force (employed and unemployed) higher than the rate of job supply.

Since 1986 there has been growth in the numbers of employed people in Western Sydney. In most LGAs, with the notable exceptions of Fairfield and Liverpool, the rate of increase in employed people has been higher than the increase in the pool of people who were eligible to work (those aged between 15 and 64). However, the rate of increase in the unemployed has been so high it has offset any gains in employment numbers.

**TABLE 10: INCREASES IN EMPLOYED AND UNEMPLOYED IN SYDNEY'S GREATER WEST, 1986-1991**

LGA	% Increase in employed people 1986-91	% Increases in unemployed people 1986-91	% Increase in population 15-64 years	% Increase in total population
Blacktown	11.4	33.5	10.7	17.9
Fairfield	8.4	52.2	15.8	21.2
Penrith	15.3	36.9	12.8	20.8
Campbelltown	18.3	51.4	18.0	22.7
Parramatta	1.9	37.2	2.2	6.0
Baulkham Hills	17.5	66.0	15.8	21.2
Liverpool	1.7	32.7	4.8	14.2
Holroyd	0.4	47.4	0.7	4.0
Blue Mountains	17.5	25.2	11.8	15.5
Hawkesbury	19.9	16.8	20.5	28.7
Wollondilly	30.0	27.7	24.1	32.5
Camden	26.6	30.6	21.9	42.6

Source (a): ABS 1986 and 1991 Census

Several submissions to the Committee argued that jobs growth in Western Sydney had lagged behind increases in the work force and that this trend seemed likely to continue.

Recent labour force statistics (ABS *The Labour Force NSW and ACT*, February, 1995, Cat. No 6201.1) show that there have been some recent improvements to the employment situation in Greater Western Sydney. In the last year, some LGAs have experienced small increases in employment and decreases in unemployment.

The reasons for job growth have been attributed to:



- Commonwealth and State Government job creation programs;
- the availability of abundant and cheap land; and
- the relocation of government agencies to the area (especially to Liverpool and, more recently, Penrith).

However, there is still an unacceptably high level of unemployment in Western Sydney.

The high unemployment rate is borne out by the following table:

**TABLE 11: UNEMPLOYMENT RATES IN WESTERN SYDNEY**

LGA	Employed Persons 1991	Unemployed 1991	Unemployment Rate 1991
Fairfield	62,948	17,680	21.9
Liverpool	39,659	7,034	15.1
Blacktown	85,495	13,040	13.2
Campbelltown	53,791	8,199	13.2
Parramatta	57,149	7,100	11.0
Holroyd	34,326	4,159	10.8
Penrith	65,188	7,230	9.9
Wollondilly	12,691	1,207	8.6
Blue Mountains	29,013	2,621	8.2
Hawkesbury	23,646	1,928	7.5
Camden	10,242	806	7.3
Baulkham Hills	57,234	3,003	4.9
Sydney Statistical Division	1,563,365	180,611	10.4

Source (a) :1991 Census

While the level of unemployment is too high in most LGAs, the above table indicates the areas of particular concern are:

- Fairfield, which has a very high unemployment rate of almost 22 per cent.
- Liverpool, which has 15.1 per cent unemployment of which almost half is long-term unemployed (see Job Access submission).

### 3.10.4 WESTERN SYDNEY'S JOB MARKET

The high levels of unemployment can be partly attributed to a regional imbalance in employment opportunities which has been generated over recent years in Sydney.

As a region, employment opportunities in Western Sydney have been "modest" compared with inner metropolitan sub-regions of Sydney.

In a strategy submitted to the Committee, Blacktown Council observed that:

... Western Sydney has experienced significantly greater growth in the resident labour force than growth in employment. In eastern Sydney the reverse is true. The "eastern half" of Sydney...is home to 37 per cent of the labour force but contains 52 per cent of the city's jobs. In contrast, the western half of Sydney has the same sized labour force but only 25 per cent of the city's jobs. (1994b:7/1)

A high proportion of the Penrith work force work outside the LGA. In 1971, there were 86 local jobs for every 100 persons in the work force in Penrith. Today, that figure has fallen to 49 jobs. (Plant Location International,1992:23)

Penrith Council has estimated that "if the current size of the work force and the number of local jobs is to be maintained at around 49 per cent... during the forthcoming two decades 17,000 jobs will need to be created in Penrith". (Plant Location International,1992:25)

The work force of Blacktown is in a similar situation. Blacktown Council's submission draws attention to the fact that 31,000 people travelled outside the LGA to work elsewhere in Greater Western Sydney. A further 28,000 worked outside the Greater Western Region. Blacktown Council is therefore keen to promote employment opportunities within the Western Region, particularly in or near to its own boundaries.

**The Committee investigated the reasons for this contraction in the job market in Western Sydney.**

**The Committee found that there had been a slowing of growth in manufacturing in general in Australia but that its impacts has been worst in Western Sydney.**

Over the past 20 years, there has been a significant decline in the number of people employed in manufacturing in Australia. Between 1971-72 and 1991-92, employment in manufacturing decreased by about 36 per cent from 1,303,500 to 961,800. During the same period, manufacturing gross product at constant market prices increased by 33 per cent. These changes can largely be attributed to productivity increases from the increased use of higher technologies and automation. This is also illustrated in the number of employees per establishment, which decreased from 25 per operation in 1989 to 22 in 1994.

Structural change in Australian industry during the 1980s, especially relating to tariff reduction and deregulation, greatly affected traditional manufacturing sectors, such as

textiles, clothing and footwear, motor vehicles, and metal products. For firms to become successful in a new, more competitive environment, output per labour input had to increase. As a result, employees with backgrounds and skills in traditional manufacturing industries are now vulnerable to redundancy. Reduced employment opportunities in these “traditional” industries has led to an increased emphasis on training, retraining and continual training to meet the potential employment prospects of the restructured economy. Education services, especially as they relate to SWA, are discussed in a later section.

The following table shows the decline in manufacturing employment for Sydney by Statistical Sub-Region.

**TABLE 12: MANUFACTURING EMPLOYMENT CHANGE, SYDNEY SUB-REGIONS, 1989-1992**

Sub-Region	1989	1992	Change (No.)	Change(%)
Greater Western Sydney	133,050	110,320	-22,730	-17.1
Central West	57,855	48,291	-9,564	-16.5
Outer West	15,763	14,577	-1,186	-7.5
South West	59,432	47,452	-11,980	-20.2
Inner & Eastern Sydney	71,743	54,067	-17,676	-24.6
Inner West	11,643	8,319	-3,324	-28.5
Lower North	16,779	16,198	-581	-3.5
Upper North	9991	10,177	186	1.9
Northern Beaches	10,304	8,618	-1,686	-16.4
<b>TOTAL</b>	<b>253,510</b>	<b>207,699</b>	<b>-45,811</b>	<b>-18.1</b>

Source: ABS - Colliers Jardine

A breakdown of the figures for Western Sydney demonstrates that while the number of manufacturing establishments in the Penrith, Liverpool and Camden LGAs actually **increased** from 660 to 796 between 1981 and 1990, employment in these establishments **temporarily declined**.

The following table indicates the extent to which manufacturing as a source of employment has declined in Western Sydney.

**TABLE 13: MANUFACTURING ESTABLISHMENTS, 1981-1989 BY LGA**

Year		Penrith	Liverpool	Camden	Total
1981	Establishments	332	284	44	660
	Employees	8,325	9,393	410	18,125
1985	Establishments	326	316	50	692
	Employees	7,287	8,558	351	16,196
1989	Establishments	361	377	58	796
	Employees	7,490	11,087	398	18,975

Source: ABS Regional Statistics NSW 1983-1993

The decline of jobs in the manufacturing sector has placed the work force in Western Sydney at a particular disadvantage. Many Western Sydney LGAs have high proportions of the work force with either trade or no qualifications. These people have usually been employed in the manufacturing sector in the past. The current breakdown of respective employment sectors in Western Sydney is shown in the following table.

**TABLE 14: MAJOR OCCUPATIONS OF THE WORK FORCE IN WESTERN SYDNEY AS A PROPORTION OF TOTAL LGA WORK FORCE**

LGA	Manufacturing	Wholesale & Retail	Community Services	Finance, Property, Business
Blacktown	19.3	21.2	11.2	13.6
Fairfield	26.4	19.3	9.6	9.9
Penrith	17.3	20.8	12.1	14.3
Campbelltown	19.0	19.4	12.4	15.0
Parramatta	16.0	20.7	14.0	17.7
Baulkham Hills	12.9	23.8	16.8	18.0
Liverpool	19.2	19.2	9.7	11.5
Holroyd	18.9	21.6	11.8	14.4
Blue Mountains	9.2	16.1	11.4	27.4
Hawkesbury	12.6	19.2	8.0	15.8
Wollondilly	15.4	17.3	8.4	17.5
Camden	13.2	19.8	9.8	18.5
Sydney Statistical Division	14.0	19.4	15.4	16.8

Source: ABS 1991 Census

The Committee sought further evidence from councils about the make-up of industry and the work force in their regions.

Liverpool LGA has a high proportion of industries which have undergone major structural change in recent years, and which have had declining markets and job losses. These industries include textiles, clothing and footwear, automotive industry and processed foods. Its work force therefore has experienced "job shedding" in occupations such as labourers, tradesmen, machine operators, tradespeople and technical workers.

There has been low job growth for technology skilled workers and community service workers in Liverpool. The area has a low proportion of managers and administrators, professionals and para-professionals. (Larcombe, 1992:5)

In Penrith, the major employment industries are retail and wholesale, manufacturing, finance, property and business services, community services, recreation and personal services, and construction. Most of these areas have experienced growth, with manufacturing being a significant exception.

Penrith has:

- a higher proportion of unqualified people in the labour force compared with Sydney as a whole;
- a higher proportion of the work force possessing trade qualifications; and
- a higher proportion of unqualified people in the labour force compared with some surrounding LGAs.

Penrith LGA also has a great disparity in skill levels, possessing a higher work force skill level than other LGAs. (Penrith Council submission, 1992:25)

Blacktown has a number of primary industries including extractive industries, vegetable production and poultry. Its major industries include chemicals, food products, engineering and construction furniture and fabrics, electronics and service utilities. This affects the pattern of employment. In 1991, more than 50,000 people worked in the Blacktown LGA. Of these the largest proportions were employed in wholesale, retail and trade (26.23 per cent), community services (20.13 per cent) and manufacturing (19.3 per cent).

**The Committee found that, in addition to the contraction in the manufacturing sector, there has been a change in the nature of industries locating to Western Sydney**

Two Council submissions (Blacktown and Fairfield) address the issue of whether companies were likely to maintain or expand their activity in Western Sydney .

Blacktown Council made three observations:

- with the decreasing importance of manufacturing as a major employer, the traditional ties between a ready supply of labour/materials and industry location is becoming less important;
- large multi-faceted companies "splinter" their activities across various sites, often in different locations. Research and development activities or data processing facilities can utilise telecommunications which are located in suburban and semi-rural areas while other activities need to be close to the CBD;
- because of telecommunication advances and less reliance on geographic ties, certain industries are now highly mobile and able to change location with very little inconvenience.

As a consequence, companies have tended to establish "branches" of their operations in industrial estates in Western Sydney. These branches lack the ability to draw other linkage industries to the area and lack the critical mass to facilitate the development of industrial estates. This has resulted in a slow take up rate of the various industrial estates Western Sydney.

There is still considerable vacant space in existing industrial estates in Western Sydney, as the following table demonstrates.

**TABLE 15: VACANT LAND IN INDUSTRIAL ESTATES**

LGA	Total Ind. Land Ha	Vacant Land ha as at 30 June 1993	% Vacant Land ha as at 30 June 1993
Blacktown	1199.61	428.16	35.7
Liverpool	653.60	159.50	24.4
Fairfield	752.35	175.25	23.3
Penrith	730.01	135.32	18.5
Wollondilly	167.34	77.19	46.1
Campbelltown	894.67	348.40	38.9

Source: Employment Lands Development Program cited in Blacktown Councils Facts and Figures, 1994a.

**Clearly, existing industrial estates in Western Sydney have vacant space and need an economic boost such as SWA in order to become completely utilised.**

The Committee looks at the economic opportunities that will be opened up by SWA in the next section.

### **3.10.5 ECONOMIC AND EMPLOYMENT OPPORTUNITIES ARISING FROM SWA**

The Committee believes SWA will be the greatest single economic and employment boost for Western Sydney in coming decades. This view is shared by local Councils which have drafted or commissioned economic plans based on an infusion of extra industry and employment from SWA.

The Committee looked at these LGA economic plans as part of its task of developing a framework for a properly-timed and integrated economic strategy for the SWA Sub-Region.

**The Committee strongly believes that Local Government and the SWADC must work in conjunction to maximise the utilisation of existing estates and complement them with new developments in the SWA Sub-Region. There should be no funding for new industrial estates which then sit idle for years.**

The key benefits to Western Sydney arising from SWA will be:

- employment growth of approximately 40,000 jobs when SWA reaches full capacity including direct and induced employment;
- enhanced export opportunities for existing firms as a result of closer integration with national and international markets and because of upgraded infrastructure;
- increased national and international profile resulting, among other things, in increased tourism (Larcombe, 1992:80);
- changes to land use planning in metropolitan Sydney which will establish a growth pole in the region and which will attract a range of high value-added industries, including tourism and hospitality, aerospace, engineering, and warehousing (Larcombe, 1992:40);
- stimulating growth in the corridors supporting road and railway infrastructure to the airport; and
- providing new opportunities for international and national investment associated with the availability of major land holdings on both the airport site and off-site for greenfield industrial and mixed use sites well beyond 2010 (GWSEDB).

**The Committee believes that existing economic analyses suggest that there will be a significant increase in the number of jobs to be created by SWA.**

The Committee looked at these job opportunities in the short and long term.

In its construction phase, it was found that SWA would create:

- 23 employment positions per \$1 million of expenditure at SWA at a national level; and
- 42 per cent of these jobs are assumed to originate in the region, or 10 jobs per \$1 million of expenditure. (NIEIR 1991:50)

**The Committee believes that the Commonwealth Government's commitment of \$762 million in funding for the accelerated development of SWA would suggest that there will be significant job generation in Western Sydney and New South Wales. Based on NIEIR projections, the construction of SWA will create approximately:**

- 17,500 jobs around Australia; and
- 7,500 jobs in Western Sydney.

**In the long term, NIEIR (1991) has estimated that SWA will create 40,000 jobs over the next decade and believe that this is a conservative estimate.**

**The minimum 40,000 jobs which will be created by SWA will be absolutely essential in helping to ensure employment growth in Western Sydney.**

There will be a range of jobs created by SWA in three categories:

- direct and associated airport activity;
- airport-induced employment (industries attracted to the airport surrounds); and
- flow-on economic activity generated over time (eg. the growth in regional commercial centres).

The Committee examined these three categories for more detail of the exact types of employment likely to be stimulated by SWA.

**The Committee believes a clear perception of the type of employment to be created by SWA will enable education and training in Western Sydney to be targeted to likely airport requirements.**

**Direct airport activity will include:**

- employment of airline staff (direct and indirect: eg. catering);



- airport commerce (eg. retail);
- airport administration;
- maintenance;
- Federal Police;
- Customs;
- emergency services;
- flight service stations;
- fuel storage;
- wastewater treatment;
- weather service; and
- employee parking.

**Airport associated activity will include:**

- car rental;
- remote car parking;
- passenger transport;
- passenger accommodation;
- air freight industry;
- post office;
- hotel/motel; and
- banking services.

If SWA is to have an enhanced role as an international airport, the NIEIR (1991:7) believe the SWA terminal requires:

- immigration and passport check areas;
- departure lounges, each with a cafe-bar, bookshop and executive lounges; and
- shops, a bank, restaurant, and cafe-bar in the central concourse.

**Airport induced employment**

Airport induced activities are industries attracted to an area by the presence of an airport but not necessarily connected with it.

Locational factors include job supply, extensive roadway systems, generally underdeveloped settings where reasonably priced land is available and availability of public utilities.

**Flow-on Employment**

Other industries will be attracted to SWA over time by a flow-on effect created by the establishment of the airport and the expenditure of employees in associated and induced activity.

The 1985 EIS estimated that 2,300 jobs would be generated in organisations which grow from the effects of expenditure in the airport and airport associated activities. It is anticipated

half the employees will be engaged in industry and half in activities associated with local, district or regional centres.

Land area likely to be involved is estimated to be 115ha. The EIS claims that such activity could be up to 25km of the airport and therefore that no shortage of land will occur.

The opportunities for job growth in industry and commerce, export, and tourism are discussed below. In addition, many agricultural sectors located in or near Western Sydney could use the export freight potential of SWA. Agriculture is examined in more detail later in a separate section.

### **3.10.6 COUNCILS' POLICIES TO PROMOTE ECONOMIC DEVELOPMENT**

The Committee was very concerned to provide a clear outline of the various economic and employment plans being developed by LGAs in Western Sydney.

**The Committee believes that a clear comprehension of the employment and economic landscape in Western Sydney is crucial for building a coordinated strategy to maximise the benefits from SWA.**

Many LGAs in Western Sydney have traditionally relied on attracting large corporations because of the availability of cheap land. These companies have rationalised their activities and have moved their operations to cheaper and/or larger markets.

As a result, most Councils have now formulated Economic Development Plans and, in some cases, established Economic Development Units. Councils are keen to take an active role in promoting employment. They plan to do so by pursuing a variety of strategies including:

- promoting the development of industrial estates in the LGA; and
- working with educational institutions to develop training that will be relevant to the future employment market and the region (including the needs created by SWA).

The Committee looks at existing industrial areas in Western Sydney.

"Cities for the 21st Century" identifies nine major employment corridors in the Sydney Region which contain nearly half the region's jobs. Seven of these areas are partly or wholly in Western Sydney and are listed below with their 1991 employment numbers:

- Burwood/Auburn/Parramatta Corridor - 108,100 (including 37,600 in major centres);

- Bankstown/Liverpool Corridor - 61,500 (including 21,100 in major centres);
- Villawood/Wetherill Park Corridor - 46,600;
- Blacktown Employment Core - 29,000 (including 14,600 in Blacktown CBD);
- St Marys Employment Core - 9,800 (including 3,500 in St Marys centre);
- Penrith Employment Core - 13,900 (including 9,000 in Penrith CBD); and
- Campbelltown Corridor - 16,100 (including 6,300 in Campbelltown CBD).

New employment zones are constantly being developed to cater for the projected industry demand for land.

The Employment Lands Development Program (ELDP) aims to ensure an adequate supply of suitably located serviced land for industry and employment in the Sydney Region for the next five years. The current program identifies more than 3,000ha of vacant land available for development, of which about 2,200ha (69 per cent) is in Greater Western Sydney. The major areas in the ELDP in Greater Western Sydney are:

- Norwest (Rouse Hill Development Area) - 54ha;
- Rouse Hill (Baulkham Hills) - 136ha;
- Huntingwood/Arndell Park/Glendenning (Blacktown) - 252ha;
- Minchinbury (Blacktown) - 93ha;
- Wetherill Park (Fairfield) - 175ha;
- Erskine Park (St Marys) - 80ha;
- ADI Site (St Marys) - yet to be determined;
- North Penrith - 66ha;
- Prestons (Liverpool) - 145ha;
- Ingleburn/Minto/Campbelltown - 348ha; and
- Smeaton Grange (Camden) - 214ha.

Details of these plans in the context of individual Council policies to promote their

development are outlined below.

The following table summarises how the major Councils in the SWA Sub-Region would like to see their LGA's develop in order to take advantage of opportunities created by SWA.

**TABLE 16: LGA PLANS FOR MAXIMISING INDUSTRY AND COMMERCE OPPORTUNITIES CREATED BY SWA**

<b>Council</b>	<b>Opportunities Created / Promoted by SWA</b>
Liverpool	Develop Moorebank industrial estate into advanced engineering and industrial estate. Create transport and communications hub at Prestons.
Penrith	Develop Erskine Park Industrial Estate as an industrial zone for SWA.
Blacktown	Link industrial estates to SWA in terms of road routes, rail, and export activity.
Fairfield	Promote Smithfield / Wetherill Park as a major industrial estate.

The Committee considers the general policies contained in the above table in more detail below.

#### **Liverpool Council Policy**

Liverpool Council has identified a number of strategies to guide development for its future. These strategies include an Economic Development Strategy and a Tourism Strategy.

The Economic Development Strategy for Liverpool LGA has identified eight goals:

- expanding the number of high quality jobs;
- attracting high value-added industries to Liverpool;
- creating a highly skilled work force;
- expanding opportunities for the long term unemployed;
- establish an entrepreneurial and innovative culture;
- improve Liverpool's image;
- improve accessibility to jobs; and
- build infrastructure to support economic development.

Liverpool Council sees strategic opportunities for the fostering of telecommunications, aerospace, processed foods and tourism industries. It has identified various ways to maximise these opportunities.

Liverpool Council believes it must take advantage of the State's Economic Strategy, which has targeted a number of industries for growth including processed foods, scientific and medical equipment, telecommunications, tourism, agriculture, aerospace and information technology.

The NSW Government has developed a number of programs such as a Regional Business Scheme and Business Expansion Scheme to assist in this process. Liverpool Council intends to publicise these schemes and perhaps encourage local business to take advantage of them.

Liverpool also believes that greater advantage of industrial developments can be gained by encouraging interdependent or similar industries to establish themselves close to each other.

Industrial development in most municipalities is currently located in accordance with broad-based industrial zoning. More industry-specific land use zoning patterns must be developed.

For example, Liverpool Council has not developed particular themes or targeted specific types of industries. There is no technology zoning. As a result, the locality has been unable to attract industries that cluster around each other, suitable infrastructure has not been developed, and hence the area maintains a dependence on traditional manufacturing activities. (Larcombe 1992: 15)

Liverpool Council has responded to this situation by introducing a strategy which aims to foster development by promoting the municipality as a preferred location for higher-value, advanced engineering and electronics manufacturing.

Liverpool Council is promoting:

- an advanced engineering and electronics estate at Moorebank, with the aim of integrating office, research, educational and manufacturing activities;
- plans to introduce an industry training institution at Moorebank. This forms part of an integrated city project and involves support from TAFE, UWS and industry representatives;
- strengthened transport linkages between the existing Moorebank Industrial Area and SWA;
- strengthened local linkages between core industries and tertiary education institutions to achieve high levels of relevant technical skill-based training;
- an International Food Centre and catering school (SWA will provide job opportunities for students from this school);

- an Australia-Asia Centre for Manufacturing. This would build around the capabilities of core firms and would be designed to meet customer requirements of major prospective Asian customers and telecommunications and energy utilities;
- the development of the LGA as a transport hub. In the Council's view, SWA's development will attract freight forwarders, wholesalers and distribution companies, bulk handling companies, retailers and truck companies to Liverpool LGA. This would facilitate the development of Liverpool as a wholesale and distribution centre; and
- improves transportation systems which will help expand new centres. SWA is envisaged as a "second pole of attraction" within the LGA. (Larcombe, 1992: 63) If an efficient system of transport were provided, it is envisaged that SWA could facilitate Liverpool as a "distributor for people, goods and services".

### **Penrith Council's Policy**

Penrith Council would like to see Penrith develop as a "dominant regional centre in Outer Western Sydney". (Plant Location International, 1992:50) To achieve this, Penrith Council has identified the following key elements in its economic development strategy:

- a recognition that economic development is long term;
- a need to make better use of existing land and community resources;
- a wish to focus on those sectors with greatest job growth potential;
- a plan to target those sectors which are under-represented in employment terms; and
- a strategy to encourage an improvement in the skill base of the city's work force.

Penrith has below average employment rates in finance, property and business services, recreation and personal services, and in public administration and defence.

Penrith Council sees this "under representation" as a key to the future direction of the area's economic development. In particular, Council is keen to improve Penrith's tourism sector.

Manufacturing is still considered to be central to Penrith's economic development. There has already been relocation of industry from the centre of Sydney to the middle and outer ring suburbs. Penrith has benefited from this trend to the extent that manufacturing employed slightly more than 7,000 people in the LGA in 1992. Moreover, provided sufficient land is

available, Council believes significant opportunities exist for the sector and have plans in place to encourage growth.

Council sees the following factors as key elements in facilitating economic development:

- creation of a corridor running between SWA in the south and the ADI site in the north;
- promoting St Marys as the major commercial and service centre for the corridor;
- making the ADI site an integrated residential and employment zone linked by a north-south transport corridor. Council believes the eastern corridor "will provide major opportunities to encourage the establishment of distribution, freight and airport service related industries" (Plant Location International, 1992:51); and
- the promotion of Erskine Park Industrial Estate.

This last element, Erskine Park Industrial Estate, reflects an important component of Penrith Council's Business Plan for Economic Development.

Council's Industrial Land Study showed "a rapid exhaustion of existing zoned stocks" (Penrith Council, 1995a:19) which resulted in Council rezoning Erskine Park as a major employment area in the municipality in 1994.

Penrith Council is now promoting the Erskine Park Industrial Estate as a potential site for development resulting from SWA.

However, Penrith Council has run into difficulties because Erskine Park is a greenfields site which requires major infrastructure. Roads, drains, water and sewerage services are needed.

The Committee was concerned that economic opportunities arising from SWA should be evenly spread throughout Western Sydney and not skewed to the south because of the location of the initial rail link to Glenfield with its related urban development.

The Committee believes that there is a danger that the region north of SWA could be frozen out of employment opportunities unless the SWADC puts in place coordinated planning strategies to specifically promote this region. Penrith, for example, is already an area in which employment growth has not kept pace with large-scale residential expansion. There is no room for a lost opportunity with SWA.

The Committee investigated the potential of the proposed Erskine Park Employment Zone to the north-east of the airport site for fostering employment in the northern part of the SWA

Sub-Region. The development of Erskine Park Employment Zone to full capacity could create 10,000 jobs in the Penrith region.

Erskine Park is a 450ha site, approximately 7kms from SWA. It is close to the National Highway link which is being built as part of the construction of SWA and has frontage to both Mamre Road and Erskine Park Road; both of which, in turn, connect to the F4 Freeway. Mamre Road is connected to Elizabeth Drive, which is to be the main access point to the Sydney West Airport. The Erskine Park site is about 12 to 15 minutes drive from the airport.

There was general consensus among witnesses before the Committee that Erskine Park represented an ideal opportunity to foster industrial development which was close to the airport site and well-connected to major roads. Mr Bob Lundie-Jenkins of the GWSRCCI stated that Erskine Park was amongst the Chamber of Commerce's top priorities because "its location is too vital; firstly, to the development of the Western Sydney airport and, secondly, to the development of industrial growth in the region because of the population it needs to service."

Mr Ian Reynolds of Blacktown Council agreed that Erskine Park had considerable potential but added that a rail link would be necessary in the long term if the region to the north was to properly benefit from SWA:

**Mrs BEAMER:** Penrith City Council is promoting Erskine Park employment zone as an initial airport enterprise zone because of its proximity to the airport site and major road transport corridors. What is your response to that proposal?

**Mr REYNOLDS:** It seems entirely appropriate to me, given its location.

**Mrs BEAMER:** If the airport proceeds with just a rail link across to Glenfield, do you think there is any danger that would freeze out the northern area, if it did not have the rail link up north?

**Mr REYNOLDS:** It may well do, depending on the extent that money is available for later infrastructure. If there is a commitment to build the southern link only, I think that is a problem. I think the viability of the airport would be considerably enhanced by a northerly link to the western line.

Mr Bruce McDonald of Penrith Council suggested that Erskine Park should operate as an initial "airport enterprise zone" for first stage development in the SWA Sub-Region while longer-term planning options were considered. He was concerned that economic impetus should not be lost because of a "failure to have prepared an industrial zone appropriately serviced, regulated and zoned."

Mr McDonald believes that "Erskine Park is seen by industry as the next cab off the rank along that western spine." He went on to outline the stage which the Erskine Park Employment Zone had now reached:



The rezoning process has been completed. That followed a local environmental study and the exhibition of the local environmental plan.... Effectively, the council is in a position to receive and determine development applications for employment uses on that site.

Mr McDonald stated that the principal obstacle to the Erskine Park Employment Zone was the new pricing policies of Sydney Water:

The major sticking point with that development is the policy of Sydney Water, both regarding the amount of contribution it requires to provide water and sewerage services and the way it manages the funding and cash flow for the infrastructure.

Mr McDonald stated that Sydney Water now required up-front payment for each stage of water infrastructure provision:

**CHAIRMAN:** Do you refer to Sydney Water's capital contribution policy?

**Mr McDONALD:** Yes. That body wants a cash contribution made to the works necessary to establish the development of the area. This development is to be in three stages. However, at any one of those stages, the first development is required to bear the cost of all the infrastructure needed to support the development of that stage. It involves millions of dollars. Of course, it is very unattractive to a person wanting to conduct a business if he must become a funding agent for the infrastructure provision.

Mr McDonald added that the Erskine Park Employment Zone was the first development to be targeted with this new up front, pricing policy by Sydney Water. Many of its competitors were covered by the old system in which Sydney Water recouped the costs of water infrastructure provision over time:

The unique thing about Erskine Park is that it is the first development to which the up front funding policy has been applied from day one. Many of the other developments I have mentioned, such as those in Blacktown, one at least of which drains to the same catchment area, are being developed under the previous arrangement. Under the previous arrangement the water authority in effect provided the up front capital for the infrastructure and recouped that from the development process as it occurred. It has now placed that burden on the development process.

Penrith Council has attempted to minimise the impact of Sydney Water's pricing policies by developing a three stage program which utilises existing services in the first stage to minimise up front costs to industry. Erskine Park is currently not serviced by any established sewer system although sewer reticulation and treatment capacity for the first 80ha is available from existing infrastructure. Sophisticated treatment facilities would eventually be required to ensure that future development did not have an adverse impact on water quality in South Creek.

In its submission to the Committee, Penrith Council outlined its three stage program for the provision of water and sewerage services to Erskine Park. This program is outlined in the following table.

**TABLE 17: COSTS OF WATER AND SEWERAGE SERVICE PROVISION TO ERSKINE PARK EMPLOYMENT ZONE**

	Water	Sewer	Up-Front Payment
Stage 1 (80ha)	\$79,000 per ha including: - Headworks - Bringelly charge - Amplification mainsfeeder mains including upsizing	\$130,000 per ha including: - Headworks - Treatment Plant	\$600,000 (water main)
Stage 2 (150-200ha)	As Above	As Above	\$5.3M (sewer) \$700,000 (water)
Stage 3 (120ha)	As Above	As Above	\$16M (sewer)

Stage 1 facilities (80ha) at Erskine Park would not involve any outlay for water and sewerage, although water main facilities would cost \$600,000.

Stage 2 (an additional 150-200ha), would attract an up-front payment of \$5.3 million for sewer and \$700,000 for water.

Stage 3 (a further 120ha), would attract another upfront payment of \$16 million for the provision of sewer facilities.

In addition, Penrith Council has been funded to produce a study as part of the Commonwealth's Integrated Local Area Planning (ILAP) program. The Commonwealth has contributed \$25,000 to the study, Penrith Council has contributed \$20,000, and further contributions are being sought from the owners of the site.

The ILAP Study has three purposes:

- to see how water supply infrastructure might be better organised;
- to identify a marketing strategy for an appropriate market niche for the site and to bring it to the attention of industry developers, particularly industrial real estate locaters; and
- to integrate planning approval processes by combining council and other government agencies into a fast track approval system.

The underlying purpose of the ILAP study is to put in place strategies which will make Erskine Park an attractive proposition for industry. It will also look at alternative funding for water and sewerage infrastructure should Penrith Council have no success in its negotiations

with the NSW Government on the pricing policies of Sydney Water. The ILAP study will be completed by March 1996.

## RECOMMENDATIONS

59. **The SWADC should designate the Erskine Park Employment Zone as a priority "airport enterprise zone" for the SWA Sub-Region.**
60. **The Department of Urban Affairs and Planning should review the specific circumstances surrounding the provision of water and sewerage infrastructure to the Erskine Park Employment Zone with a view to ensuring its priority development as an "airport enterprise zone".**

### Blacktown Council's Policy

Blacktown Council supports the principle enunciated in *Sydney's Future* regarding dispersed employment. However, Council is concerned that the concept of sub-regional employment centres seems to have been abandoned:

...The new metropolitan strategy must not allow indiscriminate dispersed employment growth in preference to the continued development of sub-regional centres. Sub-regional centres provide a focus for further economic growth within their respective catchments. Centres such as Blacktown, Penrith and Liverpool can provide important foci for economic activity and have already received, or are being targeted for, substantial infrastructure improvements. (Blacktown Council, 1994b:vii)

Blacktown Council has chosen to promote industrial growth by encouraging the development of industrial estates.

Blacktown LGA has Sydney's largest area of high quality industrial land. In 1992-93 it provided 18 per cent of Sydney's industrial land take-up. (Blacktown Council, **Facts and Figures**, 1994a)

There are now 10 estates in Blacktown, four of which (Huntingwood, Ardnell Park, Minchinbury and Prospect) are adjacent to the M4.

The details of the key estates are set out in the following table.

**TABLE 18: KEY INDUSTRIAL ESTATES IN BLACKTOWN LGA**

<b>Estate Feature</b>	<b>Huntingwood</b>	<b>Ardnell Park</b>	<b>Minchinbury</b>	<b>Glendenning</b>
Size	126ha	158ha	130ha	150ha
Vacant land	66ha	100.1ha	87.7ha	92.4ha
Services	available	available or able to be augmented	available or able to be augmented	available or able to be augmented
Zoning	light industrial 4(a)	general industrial (99ha), light industrial (36ha), special industrial (20ha)	special industrial 4(c) zoning also permits light industrial activity	general industrial (115ha), light industrial (35ha)
Description	premier estate	similar benefits of exposure and access as Huntingwood	largest area for bulky goods	Significant stocks of available, BHP nearby
Access	M4 Motorway, Great West Highway, Liverpool-Hornsby arterial road	opposite Huntingwood	access to M4 via Carlisle and Roper	on preferred route for Liverpool-Hornsby arterial (encompassing Phillip Parkway)
Companies	national and multinational (Sony, Arnotts, Pepsi-7UP, Sharp)	P&O Cold Storage, Elgas		

Source: Blacktown Council (1994c)

**Fairfield Council's Policies**

Like other councils, Fairfield Council is keen to promote its major industrial estate of Smithfield/Wetherill Park. This estate is one of the largest industrial estates in the Southern Hemisphere. It consists of more than 1000ha and supports 20,000 jobs. (Fairfield City Employment and Economic Development Partnership, 1994b)

SWA is approximately 15km south and is connected by the Horsley Drive, Wallgrove Road and Elizabeth Drive. (Fairfield Council, 1994a)

**TABLE 19: FEATURES OF SMITHFIELD/WETHERILL PARK INDUSTRIAL ESTATE**

<b>Size</b>	1000ha.
<b>Vacant Land</b>	100ha of relatively flat undeveloped land one quarter undeveloped.
<b>Services</b>	Most sites fully serviced.
<b>Description</b>	<p>Three sectors:</p> <p>Eastern sector- consists of 370ha of industrial land east of Prospect Reservoir and north of Prospect Creek in Holroyd LGA. The Cumberland Highway passes through this section.</p> <p>Western sector- the 550ha Wetherill Park industrial estate within Fairfield LGA. This is the most undeveloped part of the whole estate.</p> <p>40ha lies south of the eastern sector and south of Prospect Creek.</p>
<b>Employees</b>	More than 20,000.
<b>Access</b>	Cumberland Highway connecting with the M4, M5, Pacific & Hume Highways.
<b>Examples of Imported Products</b>	Industrial equipment and components, paper & stationary, materials handling equipment, furniture, marble, earth moving equipment, electronic sensors.
<b>Examples of Exported Products</b>	Processed meats, foodstuffs, electrical cables, building items, chemicals, scientific equipment, machine tools, furnaces, garbage compacters.
<b>Industry Types</b>	<p>Manufacturing (food; paper products &amp; fibre packaging; chemicals pharmaceutical &amp; plastics; rubber; wood products; furniture; metal, glass, ceramic, fibreglass &amp; gypsum building products; basic metals; metal fabrication &amp; finishing; industrial, mining, materials handling &amp; transport equipment; general engineering; electronic &amp; electrical equipment).</p> <p>Wholesale distribution.</p> <p>Transport &amp; storage.</p> <p>Services (waste systems; packaging; technical services; plant hire; security; computer maintenance; civil engineering).</p>

**The Smithfield-Wetherill Park Estate has several advantages and strengths.**

**Location.** It is regarded as a major import and export centre, a reputation enhanced by its links with the motorways, other roads, rail and ports. The Cumberland Highway, for example, is the main road link for industries in the estate. The road links allow easy distribution from the estate to national and regional markets (Melbourne, Brisbane, ACT and east coast zones, the Hunter and Illawarra). These links allow supplies of agricultural products, semi-processed minerals and chemicals produced in rural areas to be transported to the estate for distribution elsewhere. The estate has strong transport capabilities and associated infrastructure such as freight terminals and fuel depots. A container terminal is located at Yennora, to the east, enabling rail access to Sydney's ports. The estate is adjacent to major chain store warehouses at Guildford, Yennora and Bankstown.

**Diversity.** It brings together a wide range of industry services which include extensive engineering capability.

**Central to major distribution centres.** The estate houses major building and consumer product manufacturers and distributors, food manufacturers and distributors and more than 100 wholesalers of industrial plant and equipment.

**Size.** It provides complementary supply, skill, and technology links creating synergy between firms. This is less likely in small estates.

**International orientation.** Contains 120 importing wholesalers and 100 manufacturing exporters. More than 50 per cent of the estate's manufacturers use international freight forwarding services.

**The Committee recognises the commitment of individual LGAs in Western Sydney to promoting industrial development and related employment opportunities in their region.**

**The Committee recognises that the lessee of SWA will seek to establish an associated industrial/commercial complex on the large airport site.**

**Nevertheless, the Committee believes that a completely coordinated strategy is essential for the timely and cost-effective industrial development in Western Sydney.**

**The Committee believes that there is a definite need to bolster local industry and fully utilise existing industrial estates in Western Sydney before any new industrial estates are developed in the SWA Sub-Region.**

## RECOMMENDATIONS

- 61. The SWADC, WSROC, the GWSEDB, Western Sydney LGAs and the FAC (or lessee of the airport) should develop strategies to:**
- identify factors which will affect the demand for industry and employment in Western Sydney. In this task, the Committee commends the work of the GWSEDB in developing an economic model of Greater Western Sydney including a case study on SWA;
  - ensure that existing industrial estates in Western Sydney are the target for initial airport-related industrial development;
  - earmark individual industrial estates for complementary uses;
  - promote the development of the Erskine Park Employment Zone as a priority for airport-related development; and
  - ensure that no industrial estates in the SWA Sub-Region are developed until demand by airport-related industry is demonstrated.

### 3.10.7 OPPORTUNITIES FOR AGRICULTURE

Agriculture is the dominant economic activity in the SWA Sub-Region and the Committee wanted to ensure industrial and residential development did not displace agricultural enterprises which are significant sources of employment and which have considerable export potential. The number of agricultural establishments in Penrith, Liverpool and Camden LGAs in 1992 is shown in the following table.

**TABLE 20: AGRICULTURAL ACTIVITY BY LOCAL GOVERNMENT AREA, 1991-1992 SEASON**

	Liverpool	Camden	Penrith	Sydney	% Sydney
<b>No. Of Establishments</b>	91	76	83	1,488	16.8
<b>Area (ha)</b>	4,250	7,725	6,898	9,2381	20.4

Source: Regional Statistics ABS 1993.

The value of agricultural commodities produced in Penrith, Liverpool and Camden LGAs in 1985/86 was \$78,386,000 or 21 per cent of the total value of production for the Sydney statistical division. Poultry raising contributed almost 50 per cent of this result with the majority of the activity located in the Liverpool LGA. Egg and milk production were also

significant and contributed 28 per cent and 7.5 per cent respectively. Fruit and vegetable production provided 5.5 per cent. A breakdown of agricultural produce is contained in the following table.

**TABLE 21: GROSS VALUE (\$,000) OF AGRICULTURAL COMMODITIES PRODUCED IN STATISTICAL AREA, NSW, 1985-86 (BY LGA)**

	Camden	Liverpool	Penrith	Sydney
Lucerne, pasture	131	79	67	740
Citrus	-	-	99	8749
Apples	11	-	-	719
Other fruit	515	48	715	6291
Vegetables	655	1014	1210	28531
Other crops	1603	1210	1386	53129
Milk	2862	1317	1666	11553
Eggs	4595	9899	7382	59422
Honey, beeswax	-	16	49	436
Cattle & Calves	578	181	812	6218
Pigs	1700	275	385	6241
Poultry	8466	22485	6869	166490
Other Commodities	58	1	11	308
<b>TOTAL</b>	<b>21,175</b>	<b>36,525</b>	<b>20,686</b>	<b>352,827</b>

Source: Value of Agricultural Commodities Produced, ABS 1985-86

The total dollar value of agricultural produce in the LGA's in the SWA Sub-Region was \$78,386,000, or about 21 per cent of the Sydney Region's total agricultural income.

The Liverpool City Council, the GWSEDB and the GWCOG are keen to see Greater Western Sydney capitalise on SWA as a means of stimulating economic development in the region. One way in which this can be achieved is by utilising SWA to export local produce to overseas markets, particularly Asian markets. The fact that SWA will be curfew free means fresh produce could be readily exported to these destinations.

The SWA site and surrounds in Liverpool LGA are essentially rural in nature. In terms of land use, it is mainly agricultural and rural residential. The agriculture of Liverpool LGA (which houses the SWA Sub-Region) is economically important to Western Sydney and the Sydney Region. The following table demonstrates its contribution to Sydney's food production.



**TABLE 22: AGRICULTURAL PRODUCE FROM LIVERPOOL LGA**

<b>Agricultural Product</b>	<b>Liverpool</b>		<b>Sydney</b>
Chickens	10,161,367	(13.6%)	74,582,016
Meat Cattle	1,213	(4.4%)	27,804
Pigs	2,202	(4.1%)	53,067
Vegetables	49.1 ha	(2.8%)	1,757
Sheep/Lamb	300	(2.2%)	13,818
Milk Cattle	389	(1.9%)	20,928
Field Crops	11 ha	(0.5%)	2,422
Fruit & Nuts	12.7 ha	(0.5%)	2,705
Pastures	126.1 ha	(0.4%)	35,591

Source: ABS, Agricultural Statistics - Selected Small Area Data, NSW 1991-92 cited by Fox (1994:45).

Note: (%) refers to the percentage of total production in Sydney derived from the total Liverpool LGA.

The value of agricultural produce in Liverpool LGA has been estimated at between \$31 million and \$57 million. If the multiplier effect is taken into account, the full value of agricultural production from the area is estimated to be \$142.5 million. (Fox, 1994:46) Just over half of the value of agricultural production in the LGA is attributed to poultry farms.

It is important to note that the ABS do not count production from operations valued at under \$22,000. As there are a number of small operations, especially in market gardens, the total value derived from agricultural production is likely to be underestimated.

The importance of key agricultural activities in Liverpool LGA is outlined below.

### **Poultry production**

Poultry is the most significant agricultural commodity in the Liverpool LGA. A Rural Lands Study conducted by Don Fox Consulting for Liverpool Council in 1994 showed that Liverpool LGA had the third highest percentage of chicken meat production, the second highest percentage in duck production and the second highest in turkey production of all LGAs in the Sydney Region (Fox, 1994:43). The production of eggs is also significant.

### **Livestock**

Goats, pigs and deer are among the livestock produced in the Liverpool LGA. The municipality is among the top three suppliers of the Sydney region. Most of the allotments used for grazing are larger in size, that is, bigger than 10ha.

### **Vegetable production**

The Rural Lands Study found that individual market gardens were small (86 per cent are equal to or less than 3ha and are therefore not counted in ABS figures) but their contribution

to Liverpool LGA and Sydney was quite significant. There are about 330 market gardens in the LGA. (Fox, 1994:42)

#### **Nurseries, cut flowers and cultivated turf**

While there is some production in these industries but it is not of recordable levels. (Fox, 1994:43)

#### **Fruits, nuts and berries**

The Liverpool region produces almost 21 per cent of Sydney's total tonnage of berries, most of which are strawberries. Liverpool is the largest producer of berries in Sydney.

**The Committee recognises the important contribution agricultural produce can make to the economic success of SWA.**

### **RECOMMENDATIONS**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>62. The SWADC should prepare a specific strategy to maximise the export potential of agricultural products originating in the SWA Sub-Region itself. This strategy may include incentives for industries which can prepare value-added, agricultural products for air freight export to locate in the SWA Sub-Region. The likely affects of SWA on agricultural production must also be considered.</b></p> <p><b>62. The SWADC take into account the following matters regarding agricultural production when it is planning urban development in the SWA Sub-Region:</b></p> <ul style="list-style-type: none"><li><b>- that there is some concern that aircraft noise will affect poultry, egg and milk production. There is also concern that increased air pollution from aircraft fuel will adversely affect crops grown in market gardens; and</b></li><li><b>- that the area with most agriculture potential is located in the east of the SWA Sub-Region. The potential of this area to the economy of the region, particularly once SWA is operational, will need to be taken into account when planning residential locations, industrial areas and transport routes.</b></li></ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.10.8 EXPORT AND FREIGHT

The Committee investigated the trends in international freight in order to see which industries in Western Sydney and New South Wales would benefit from SWA.

There are two features of trends in international freight which have implications for the role of SWA as a freight airport. They are:

- air freight plays a significant role in import and export of goods when measured by **value** (dollars) but not weight (tonnes). Air freight measured by dollar value accounts for 26 per cent of imports and 18 per cent of exports; and
- there has been a rise in export of "elaborately transformed manufactured goods" (NIEIR, 1993:9).

The NIEIR (1991: 13 & 25) has pointed out that during the 1980s international freight grew by 9 per cent per annum. This occurred for three reasons:

- technological change created lighter and smaller products which increased the attractiveness of air transport over sea transport; and
- just-in-time production methods have allowed for the increased importance of air freight; and
- wide bodied jets provided increased capacity and use of containers (most freight is carried in the underbody on scheduled passenger flights rather than by dedicated cargo flights although the latter have contributed as much as 30 per cent of the air freight market).

By 2010, it is estimated that Sydney's demand for freight will be between 700,000 and 1.4 million tonnes, with 80 per cent of traffic being international freight. (NIEIR, 1991:25-26)

The NIEIR has estimated that if SWA expanded air freight by only 50,000 tonnes (or about 7 per cent) then this would represent an increase of at least \$2 billion in 1990 dollars of net exports which would add \$1 billion to the capacity of the manufacturing sector in the Sydney region (1991:27).

**The Committee believes that the clear message of international trends in air freight is that economic strategies for SWA must focus on attracting industries which can produce high-technology, value-added goods for airfreight export.**

SWA has significant advantages as a major freight airport:

- there are no severe constraints on the availability of land and, therefore, large areas are available for freight facilities;
- lower costs of operation;
- 24-hour operation; and
- close proximity to the fastest growing segment of the Sydney manufacturing base. By 2010, it is anticipated that 40-50 per cent of Sydney's manufacturing capacity will be in Sydney's west.

From the import perspective, there are further advantages to SWA. The NIEIR has pointed out that the relatively open spaces in the vicinity of the airport could allow industries which depend on efficient access to components from foreign suppliers to grow. (1991:26)

The NIEIR (1993) has made a detailed analysis of products that are imported or exported by air. They have extended this analysis in an attempt to predict future trends in air cargo. The analysis found that:

- commodities and transactions formed the greatest proportion (58.8 per cent) of outward air cargo, followed by machinery and transport equipment;
- Asia was the destination for half (in dollar value terms) of the outward air cargo;
- the greatest growth rates in exports up to 2000 are anticipated in the areas of transport equipment, structural metal products, clothing and footwear, other engineering and manufacturing product; and
- it is anticipated that between 2000-2005 the areas for greatest export growth will be believed to be in transport, recreation, food, beverages and tobacco, paper, paper products and printing, and other manufacturing and engineering products.

The NIEIR considered that the following industries and products have potential for widening their share of the air freight market with SWA being in a good position to capture a significant share of this market.

### **Fresh produce**

Seafood, after gold, is the most valuable product per tonne carried by air in Australia. Currently, the average value of seafood carried by air is less than half of the value carried by sea. Thus, there should be vast opportunities to have more seafood carried by air. Quick and ready access to airports, especially one with 24 hour access would assist this.

The Commonwealth Government has targeted the export of Australia's processed foods as an area for strengthening. This may result in increased demand for air freight of these products.

#### **Agricultural products**

Only a small proportion of dairy produce and eggs is exported by air although there is some indication that specialist markets (eg Port Moresby) are developing for the latter. Only a very small proportion of live stock travel by air.

#### **Horticultural products**

The expansion of the cut flower trade will depend on the opening up of new markets. Success will depend on easy access to timely air transport.

Opportunities are also seen in the export of chemicals and pharmaceutical, electronic and electrical machinery and road vehicles and transport.

The Committee looks at measures to enable the freight potential of these industries to be maximised in the next section.

### **3.10.9 MEASURES TO ENSURE SWA'S SUCCESS AS A FREIGHT AIRPORT**

A number of submissions to the Committee (Liverpool and Penrith councils) have indicated that SWA could provide opportunities for Australian manufacturing to gain maximum benefits from the growth in South-East Asian trade.

For SWA to take advantage of freight opportunities to South-East Asia, the Committee believes it is essential that:

- there is careful assessment of the destinations to which incoming and outgoing freight needs to be forwarded;
- cost-efficient infrastructure must be provided for just-in-time warehousing in Western Sydney;
- suitable warehousing and other facilities must be provided on-site or in the SWA Sub-Region to cater for expanding freight markets; and
- provision is made for freight storage and forwarding so that it is easy and cost-efficient to transfer goods between incoming/outgoing flights and between interstate, intrastate and local markets.

Methods of facilitating the easy transfer of goods between markets include:

- ensuring suitable road linkages between SWA and KSA;
- developing links between SWA and the Sydney Orbital;
- building a new rail system to connect SWA to Sydney and the rest of NSW;
- strengthening links between SWA and existing industrial estates; and
- sending goods to the container terminal at Yennora which has rail connections to Sydney's ports.

**The Committee believes that the Commonwealth Government has initiated the process for making SWA a successful freight airport by providing funds for road infrastructure to link SWA to the Sydney Orbital.**

**Strategies need to be put in place to build on this platform and attract new investment, export-oriented industries and freight-forwarders to SWA.**

#### **RECOMMENDATIONS**

- 64. The SWADC, in consultation with relevant NSW Government Departments, the GWSEDB and Western Sydney LGAs, should undertake careful assessment of the incoming and outgoing destinations of freight in the Sydney region and develop strategies to:**
- **target the Asia-Pacific region with export enhancement programs for the period 2000-2005;**
  - **foster longer-term niche markets for value-added goods which have export potential;**
  - **promote just-in-time warehousing to cater for expanding freight markets into Asia; and**
  - **attract existing freight forwarders at KSA to expand their operations to SWA and attract new firms to enter the freight handling and forwarding market at SWA.**

### 3.10.10 TOURISM

The success of SWA as an international airport depends to a large extent on its attractiveness as a destination for tourist flights into and out of Australia. The Committee has outlined the enormous growth in tourism in the introduction to this chapter. In this section, it looks at the economic potential of tourism for Western Sydney as a result of SWA.

Tourism NSW (1994) estimates that international visitors will play an increasingly important role in the tourism market. By 1999, visitor arrivals to Australia are forecast to be more than double 1992 levels. Moreover, international visitors to Australia are expected to spend \$12 billion, creating 200,000 jobs. As NSW receives about two-thirds of all international visitors, it will attract a large share of this revenue.

While, at present, the domestic tourism market accounts for 60 per cent of all industry revenue, this pattern is likely to be reversed over the coming decade. Current international and domestic visitor expenditure patterns suggest that by the year 2000, revenue from international and domestic visitors will approach parity, and that by 2010, nearly 80 per cent of tourism revenue in New South Wales will be derived from international markets. (Tourism NSW, 1994:35)

A new airport such as SWA will provide more capacity for tourism in Australia. The NIEIR (1991:27-8) has concluded that the very existence of SWA will lead to an increase in international visitors by attracting charter companies from Europe and Asia.

Three key objectives of the NSW Tourism Masterplan are likely to benefit the economic development of Western Sydney. These objectives are:

- a target of 25 per cent of visitor nights in NSW being spent outside of Sydney by 2004 (Tourism NSW, 1994:11). SWA can play an important role in supporting the expansion of tourism in Greater Western Sydney and the Blue Mountains;
- increasing international tourists from north and south-east Asia. Aircraft can fly non-stop to and from these regions out of SWA. This places SWA and Western Sydney in a very strong position to take advantage of increases in tourism; and
- an additional \$1 billion in visitor expenditure and almost double job growth generating an extra 21,000 jobs. Again, SWA will help the Greater West capture some of this employment growth.

Attracting more tourists to Western Sydney is already the subject of strategies by the Greater Western Sydney Economic Development Board.

The GWSEDB sees the tourist industry as playing a key role in the economic development of the region and has released a "Tourism Action Plan for Western Sydney" (1995).

This Plan aims to build on existing tourism in Western Sydney to maximise the potential opened up by SWA.

The GWSEDB Action Plan has analysed tourism trends in the Sydney Region and found although Greater Western Sydney is ranked fourth in numbers of visitors to the region (after Sydney, the Hunter and the Illawarra), it is ranked only eighth in visitor nights spent in the region. The GWSEDB believes that SWA and associated infrastructure will encourage more inbound tourists to visit Greater Western Sydney attractions and spend more nights in the region. This will encourage the development of associated accommodation facilities, transport services, tours, attractions, shopping, restaurants, conference venues and ancillary services to cater for visitor needs.

In order to encourage and exploit such a market, the NIEIR (1991:29) believes low-to-medium cost private accommodation needs to be established along the banks of the Nepean or in the foothills of the Blue Mountains. It is envisaged that charter operations or associated organisations would establish integrated infrastructure.

More specifically, Fairfield and Liverpool councils (Fairfield City Employment and Economic Partnership, 1994b:2-9) have identified the following opportunities which they believe will be created by SWA:

- the chance for existing hotels and convention facilities to upgrade or expand;
- the creation of new hotels and opportunities;
- flow on business to local restaurants;
- greater use of Camsley Hill City Farm accommodation and conference facilities. The farm is 10-15 minutes from SWA; and
- the possibility of establishing trade centres and related facilities, perhaps associated with international hotels. Cabramatta is well positioned to become a trade centre, conference and accommodation zone focusing on Asian trade and hospitality services for Asian business people.

Penrith City Council is keen to ensure the appropriate infrastructure is in place to position Penrith as the key service centre for SWA. Part of its tourism strategy includes encouraging the development of long distance coach travel as part of an integrated bus-rail interchange at Penrith Station, (Price Waterhouse Urwick, Local Tourism Plan for the City of Penrith, 1992)



Councils also emphasised to the Committee that the creation or upgrading of infrastructure, particularly roads and rail, would strengthen the tourism potential of their areas.

**The Committee believes that SWA will substantially assist the developing tourism market in Western Sydney if certain concepts are properly developed by the SWADC.**

## RECOMMENDATIONS

- 65. The SWADC, Tourism NSW, WSROC, the GWSEDB and Western Sydney LGAs, should:**
- **develop a tourism strategy for SWA which will prolong visitor stays in Western Sydney and focus on the needs of Asian tourists; and**
  - **ensure that land use planning around SWA takes into account the provision of suitable tourist services, including accommodation and visitor services.**
- 66. The SWADC should work with appropriate NSW Government Departments to ensure that the specific needs of tourists are considered in planning road and rail links to SWA.**

### 3.10.11 EDUCATION AND TRAINING

The patterns of employment and unemployment described in earlier sections can be attributed to the lack of educational opportunities for people in Western Sydney leading to a lack of appropriate skills for emerging job markets in Western Sydney.

Job Access in its submission to the Committee pointed out that about 65 per cent of Liverpool residents have no formal qualifications and only 6 per cent have completed an undergraduate degree or higher. Other LGAs have similar education profiles. A high proportion of Fairfield residents are not fluent in English.

Several submissions from agencies in Western Sydney highlighted the potential employment opportunities of SWA and emphasised that education and training would be required to enable people to take advantage of these opportunities. The agencies endorsing this view included Liverpool Job Access, Liverpool SkillShare, Nepean Skills Centre, San Miguel Family Centre, CARE SkillShare, Mission Employment Services, DEET, the GWSEDB and the Greater West Chamber of Commerce. Community agencies in particular emphasised the problems of high proportions of long-term unemployed and people with disabilities.

**The Committee stresses that it will be crucial to co-ordinate training in Western Sydney**

**towards industries associated with SWA so local residents benefit from the airport development.**

Airport-related industries which should be targeted by education authorities include:

- information technology;
- the aerospace industry;
- export development;
- transport development;
- freight handling; and
- the aviation industry.

Some suggestions made to the Committee about ways to maximise employment opportunities included:

- requiring developers to employ an agreed percentage of people from the Greater Western Sydney area, including some long-term unemployed (Liverpool SkillShare, Job Access Liverpool);
- using local agencies to train and place workers in designated airport jobs;
- implementing DEET Labour Market Training Programs to provide training packages to meet the requirements of individual contractors. Such packages might include formal off-the-job training combined with on-site training. Programs could also include skills development for apprentices and trainees; and
- using the Area Assistance Scheme as a model for staffing the construction and operation of proposed infrastructure for SWA.

In its submission to the Committee, Job Access explained the practical effect of the Area Assistance Scheme by describing a recent co-operative effort between DEET, Trade Unions and Barclay Mowlem Construction in the redevelopment of Liverpool Hospital. One hundred previously unemployed new apprentices received employment and training on this scheme, which is similar to the Area Assistance Scheme sponsored by DEET. This scheme "is seen as a model of Best Practice and is being used in several other projects throughout Australia."

The Committee believes that direct programs to create employment should be complemented by training and education, especially community-based training programs which focus on re-

training the unemployed and mature age workers.

The Committee was impressed by the range of existing training courses in Western Sydney with relevance to airport activities.

There is already considerable collaboration between educational institutions in providing inter-related courses and with industry groups in targeting courses to employment opportunities. For example, UWS Macarthur already works closely with other educational and training providers in SWS including the Department of School Education, SWSI TAFE, Chambers of Commerce and Industry and MACROC.

The Committee provides an outline of airport-related training courses in Western Sydney below.

Nepean Skills Centre provided training programs for the unemployed which included food and beverage skills, retail and public relations, word processing and office skills, landscaping, carpentry and bush regeneration skills. The centre stated that all of these skills would be of value to the establishment and operation of the airport. The Nepean Skills Centre also has services which assist with job search and job placement.

UWS Macarthur provides courses in aviation studies, commerce, business administration, management, tourism management, people and operations management, technology management, science and technology and computer training in many software applications including CAD-CAM. In addition, Macsearch and the Faculty of Arts and Social Sciences operate the University Centre for Aviation Studies at Bankstown Airport. The Centre delivers courses on aviation education and training. UWS Macarthur suggest that this centre provides the basis of a possible model for a University Airport Extension Centre at Sydney West Airport. Such a centre could operate as a joint venture between UWS Macarthur and SWSI TAFE for airport related training, consultancy and research activities. It could also provide conference facilities.

SWSI TAFE provides courses in transport and engineering, reinforced plastics, tourism and hospitality, building and construction, manufacturing and business and information technology. The Aeroskills Centre, operated by a consortium headed by SWSI TAFE, provides training in aeronautics and basic avionics, communications and advanced avionics systems, civil and structural engineering, defence lead-in fighter training and aircraft maintenance.

There is also a wealth of expertise in educational institutions. UWS Macarthur suggests that the following research centres could be asked to provide education and training for airport related jobs:

- University Centre for Aviation Studies;

- Macarthur Centre for Leadership and Management;
- Centre for Innovation and Trade;
- Innovation and Continuous Improvement Technologies Group;
- Computer Assisted Software Engineering Group;
- Centre for Asian Studies;
- Urban Studies Research Group;
- Language Acquisition Research Centre; and
- The Australian Centre for Security Research.

## RECOMMENDATIONS

**67. The DEET and the NSW Department of Education and Training should work with Western Sydney educational bodies to explore the possibilities of:**

- **providing a coordinated training strategy specifically related to employment opportunities at SWA;**
- **implementing DEET Labour Market Training Programs to introduce training packages which meet the requirements of individual contractors involved in construction and operation at SWA; and**
- **using the DEET Area Assistance Scheme as a model for staffing the construction and operation of proposed infrastructure for SWA.**

## **CHAPTER 4      TERM D. MINIMISING THE ENVIRONMENTAL IMPACT OF SWA**

### **4.1      INTRODUCTION**

#### **4.1.1      THE DELICATE ENVIRONMENTAL BALANCE IN THE SWA SUB-REGION**

In this chapter, the Committee looks at Term D of its Terms of Reference, which requires it to inquire into:

*what arrangements need to be put in place to preserve the existing environment that will be affected by airport use and the quality of life concerns of those living near the airport at any time.*

The Committee interpreted this Term of Reference to mean that it should report on:

- the key environmental issues which are current in the SWA Sub-Region;
- the potential impact of the airport on the regional environment;
- the potential impact of airport-related industrial and residential development on the regional environment;
- what parameters need to be put in place to ensure these environmental impacts are minimised so quality of life is preserved for residents in the SWA Sub-Region and Western Sydney.

With regard to the airport development itself, the Committee liaised with the Commonwealth Department of Transport and other relevant agencies to examine the strategies for minimising environmental impact.

In its submission (s.50), Clean Up Australia outlined the challenge at SWA:

Sydney West Airport itself must be undertaken as a state-of-the-art example of comprehensive environmental management and development to minimise the negative impacts of airport construction and send a very public message to the world about Australia's approach to sensitive environmental issues.

The Committee assesses the proposed airport development and makes recommendations about how environmental pressures can be properly monitored and contained to live up to this standard.

**The Committee conducted its inquiry into the SWA Sub-Region on the premises that the Sub-Region's environmental capacity:**

- **will determine the level and type of urban development which can take place around the airport; and**
- **cannot be isolated from the rest of Sydney because of the impact of various sources of pollution from the rest of Sydney on the SWA Sub-Region.**

The judiciousness of this premise is borne out by previous efforts to develop the SWA Sub-Region. The 1992 South Creek Valley RES was halted because of concerns over air and water quality if up to 200,000 people were located in what is effectively the SWA Sub-Region.

Clearly, residential development on this scale is not feasible, although residential development is necessary to ensure that a rail link to SWA is economically viable. Therefore, the Committee has recommended elsewhere in this Report that limited residential development in medium-density housing clustered around comprehensive public transport access points is the best option.

In addition, there is the problem that the principal sources of pressure on water and air quality in the SWA Sub-Region originate outside the region itself.

The SWA Sub-Region has been placed under severe environmental stress because of:

- the propensity for ozone from all over Sydney to be blown into the region where it is then trapped; and
- the degraded state of the Hawkesbury-Nepean River system.

The holistic nature of Sydney's air quality problems has resulted in the Committee investigating strategies to reduce air emissions in the Sydney region as a whole. This is the only way to tackle air quality problems in the SWA Sub-Region.

Similarly, the primary constraint on development in the SWA Sub-Region as far as water quality is concerned is pollution caused by residential and industrial development well downstream from the airport site and beyond the boundaries of the SWA Sub-Region. This means the airport and any new development in the SWA Sub-Region must have minimal impact on water quality, and strategies must be implemented to improve water quality in the Hawkesbury-Nepean catchment.

**The Committee is well aware there is very little environmental latitude in the SWA Sub-Region and no room for error.**

**Maintaining the balance between urban development and the capacity of the environment to sustain such development is critical in the SWA Sub-Region.**

**In short, planning for the SWA Sub-Region must balance the need for such things as**

**residential development to make a rail link to the airport viable, with the paramount responsibility to preserve the environment in Western Sydney.**

The three areas of major concern with regard to the environmental impact of SWA and the SWA Sub-Region are:

- aircraft noise;
- air quality; and
- water quality.

The Committee has concentrated on these areas in its examination of environmental issues because they are consistently raised in submissions and at public hearings as being the paramount concerns of residents in Western Sydney.

Other issues raised in submissions and evidence were that:

- a new EIS should be undertaken for SWA (Fairfield Council);
- environmental problems should not be simply transferred from inner Sydney to Western Sydney (Blacktown Council);
- an Environmental Management Plan for SWA should be developed, implemented and independently monitored (Blacktown Council);
- an Environment Management System (EMS) should be implemented (Hawkesbury-Nepean Trust and South Creek Catchment Management Committee);<sup>1</sup> and
- better consultation and information programs were required by local government and the community (all councils).

Of particular concern to the Committee was the consistent evidence from councils that opposition to the airport was increasing in Western Sydney because of a fear engendered by a lack of information about the environmental impact of the airport.

Councils called for a formal public consultation strategy involving the following elements:

- dissemination of all available information on the proposed airport related to its impact and infrastructure needs;

---

<sup>1</sup> An EMS is a new environmental protection system developed by the International Standards Organisation which is being adapted to Australian conditions by Standards Australia. It is currently only in draft form and the final form will not be released until the end of 1995.

- a transparent community consultation program to determine issues of concern and produce information which addresses those concerns;
- independent reviews to ensure integrity of process and thereby maintain public confidence.

Some of these concerns are being addressed by the Commonwealth Government as the airport construction date approaches.

The Commonwealth has already announced the 1985 Draft EIS will be reviewed and updated in the areas of air and water quality, and aircraft noise.

The decision by the Commonwealth to accelerate the development of the airport triggered the assessment procedures specified in the *Environment Protection (Impact of Proposals) Act 1974*. In accordance with the Act, the Federal Minister for the Environment will determine the level of further assessment required, based on a 'notice of intention' prepared by the proponent, which has been designated as the FAC. The FAC has been working on the notice of intention, which is a detailed document describing the airport development and environmental issues.

#### **4.1.2 THE NEED FOR COMPREHENSIVE COMMUNITY CONSULTATION OVER AIRPORT AND ENVIRONMENTAL MATTERS**

As part of the process for reviewing the 1985 EIS, an Environmental Management Plan for SWA is to be developed for both the construction and operation of the airport. These EMPs will then be reviewed in the light of public comment.

The Commonwealth has also increased the level of community consultation and participation with Western Sydney residents.

A site office has now been opened by the FAC at SWA, providing visitors with information about the airport development.

In addition, representatives of the Commonwealth Department of Transport and the FAC are appearing at public meetings and making themselves available to meet community groups. The community consultation program is intended to inform residents, community leaders, business interests and potential airport users on issues relating to the development of the airport and associated environmental impacts.

**The Committee is in the difficult position of completing its report well before the results of the EIS reviews ordered by the Commonwealth become available in 1996. However, the Committee believes that it can make a constructive contribution to this debate, especially where State jurisdiction exists over such matters as land use controls.**



Clearly, there is also a need for more community information programs and participation.

## RECOMMENDATIONS

68. **The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that the community consultation program for SWA should include:**
- **Community Access Centres in major suburban centres such as Liverpool, Fairfield, Parramatta, Blacktown, St Marys and Penrith;**
  - **mobile access centres which can visit shopping centres in smaller suburbs close to SWA such as Warragamba, Silverdale, Wallacia, Horsley Park, Wetherill Park, Smithfield, Greystanes and St Clair;**
  - **free 008 telephone enquiries lines;**
  - **free post services for receipt of written submissions;**
  - **publication and distribution of a comprehensive information kit on SWA in English and other languages, as well as newsletters updating airport developments;**
  - **attitudinal surveys;**
  - **technical workshops on aircraft noise; and**
  - **consultation with Commonwealth and State Government Departments, Local Governments and special interest groups.**

In the next section, the Committee outlines the legislative framework in NSW that ensures the consideration of environmental impacts during development approval processes.

The Committee also examines measures, including the consolidation of environmental responsibilities within State jurisdiction under a single authority, to ensure developments at the airport and in the SWA Sub-Region do not increase existing pressures on the environment.

### 4.1.3 THE NEED FOR A CENTRAL AUTHORITY TO ENSURE ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) IN THE SWA SUB-REGION

The need to preserve the quality of existing areas of unspoilt environment and to enhance the

quality of degraded areas has resulted in legislation in New South Wales that is designed to expose development proposals to scrutiny for their environmental impact. This has culminated in the recent inclusion of Ecologically Sustainable Development (ESD) principles in the New South Wales Environmental Planning and Assessment Act (EPA Act).

The Committee outlines the development of ESD principles in Australia in this section before dealing with their implementation in NSW and how they can be implemented in the SWA Sub-Region.

The concept of ESD was fully articulated for the first time in the 1987 Report of the World Commission on Environment and Development titled *Our Common Future*. It established the need for strategies that would integrate economic, social and global environmental goals at all levels of society.

In 1992, *The National Strategy for Ecologically Sustainable Development* (NSESD) was endorsed in Australia. It defined the guiding principles and objectives of ESD as:

- enhancing individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- providing for equity within and between generations; and
- protecting biological diversity and maintaining essential ecological processes and life-support systems.

In basic terms, ESD was defined as:

.... using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the quality of life, now and in the future, can be increased.

Environmental Impact Assessment (EIA) processes and other environmental management tools in Australia are now required to incorporate these ESD principles into their decision-making. This means changing from a reactive to a pro-active approach in EIA processes in which ecological and economic considerations are considered equally in decision-making.

The Australian and New Zealand Environment and Conservation Council (ANZECC) Report titled *A National Approach to Environmental Impact Assessment in Australia* refined the ESD principles into the following standards:

- the use of resources by present generations which protects the interests of future generations by:
  - maintaining and enhancing natural capital (clean air, clean water and uncontaminated soil) and

- avoiding the over-exploitation of renewable resources and minimising waste;
- the protection of biodiversity and ecosystem integrity;
- the provision of net community benefits from implemented proposals;
- social equity and public participation in decision-making;
- the reflection of the full environmental costs of proposals in decisions on resource use; and
- caution in dealing with environmental risk and uncertainty.

Section 3 of the "Intergovernmental Agreement on the Environment" (IGAE), signed by all Heads of Government of the Commonwealth, States and Territories of Australia as well as representatives of Local Government in May 1992, defined the following ESD principles for informed policy-making and program implementation:

- application of the precautionary principle, to avoid irreversible decisions and to assess the risk-weighted consequences of all options;
- inter-generational equity;
- conservation of biological diversity and ecological integrity; and
- improved valuation, pricing and incentive mechanisms, which include environmental factors in the valuation of assets and services and the adoption of the polluter-pays principle and the user-pays principle (based on full life cycle valuations) as well as incentive structures to maximise benefits and/or minimise environmental safeguard costs.

These principles are reflected in the legislative framework for environment protection in NSW provided by:

- NSW Environmental Planning and Assessment Act (EPA Act);
- Heritage Act;
- National Parks and Wildlife Act;
- Clean Air Act; and
- Clean Waters Act.

Environmental Impact Assessment (EIA) procedures in NSW are administered under the

provisions of the Environmental Planning and Assessment Act (EPA Act). The objectives of the EPA Act are to provide for the proper management, development and conservation of natural and man-made resources.

Decision-making under the Act involves the preparation of Environmental Planning Instruments (EPIs) as required under Part 5 of the Act. The system of EPIs includes Regional Environmental Plans (REPs), such as REP 20 which deals with the Hawkesbury-Nepean River system. The Committee considers REP 20 in its investigation into water quality issues at SWA and in the SWA Sub-Region later in this chapter.

The EPA Act provides a link between planning, development and the environment. It ensures that all decisions affecting the environment are subject to prior environmental consideration by consent authorities.

The 1994 Regulation to the EPA Act, commencing 1 September 1994, included a new Schedule 2 which redefined the content of an EIS under Parts IV and V of the EPA Act.

The major addition was the introduction of Ecologically Sustainable Development (ESD) principles into the justification for any proposed development or activity.

The principles of ESD are defined in Schedule 2 in line with Section 3 of the 1992 Intergovernmental Agreement on the Environment as:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity and ecological integrity; and
- improved valuation and pricing of environmental resources.

**Despite the legislative framework provided by the EPA Act, there is a need to reassert the values of ESD in the context of development in the SWA Sub-Region.**

## **RECOMMENDATIONS**

**69. The SWADC should be given the responsibility of developing, implementing and enforcing an Environmental Management Plan (EMP) in accordance with ESD principles which can provide a blueprint for long-term, sustainable growth in the SWA Sub-Region.**

**70. The SWADC should ensure broad community participation in the development of the EMP.**

## **4.2 AIRCRAFT NOISE**

### **4.2.1 INTRODUCTION: AVOIDING A REPETITION OF INNER SYDNEY AIRCRAFT NOISE PROBLEMS AT SWA**

The potential impact of aircraft noise from Sydney West Airport on the quality of life of Western Sydney residents is a principal concern of the Committee.

There has been concern expressed in many submissions and evidence before the Committee that the development of SWA will re-create inner Sydney aircraft noise problems in Western Sydney.

However, there are tangible reasons to believe that the impact of aircraft noise on major population centres in Western Sydney will never approach the scale of these problems. These reasons include:

- the comparative sizes of the airport sites. SWA is 1770ha compared with KSA at 660ha.
- the much lower level of residential development in the immediate SWA Sub-Region compared with suburbs north of KSA.
- the fact that large population centres in Penrith and Liverpool LGAs are at a tangent to the SWA runway alignment which determines initial flight paths.

As a simple method of comparison, virtually the whole area of the 40 ANEF zone at SWA is located on the airport site. By contrast, the 40 ANEF zone at KSA extends into the suburb of Sydenham and 112 dwellings are eligible for voluntary acquisition.

The first major population centres in Western Sydney which will be beneath flight corridors are about 20kms from SWA; about the same distance at which aircraft noise complaints in inner Sydney effectively tail-off.

It should also be remembered that the initial development at SWA is a single runway of 2,900m and that the airport will not be operating at full capacity with two runways until well into the next century.

While it is impossible to directly compare aircraft noise being generated by KSA with that forecast for SWA when it is operating at full capacity, the following table offers a simple comparison.

**TABLE 23: APPROXIMATE DISTANCE OF SUBURBS FROM SYDNEY'S MAJOR AIRPORTS (DIRECTION FROM AIRPORT IN PARENTHESES)**

APPROXIMATE DISTANCE FROM SYDNEY'S AIRPORTS	SWA	KSA
5km	Kemps Creek (N-E)	Enmore, Newtown (N) Kurnell (S)
10km	Horsley Park (N-E) Silverdale (S-W)	Drummoyne (N) Cronulla (S)
15km	Prospect Reservoir (N-E)	Chatswood (N)
20km	Greystanes (N-E)	Gordon (N)
25km	Northmead (N-E)	Wahroonga, Dee Why (N)
30km	Carlingford (N-E)	Kuringai Chase Nat. Park (N)

The Committee has received submissions from individuals, interest groups and councils calling for an update of aircraft noise forecasts contained in the Draft EIS (1985) and comprehensive community consultation about the impact of the new airport.

Revised aircraft noise impact studies are currently being undertaken by the Commonwealth Department of Transport as part of the EIS update for SWA and should be completed some time in 1996, well ahead of the airport's planned opening in 1999.

Existing aircraft noise forecasts for SWA were developed for the draft EIS in 1985, based on a worst case scenario. A number of factors will alter the assumptions used in the original forecasts. The voluntary retirement of all Chapter 2 aircraft in Australia will have a positive impact on aircraft noise contours. On the other hand, SWA will operate as a "no curfew" airport on a greenfields site with very low levels of ambient background noise.

These circumstances were taken into account in the 1985 EIS but may be given a greater weighting in new forecasts because the use of the ANEF system as the sole aircraft noise forecasting system has been called into question as a result of parallel runway operations at KSA.

Wollondilly Shire Council (s.47) typified the attitude of many submissions when it called for a review of aircraft noise forecasts from SWA given the gap of 10 years since the original EIS. It stated that "the ANEF contours should be reassessed having regard to the changes in aircraft technology and noise emissions as well as there being further information on the impact of the noise on land outside the noise contours."

The Committee investigated the suitability of the existing aircraft noise forecasting system, the ANEF system, as well as ways in which it can be augmented to give a more accurate prediction of the actual impact on residents.

The Committee also considered the unique circumstances and topography of SWA during this process in order to develop a series of recommendations for the NSW Government to put to

the Commonwealth Government, which has ultimate responsibility for determining the parameters under which SWA will operate.

The first stage in this process is to assess the aircraft noise forecasting system used in Australia, which is known as the ANEF system.

#### 4.2.2 THE ANEF SYSTEM

The Australian Noise Exposure Forecast (ANEF) system is an aircraft noise exposure index developed for Australia to provide noise predictions in Environmental Impact Statements and Noise Management Plans. The ANEF system provides, in a single formula, a scientific measure of noise exposure from take-offs, landing approaches and reverse thrust after landing, for known or forecast frequencies of aircraft types and movements on various flight paths.

The ANEF system has been in use in Australia since 1982 and is based on the US-developed Noise Exposure Forecast (NEF) system. It was developed by the National Acoustics Laboratories (NAL), who were commissioned by the Departments of Transport and Defence in 1979 to conduct a study of the NEF system which would enable it to be adapted to Australian conditions.<sup>1</sup>

The NAL study included a comprehensive social survey to assess the impact of aircraft noise on Australian communities living in the vicinity of airports. Between 1979 and 1982, the NAL interviewed 3,575 residents around Sydney, Adelaide, Perth, Melbourne and Richmond (airforce base) to determine their response to aircraft noise. The NAL survey indicated that:

- "equal energy" indices (ie. in broad terms, aircraft movements multiplied by the noise of each event) correlated with community reaction to a greater extent than "peak level" indices (ie. the single loudest moment of an event).
- a 6dB weighting for all flights 1900-0700 hours was more appropriate for Australian conditions than the 12dB weighting used under the NEF system.

As a result of the NAL survey, the Department of Aviation revised the NEF system for Australian conditions, especially with regard to weightings given to evening and night time aircraft operations.

---

<sup>1</sup> Hede, AJ and Bullen, RB, *Aircraft Noise in Australia: A Survey of Community Reaction*, National Acoustics Laboratories Report No.88, Australian Government Publishing Service, Canberra, February, 1982.

These revisions were:

- the night time penalty was reduced - US NEFs rated one night-time flight to be equivalent to 17 day time flights - to two flights.<sup>2</sup>
- a penalty was introduced for evening flights (7-10pm) with one flight equivalent to four day-time flights.
- noise at the airport itself rather than that from overhead flights should be excluded from the NEF calculations

Under the ANEF System, noise exposure is calculated using an average day's aircraft movements over 12 months. In calculating the noise exposure levels around airports, the ANEF system takes into account the following factors:

- noise characteristics of each aircraft type at each phase of the take-off or landing procedure (including sound level, frequency spectrum and duration);
- airport flight path patterns;
- the forecast number of movements by each aircraft type on each flight path; and
- the time of day or night at which the aircraft movement takes place.

The ANEF system is an equal energy index based on the principle that a loud noise occurring only a few times a day produces a similar response to a moderate noise occurring many times if the total noise energy from both types of exposure is similar. Equal energy indices have a closer correlation with community reaction than other types of indices such as those based solely on peak noise levels.

There are two major elements of the ANEF system in relation to noise predictions:

- it measures the physical properties of noise from aircraft overflights, the tonal characteristics of noise and the time, duration and number of flights. A penalty is applied to noise between 7pm and 7am to the effect that every flight during this time is considered to be equivalent in annoyance potential to four daytime flights; and

---

<sup>2</sup> In evidence before the Senate Inquiry into Aircraft Noise in Sydney, Dr Peter Peploe of the NAL explained that the Australian definition of "night flights" was more stringent than the USA. He stated that the study authors, Bullen and Hede, "looked at various night weightings and people's responses, and they found that you give a weighting where every one night flight is equivalent to four daytime flights. They found that that was a more appropriate weighting for Australian conditions. And for 'night,' here, we are talking about 7 pm to 7 am, which is a different time period from the American NEF." (191)



- it provides information which enables forecasts to be made of the proportion of residents living around airports who will be affected by aircraft noise.

The results of ANEF calculations are displayed as a set of contours joining points of equal aircraft noise exposure in the area around the airport on noise contour maps, presented as an annual daily average noise exposure for a specified year in the future.

The 20 ANEF contour line is the lowest line on an ANEF contour map and is considered difficult to accurately establish. Therefore, it is normally presented as a broken line on maps. However, the 20 ANEF contour does not represent a dividing line between some aircraft noise exposure and no noise. There is aircraft noise exposure of some degree over virtually all areas of Sydney. What it means is that areas outside the 20 ANEF contour are exposed to lower levels of aircraft noise over a period of a year than areas within the contour.

The Committee was concerned in subsequent sections to review the ANEF system to see whether it was capable of reflecting actual human reaction to aircraft noise, especially in the context of a new airport site such as SWA.

The Committee also investigated existing land use planning controls based on the ANEF system to assess their applicability and how they had been put into practice in the SWA Sub-Region. These land use controls are embodied in Australian Standard 2021-1994.

### 4.2.3 AS 2021-1994: THE ANEF SYSTEM & LAND USE PLANNING

The social survey responses and the noise exposure data which were collected during the development of the ANEF system made it possible to develop a set of land use compatibility recommendations for Australian conditions which could be used as a development control tool. These recommendations were refined by the Standards Association of Australia and published in Australian Standard AS 2021-1994 (Acoustics - Aircraft Noise Intrusion - Building Siting and Construction - 1994). These standards were first published in 1985 and replaced the earlier standard AS 2021-1977.

AS 2021 specifies recommended maximum aircraft noise levels for various areas within buildings, depending on the use of the area. The recommended land use compatibilities for these different aircraft noise exposure levels were presented in AS 2021 in the form of a table which classified a site as either acceptable, conditional, or unacceptable for various building types, depending on their ANEF zone.

In summary, the table indicates that:

- below 20 ANEF, sites are acceptable for all building types;
- between 20-25 ANEF, sites become conditional for the most noise-sensitive building types (residential, schools and hospitals);

- above 25 ANEF, land is rated as unacceptable for noise-sensitive building types; and
- above 35 ANEF, sites are rated as unacceptable for all building types other than industrial buildings.

Under current planning controls, rezoning land for schools, hospital, churches and theatres is discouraged above the 20 ANEF contour, and special building control provisions are required in the 20-25 ANEF zone to meet interior noise standards within residential dwellings. Rezoning for residential land uses is not permitted where the 25 ANEF contour is to be exceeded.

#### 4.2.4 PHASING OUT NOISY AIRCRAFT IN AUSTRALIA

The ANEF contours prepared for the Draft EIS in 1985 were predicated on a "worst case scenario" which incorporated some noisy, older generation aircraft which will be largely phased-out by the time that SWA opens in 1999. These changes in the fleet mix to quieter aircraft will have some impact on ANEF contour lines surrounding SWA.

Most countries have now legislated to ensure early retirement of noisy aircraft fleets before their economic life is completed. In the case of Australia, the first phase-out applied to non-noise certificated aircraft (ie. pre Chapter 2 aircraft) which were phased out by 1 January 1985 for Australian registered aircraft and by 1 January 1988 for foreign operators into Australia. In 1989 the Commonwealth Government introduced regulations to phase out old generation (Chapter 2) jet aircraft. This program is based on an International Civil Aviation Organisation (ICAO) Resolution and involves the progressive removal from service of Chapter 2 jets as they reach the 25th anniversary of the date of issue of their first Certificate of Airworthiness. The program came into effect on 1 April 1995 and had the immediate effect of removing a number of Chapter 2 freight jet aircraft from operation. Chapter 2 certificated aircraft were prohibited from registration after 1 January 1991.

In March 1995, Ansett Australia, the only operator of regulation public transport Chapter 2 aircraft (B727s and F28s) in Australia announced significant reductions in its B727 and F28 operations through Sydney. B727 movements through Sydney were scheduled to be reduced from 124 per week in March 1995 to 74 per week in May 1995. Movements by F28 aircraft will be reduced from 86 per week in March 1995 to 8 per week by the end of 1995. The phase-out of Chapter 2 aircraft should be completed by 1 April 2002.

The Australian Air Transport Association (AATA) reports that Australia now has an extremely good proportion of Chapter 3 aircraft by international standards:

"Australia has one of the highest proportions of Chapter 3 aircraft on the register of any country in the world. QANTAS' fleet is already made up of Chapter 3 aircraft and Ansett is substantially compliant, with only 727 and F-28 aircraft required to leave the fleet." (AATA Senate Submission - 9)

The impact which quieter aircraft have had on aircraft noise patterns in the past is indicated by comparing the areas within a noise contour of 100 EPNdB for B707 to B747 aircraft:

**TABLE 24: NOISE IMPACT OF OLD AND NEW GENERATION AIRCRAFT**

<b>Aircraft Type</b>	<b>100 EPNdB Range on Take-off</b>	<b>100 EPNdB Range On Landing</b>
<b>707</b>	6.5 sq/miles	1.0 sq/miles
<b>747</b>	1.2 sq/miles	0.2 sq/miles
<b>Reduction Factor</b>	4 times	4 times

Source: AATA Senate Submission - 7.

The dramatic impact which past improvements in aircraft technology have had on aircraft noise events will become less pronounced in the future. However, Air Services Australia (formerly the CAA) has indicated that increased traffic movements at an airport such as KSA will be offset to some extent by the introduction of more new generation aircraft.

If aircraft numbers increased from 240,000 per annum to 303,000 per annum, the change in noise exposure at a given location would be an increase of 1 ANEI unit. In other words, a 25 per cent increase in aircraft movements has a very small impact on noise contours. That increase will be offset by changes in the fleet mix due to the phase out of the noisier Chapter 2 aircraft, which will have the effect of reducing noise exposure. (CAA Senate Submission 49-50)

**The Committee notes that the change in the mix of the air fleet in Australia since the 1985 EIS will alleviate some of the impact of aircraft noise from SWA and should result in changes to the ANEF contour map for SWA.**

#### **4.2.5 ANEF CONTOUR MAPS FOR THE DRAFT EIS (1985)**

The Draft EIS for the Second Sydney Airport (April 1985) contained an assessment of projected noise from aircraft operations at SWA using the ANEF system in conjunction with a set of "worst case" assumptions based on a two runway system with a maximum capacity of 275,000 aircraft movements per year. Aircraft were divided into the following categories.

**TABLE 25: MAXIMUM PROJECTED AIRCRAFT MOVEMENTS AT SWA**

Aircraft Type	Movements
B 747	37,500
A 300	87,500
F 27	60,000
General Aviation*	90,000
<b>Total</b>	<b>275,000</b>

(\* - general aviation aircraft were estimated at the following proportions: 60% single engine piston, 30% multi-engine piston, 10% business jet).

ANEF contours for SWA were calculated by combining this maximum aircraft movement volume with the following "worst case" scenarios for aircraft movements:

- noise analysis carried out on a "busy day" (defined as average day operations plus 10 per cent).
- evening operations (1900-2200hrs) at:
  - 15 per cent of total general aviation and commuter operations;
  - 20 per cent of total domestic and international operations; and
- night operations (2200-0700hrs) at:
  - 5 per cent of total general aviation and commuter operations;
  - 10 per cent of total domestic and international operations.

These assumptions produced the existing ANEF contour map for SWA.

Based on this map, the 1985 EIS estimated a maximum future population of 1,951 people in the vicinity of the airport of which 1,115 people may be either seriously or moderately affected by aircraft noise in an area of 6,368ha around the airport.

**TABLE 26: SWA: MAXIMUM NUMBER OF POTENTIALLY NOISE AFFECTED RESIDENTS**

Population	ANEF Contour Range				Total
	20-25	25-30	30-40	40+	
Maximum Future Population	1,349	387	211	4	1,951
No. Seriously Affected	189	89	84	2	364
No. Moderately Affected	513	155	81	2	751
<b>Total No. Affected</b>	<b>702</b>	<b>244</b>	<b>165</b>	<b>4</b>	<b>1,115</b>

Source: 1985 Draft EIS, Table 9.2.5

As the Coalition of Councils submission to the Committee (s.59) indicated, this level of

aircraft noise impact is minimal compared with estimates of over 70,000 people being adversely affected by parallel runway operations at KSA. However, it is important to minimise the impact of aircraft noise from SWA, given that it will be a no curfew airport in an area with low ambient background noise levels.

Clearly, the SWA aircraft noise contour map represents an extreme level of operations; one which will not occur in the short term at SWA. However, the limitations to the ANEF system which have been exposed by the commencement of parallel runway operations at KSA and that nature of SWA itself suggest that the ANEF contour map contained in the 1985 Draft EIS should not be considered as a remote scenario.

The Committee looks at the limitations to the ANEF system and some ways in which they might be overcome in the following sections.

#### **4.2.6 ADDRESSING THE LIMITATIONS OF THE ANEF SYSTEM AT SWA**

The increased noise levels resulting from the new parallel runway operations at KSA have highlighted the limitations of the ANEF system and the need to review its measurement approach to better reflect community perceptions of the aggravation caused by aircraft noise.

In a submission to the Committee (s.60), the NSW Minister for the Environment, the Hon Pamela Allan, identified improvements to the ANEF system as a priority issue which the State had already raised with the Commonwealth:

Aircraft noise and airport-related traffic noise will also be critical issues for determining land use surrounding SWA. Following the failure of the Australian Noise Exposure Forecast (ANEF) methodology used in the Third Runway (Kingsford Smith Airport) to reflect community response to aircraft noise, the EPA has sought a reassessment of the methodology for SWA from the Commonwealth to ensure that any noise forecasts better predict impacts on the public.

In its submission to the Senate Inquiry on Aircraft Noise in Sydney, the CAA acknowledged that the ANEF system had limited applications and indicated that it was learning from the experience at KSA to develop a better system of forecasting aircraft noise and its impact for SWA:

The intense public reaction to exposure to new noise which accompanied the introduction of parallel runway operations at Sydney is clear evidence of the need to supplement the ANEF contours with a range of other metrics, such as the number of times that aircraft noise will exceed a given maximum noise level in a typical day. In addition, the ANEF system is relatively insensitive to large changes in aircraft activities. The CAA is examining the application of alternative descriptions to complement the ANEF contours, particularly in relation to aircraft operations at the proposed Sydney West Airport. (18)

The Committee has investigated a number of different options which could be considered as part of the revision of the ANEF system.

Since the commencement of parallel runway operations at KSA, there has been considerable discussion about the value of the ANEF system as constituted.

Both the American NEF and the Australian ANEF systems were designed as land use planning tools which offered a generalised view of aircraft noise exposure in a particular region. Neither system was designed to measure or predict the actual level of noise at any specific location or to identify the actual reaction of people living at such places. Thus, the ANEF system has no flexibility or detail. It is unable to predict specific noise impacts on a particular day or identify seasonal or daily variations in weather conditions or aircraft movements.

In addition, the ANEF system is not able to properly consider peculiar topographic or climatic circumstances. There is no allowance for sound reflection off water or for thermal inversions, which are a common weather phenomenon in Sydney. Further, the EIS for the Third Runway at KSA did not consider the effect of prevailing seasonal wind patterns on aircraft movements. The Third Runway EIS estimated that take-offs to the north would be limited to about 12 per cent of all take-offs. In fact, take-offs north in summer rise to about 40 per cent of all take-offs.

There are obvious limitations to the ANEF system if it is used as a measure of the actual impact of aircraft noise on individuals and their ability to become conditioned to aircraft noise. As an ANEF contour shows the long term average noise exposure, it is not possible to indicate the loudness and number of noise events that people will experience within any particular ANEF zone. Similarly, the ANEF system does not predict individual reaction to aircraft noise, only general community reaction, and it does not reflect the short-term response of people to a changing aircraft noise environment. The ANEF system is particularly inflexible in measuring the impact on people exposed to aircraft noise for the first time; such as will occur at SWA.

An additional consequence of mapping the 20 ANEF as the minimum noise contour is that it has been assumed by many people that aircraft noise is not going to be a problem outside that 20 ANEF line.

The significant disturbance being registered by people living outside the 20 ANEF contour line for KSA parallel runway operations has focused attention on the reasons why 20 ANEF has been used as the lowest contour line on ANEF contour maps.

The 1982 NAL Survey which resulted in the introduction of the ANEF system concluded that aircraft noise levels beneath 20 ANEF began to become indistinguishable from other sources of intrusive noise. For example, respondents began to rate road noise events above aircraft noise events (and even rated pet noise at the same level as aircraft noise at times).

In evidence before the Senate Inquiry into Aircraft Noise in Sydney, Dr Peter Peplow of the

NAL supported this judgment:

usually you find that the contours are 20 and above. It is quite possible to publish contours below that. The problem is that as the noise levels get lower.... they are more affected by conditions. (192)

Despite this comment, the 1982 NAL survey noted that people could experience a serious reaction to aircraft noise beyond the 20 ANEF contour and that 7 per cent of people are seriously affected and 35 per cent of people are moderately affected at 15 ANEF.

It is technically possible to define the 15 ANEF contour through a computer program and to publish those ANEF levels; although it has never been standard practice in Australia and experts have expressed concern over its feasibility.

**The Committee believes that the low ambient noise level surrounding a greenfield sites such as SWA should enable the 15 ANEF contour to be more accurately determined than in an area where there is significant urban development.**

In addition, the ANEF system uses aircraft noise levels to attempt to determine average community annoyance response. It does not measure the variation in human response to aircraft noise or the annoyance caused by abnormal aircraft movements, which are closely linked to stress and complaints. Equivalence sound level measures such as the ANEF system correlate poorly with these sleep disturbance patterns. On the other hand, maximum sound level measures are well correlated with effects such as awakenings, acute body movements and subjective opinion of sleep quality. For example, some surveys have indicated that with cases of acute disturbance, intermittent noise of 45dB(A) maximum has caused a change in sleep intensity and increased the number of body movements.

With regard to SWA, the ANEF system was developed using existing airports such as Sydney, Perth, Melbourne, Adelaide and Richmond RAAF Base, which are surrounded by urban areas. In other words, residents were partly conditioned to aircraft noise, which was also mitigated by other noise sources especially road traffic.

This is very different to the prevailing demographic conditions around SWA. As the Silverdale/Warragamba Airport Group (SWAG) noted in its submission (s.8) to the Committee: "urban areas 'dampen' noise. In our area we currently have a lot of open space with minimal noise dampening ability."

In addition to the need for a better targeted ANEF system, Blacktown City Council emphasised the need to distribute a thorough information package to residents in its submission (s.33):

Any updated noise study must identify the noise contour regime that will apply in the areas in and adjacent to the Airport, for day and night operation, in a clear and comprehensible form. These regimes should be for maximum Airport development and should also include ANEF measures below the 20 ANEF threshold so that

residents of Western Sydney can be informed of the potential noise impact from the airport...

In evidence before the Committee, Mr Alex Sanchez, Chairperson of WSROC, supported this idea:

One of the things we have been doing is lobbying the Federal Government to ensure that the process is transparent, open to consultation, and in plain English, because we realise that the ANEF and the studies of all the scientific gurus are just beyond the reach of the average person out there. (T1, 5)

**The Committee supports a transparent process and comprehensive community involvement in the preparation of noise management plans for SWA.**

**The Committee believes that the ANEF system as constituted should not be used as the sole indicator of human response to aircraft noise. Maximum noise levels should also be considered when producing evaluations of the number of residents affected by aircraft noise.**



## RECOMMENDATIONS

- 71. The NSW Government should enter into negotiations with the Commonwealth Government with a view to expanding the existing ANEF system to:**
- include 15 ANEF contour lines on maps;
  - consider the maximum levels of aircraft noise events in aircraft noise forecasts;
  - give a greater weighting for night flights in response to SWA operating as a no curfew airport; and
  - take into account the rural character, topography and climate of the area surrounding SWA.
- 72. The NSW Government should press the Commonwealth to ensure that a comprehensive information kit in plain English and other languages is developed to explain just how SWA will operate and the potential noise impact of aircraft operations.**
- 73. Maps containing forecasts of aircraft noise from SWA for every stage of airport development (including a breakdown of day and night operations) should be prepared and distributed to people in adjacent LGAs. These maps should show the aircraft noise implications for the following stages:**
- a 2,900m runway serving 1 million passengers in 1999;
  - a single 4,000m runway; and
  - a 4,000m runway and one 2,500m runway serving 13 million passengers.

### 4.2.7 FLIGHT CORRIDORS FOR SWA

The use of restrictive airport flight corridors to minimise noise impact on underlying suburbs has been introduced by the Commonwealth as a result of parallel runway operations at KSA. Submissions to the Committee have promoted similar flight corridors for SWA. For example, Blacktown City Council stated in its submission (s.33) that, "the proposed absence of a curfew at Sydney West Airport emphasises the need for flight paths to be strictly defined and rigorously enforced."

The Committee considered the effectiveness of the current arrangements at KSA in tandem with the specific topographical and demographic circumstances at SWA.

At the time of the opening of the Third Runway on 5 November 1994, information provided by the EIS, the Draft Noise Management Plan, ANEF contour maps and the Commonwealth Government had created a public expectation that aircraft would maintain runway headings when taking off north of the airport. In the first few days of parallel runway operations, a large number of aircraft taking-off north turned towards their final destination well south of the five nautical mile limit. On 8 November 1994 instructions were given to Air Traffic Control for aircraft to maintain runway heading prior to turning. However, this did not stop suburbs to the sides of the flight path which follows the extended runway alignment (such as Rozelle and Haberfield) from being overflown as aircraft spread across the sky in accordance with radar vectors.

The Commonwealth Government subsequently introduced regulations imposing mandatory take-off and landing flight corridors in an effort to ensure, as far as possible, that aircraft maintain flight paths.

The flight corridor procedures for KSA were formalised by the Air Navigation (Aerodrome Flight Corridors) Regulations on 20 December 1994. The corridors became mandatory on 21 March 1995 following a trial period and a Ministerial Determination established seven corridors on 16 March 1995.

The matter of whether flight paths should be determined based on economic or social imperatives has already been the subject of an investigation by a Commonwealth Parliamentary Committee whose recommendations should form the basis for all determination of flight paths and flight corridors in the future.

The House of Representatives Select Committee on Aircraft Noise (HORSCAN) Report on "Aircraft Operations and the Australian Community" (1985) recommended that "special flight paths be devised for noise abatement reasons irrespective of economic consequences." (Recommendation 17)

The HORSCAN Report noted that:

... it appears to the Committee that most standard instrument departures and flight paths are devised for operational reasons and subsequently examined for noise implications. The Committee considers that a more socially acceptable and responsible approach would be to devise flight paths designed to cause the least noise impacts on communities surrounding the airports. (18)

The flight path assignment for ultimate development at SWA contained in the Draft EIS 1985 incorporated a two runway system in which flights were distributed according to the capacity of each runway.

General aviation was concentrated onto the 2,500m runway to the north. Jet traffic was concentrated on the 4,000m runway to the south.

All landings followed the runway alignment for a distance of at least three nautical miles

(5.5kms).

Take-offs were distributed between:

- four major flight paths, which continued along the runway alignment beyond 2-3 nautical miles (about 3.5-5.5kms); and
- four less frequently-used flight paths, which turned at either 2 or 3 nautical miles at 90 degrees to the runway alignment.

In a briefing to the Committee, Dr Hugh Milloy of the Commonwealth Department of Transport explained that flight paths for SWA could not be developed until Air Services Australia has developed an air space management plan for the entire Sydney region.

Flight path development would involve estimates of traffic levels, the types of aircraft using SWA as well as their noise impact.

It would also involve a re-assessment of current flight paths and holding patterns. Holroyd Council has pointed out in its submission (s.34) that it is already underneath the holding patterns for commercial aircraft inbound from Victoria, South Australia, Asia and Europe with aircraft operating as low as 3,500 feet.

However, Air Services Australia has reported that the existing airspace structure for the Sydney region was prepared with the development of SWA in mind:

The current route structure around Sydney Airport has been developed with SWA in mind. It could be therefore that additional routes will be all that is required for Sydney West rather than an entire re-design of the Sydney Basin airspace. In any case, an environmental assessment of flight paths over all built up areas affected by flights to and from SWA will be undertaken by the CAA.<sup>3</sup>

Despite the difficulty in confirming flight paths and corridors at this stage, the Committee believes that certain guidelines should be put in place which can be used as a guide for determining air space management at SWA.

In particular, the Committee believes that the high population densities on the alignment of the runways to the north-east of the airport (as opposed to the sparse population to the South-West) must be taken into account when formulating flight paths, especially during "traditional" curfew hours between 11pm and 6am.

SWA must operate as a no curfew airport in order to realise its economic potential for the whole Western Sydney region and Australia.

However, this operational requirement must be achieved with minimum disturbance to as

---

<sup>3</sup> Evidence to the Senate Inquiry into Aircraft Noise in Sydney, 56.

many people as possible who live near the airport.

This means concentrating aircraft noise over the least populated regions; in this case, the region to the south-west of SWA. The Commonwealth Minister for Transport, the Hon Laurie Brereton, has been reported as supporting the concentration of night flights out of SWA over the south-west. (SMH, 26 August 1995)

A comparison of population densities at either end of the runway alignment for SWA confirms the need for the north-east to take priority.

Existing population centres to the south-west at Warragamba and Silverdale are outside the 20 ANEF contour line for the 1985 EIS and there are only 4,225 people living in the immediate area. The increased noise load from concentrating aircraft operations from SWA to the south-west would place additional stress on many of these people. Therefore, specific programs to deal with them should be developed to assist them.

**The Committee believes that mandatory flight corridors for SWA must be formulated as soon as possible with a specific emphasis on minimising noise impact for people in Western Sydney.**

**These flight paths should be included in a comprehensive information kit to be distributed to people living in affected areas.**

**The Committee is concerned that the use of flight paths which turn 90 degrees from the runway alignment at SWA at a distance of 2-3 nautical miles should be minimised because they may overfly densely-populated regions to the north and south of SWA.**

## **RECOMMENDATIONS**

- 74. Given that SWA will operate as a no curfew airport, the NSW Government should enter into negotiations with the Commonwealth to ensure that:**
- there are no flight paths at SWA which enable major jet traffic to turn from the runway alignment before a distance of 5 nautical miles (or 10km);**
  - the impact of aircraft noise on densely-populated areas to the north-east of SWA is minimised during the hours of 11pm to 6am; and**
  - the feasibility of concentrating night operations to the south-west of SWA be explored.**

**In short, the Committee believes that a quasi-curfew on aircraft operations to the north-east of SWA should be thoroughly investigated and introduced if possible.**

**The Committee is aware that this proposed flight corridor will expose the region to the south-west of SWA to higher levels of aircraft noise. This region is already vulnerable to aircraft noise because of low levels of background noise.**

## **RECOMMENDATIONS**

- 75. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that the revised ANEF system specifically considers the unique circumstances which will prevail to the south-west of SWA if flight corridors directing aircraft operations at night to the south-west of SWA are introduced.**
- 76. The insulation and voluntary acquisition program for residents to the south-west of SWA should be reviewed if flight corridors directing aircraft operations to the south-west of SWA are introduced.**

**In relation to this recommendation, the Committee adds the qualification that flight corridors should be formulated to minimise the impact of aircraft noise on Blue Mountains National Park, which is to the north of the runway alignment at SWA.**

### **4.2.8 THE USE OF THE ICAO A DEPARTURE PROCEDURE AT SWA**

The Committee investigated existing aircraft take-off and departure procedures in order to determine whether there were any procedures which could alleviate exposure to aircraft noise for Western Sydney residents.

There are two alternative aircraft departure procedures approved by the International Civil Aviation Authority for use in Australia. They are called the ICAO A and ICAO B Departure Procedures.

ICAO B is the normal take-off procedure used in Australia because it provides noise amelioration for population centres closest to the airport.

On the other hand, the ICAO A Departure Procedure provides relief for areas which are further from the airport. It is currently being used at KSA to alleviate aircraft noise for inner Sydney suburbs in the middle to long range distance from the airport (10km to 20km).

The Committee believes that the ICAO A Departure Procedures may be an appropriate method for minimising aircraft noise exposure in heavily-populated suburbs to the north-east of SWA at a distance of about 10-20km.

The ICAO A Departure Procedure requires aircraft to accelerate for a longer period of time after take-off in order to climb higher in a shorter space of time than with the ICAO B Departure Procedure.

The Australian Air Transport Association has stated that "the change substitutes a departure profile optimised to offer relief for the community further from the airport... this is achieved by operating the aircraft at take-off thrust for a longer period to achieve a higher altitude before overflying the community." (AATA Senate Sub -19)

Ansett has been using the ICAO A Departure Procedure for take-offs to the north from KSA for some time and QANTAS has recently introduced the procedure. It means that the area exposed to noise from lighter aircraft such as the B737, B767 and A300 Airbus is significantly reduced while noise from heavier aircraft such as the fully-laden B747 is alleviated.

"Procedures for Air Navigation Services - Aircraft Operations - Volume 1" (4th edition, 1993) provides details of both the ICAO A & B Departure Procedures. It confirms that both procedures are approved as safe. The choice between them is a matter of which procedure is considered appropriate for alleviating aircraft noise on underlying population centres:

These aeroplane operating procedures for the take-off climb have been developed so as to ensure that the necessary safety of flight operations is maintained whilst minimising exposure to noise on the ground. One of the two procedures... should be applied routinely for all take-offs. (Volume 5 - Chapter 3)

## RECOMMENDATIONS

- 77. The NSW Government enter into negotiations with the Commonwealth Government to ensure that the suitability of the ICAO A Departure Procedure for flights to the north-east of SWA is fully investigated by Air Services Australia with a view towards implementation in its strategies for minimising aircraft noise at SWA.**

The ICAO A Departure Procedure is a recognised, safe take-off procedure which significantly reduces the range and intensity of aircraft noise impact on areas that are in the middle range of distances from an airport. Such a system should be highly appropriate for an airport like SWA, which has a small population in the immediate vicinity of the airport but a large population at a reasonable distance from the airport.

The ICAO A Departure Procedure should minimise exposure to aircraft noise in heavily-populated areas in Holroyd, Fairfield and Blacktown municipalities.

It should be noted that suburbs likely to be in flight corridors for SWA, such as Horsley Park, are located at the same distance that Gladesville and Hunters Hill are from KSA (about 9-10kms or 5 nautical miles). The ICAO A Departure Procedure has been specifically implemented at KSA to respond to aircraft noise in these areas.

The ICAO A Departure Procedure should also have a significant impact on the first major population centres near SWA, which are located in the Holroyd Municipality,

some 20kms from SWA. This is the same distance as Lindfield or Killara from KSA.

**The Committee is aware that the ICAO A Departure Procedure may increase aircraft emissions in the SWA Sub-Region, which could have a detrimental impact on air quality. Therefore, comprehensive examination is required prior to its implementation followed up by comprehensive air quality monitoring in the Sub-Region surrounding the airport.**

**The Committee has made recommendations for stringent air quality monitoring both on the SWA site itself and in the Sub-Region at section 4.4.**

#### **4.2.9 NOISE MONITORING PROGRAMS AT SWA**

The Committee investigated noise monitoring programs at Australian airports with a view to promoting a state-of-the-art system at SWA. Such a system would enable accurate information to be gathered on aircraft noise and made available to the public.

Transparency about aircraft noise is considered an important tool in alleviating resident concern about aircraft noise. The House of Representatives Select Committee on Aircraft Noise (HORSCAN) report on "Aircraft Operations and the Australian Community" (1985) considered that noise and flight path monitoring systems reduced community dissatisfaction with aircraft noise. HORSCAN recommended that "noise and flight path monitoring systems be installed at all major Australian airports". (Recommendation 18)

The Commonwealth Government accepted the Committee's recommendation, and the task of installing and operating the noise and flight path monitoring systems was assigned to the CAA.

The Response of the Commonwealth Department of Transport and Communications (1990) to the HORSCAN report stated that the CAA had been provided with \$1.5 million for noise and curfew monitoring which would be primarily used to replace the obsolete system at KSA. It was also noted that from 1990/91 "the funds for the purchase of future systems, and operating costs, are to be recovered from the airline industry."

The CAA commenced work on establishing noise and flight path monitoring systems for Sydney and Brisbane in 1990. These systems were installed by Lochard Environment Systems Pty Ltd and became operational in 1991.

Noise monitoring systems draw on data from Noise Monitoring Terminals (NMTs) in the surrounds of the airport and the airport radars.

NMTs are situated at permanent locations in residential areas and connected to the communications processor at the airport by leased telephone lines. Each NMT consists of a microphone at the top of a 6m mast, a precision sound level meter to measure the noise being received by the microphone, and data-transfer equipment. The NMTs measure all the noise

to which they are exposed, not just aircraft noise, over a range from 30dBA to 130dBA. They distinguish aircraft noise using the concept of the "noise event" (in other words, they can isolate aircraft overflights because they are a very loud noise). The noise level is transmitted from the NMT to a central computer each second.

The number of NMTs around each airport depends on runway layout and the position of the airport in relation to noise-sensitive locations. The number of NMTs range from 12 at Sydney Airport to three at Cairns Airport. In addition to permanently-located NMTs, the CAA also has portable NMTs, fully compatible with the rest of the system, which can be readily installed at additional sites when required.

These noise monitoring systems receive flight track data on aircraft from the airport and related surveillance equipment. Radar data is routinely collected and stored for all aircraft within a radius of 20km from the airport over an altitude range from ground level to 10,000 feet. The system is also supplied with flight plan data for all aircraft operations and weather data for each airport. It collects noise and flight path data 24 hours a day, seven days a week. For each NMT, the system measures and reports average noise level and a range of statistical noise levels for each hour of the day, for the day as a whole and for the night.

Each airport has been provided with a computer terminal which has access to local data for the purpose of dealing with aircraft noise complaints from the general public. In addition, there is provision for connection of a large-scale map to display data from the system to the public.

Air Services Australia (formerly the CAA) is in the process of evaluating a software package called Noiseload, which automatically and cumulatively prepares aircraft noise exposure contours as aircraft operations occur. The contours are based on the actual flight track of each aircraft as received from the radar, and not on theoretically assumed tracks. Thus, a year-to-date noise contour set would be available when required.

In relation to KSA, the NAL has suggested that additional noise monitors were required away from the airport site itself in order to gain an accurate measurement of the impact of aircraft noise on surrounding suburbs:

More noise monitors are needed, especially off the flight path. Currently CAA has two noise monitors under the approach (mostly) to each runway. That is, there are only 12 noise monitors for KSA of which four are under the approaches to the east-west runway. It is highly desirable to have additional noise monitors especially off the flight path, so that noise contours can be checked and, if required, the noise data base amended. (Senate Submission: s.1590)

## RECOMMENDATIONS



- 78. The NSW Government enter into negotiations with the Commonwealth Government to ensure that a comprehensive aircraft noise monitoring system including the "Noiseload" software package is introduced both on the SWA site and in surrounding areas as part of the airport masterplan.**
- 79. Noise Monitoring Terminals to provide data for the system should be located at established distances from SWA on or near the following sites:**
- to the north-east at Kemps Creek (5kms), Horsley Park (10kms) and Prospect Reservoir (20kms).
  - to the south-west at Warragamba/Silverdale (about 10kms) and in the Bents Basin State Recreation Area (about 20kms).

The Committee notes that the extremely low background ambient noise levels to the south-west of SWA means that aircraft noise will spread across a greater range, especially at night. It is imperative that detailed information is gathered on the aircraft noise impact on the townships of Warragamba and Silverdale as well as in the Bents Basin SRA.

#### **4.2.10 AIRCRAFT NOISE HEALTH STUDIES**

The relationship between resident health and aircraft noise and emissions has been raised in past inquiries into airport operations in Australia as a subject requiring detailed study.

To date, studies of the scale recommended by authoritative bodies such as the NAL have not been undertaken. The FAC commissioned some studies into health matters as part of the development process for the Third Runway at KSA and has commissioned further studies as a result of the extreme public reaction to parallel runway operations.

The Committee is concerned that further studies should be instituted which provide comprehensive information about the impact of aircraft noise from SWA, which can be used in future planning for airports both in Australia and overseas.

In the past, the health impact of aircraft noise has been dismissed as a minor public health issue. It is no longer satisfactory to adopt such an attitude. The Committee believes that the recommendations of previous inquiries into aircraft noise must now be implemented at SWA.

The first recent study of the impact of aircraft noise was undertaken by the House of Representatives Select Committee on Aircraft Noise (HORSCAN), which investigated the relationship between health and aircraft noise in its initial report of October 1970. Recommendation 17 of that 1970 HORSCAN report included the need for research into:

- (b) the potential physiological effects of typical exposure to aircraft noise;

- (c) the effect of aircraft noise on sleep and rest; and
- (d) whether exposure to aircraft noise is a major factor in reducing work efficiency.

The Department of Aviation replied that it was not an authority on the effects of aircraft noise on health and had not undertaken any research into this subject. However, it kept a watching brief on overseas research into the subject.

The HORSCAN investigated the health impacts of aircraft noise again in 1985 as part of its report on "Aircraft Operations and the Australian Community" (6-8). The 1985 HORSCAN report looked at overseas surveys of the relationship between aircraft noise and mental health, excess mortality, birth defects and high blood pressure, learning difficulties and respiratory problems in school children. The report concluded that "no State or Local Government was able to provide evidence to the Committee which suggested a link between health and aircraft flyover." (7) However, the report noted that the Commonwealth Department of Health believed that the only way to resolve the issue was to "undertake a better series of studies in Australia which encompass all possible health effects." (7-8) Recommendation One of the 1985 HORSCAN Report was that:

The Commonwealth Department of Health in consultation with State and Local Governments undertake a study to determine the effects of aircraft noise on mortality and physical and mental health. (ix)

The Commonwealth Department of Transport and Communications released its formal response to this Report (1990). The response to Recommendation One concluded:

The costs of such a study would be substantial and that on available evidence the issue of aircraft noise and health could not be considered a high public health priority. While supporting in principle the desirability of some further research in this field, such a study would have to compete with other research proposals for limited public health research funds. (2)

**The Committee believes that the status of aircraft noise as a health issue has been raised since 1990 and that it now represents a priority public health issue.**

In recent years, studies have been undertaken under the aegis of the FAC by the NAL to look at some aspects of the relationship between aircraft noise and health. A proposal for a comprehensive, long term study was developed by the NAL. However, the FAC has made only limited funding available for this project.

The recommendations in the Department of Arts, Sport, Environment and Transport Treaties (DASETT) "Environmental Assessment Report, proposed Third Runway, Sydney (Kingsford Smith) Airport" (November 1991) resulted in the FAC commissioning the NAL to form a study team called the Sydney Airport Health Study Committee (SAHSC) to consider the feasibility of undertaking a long term study into the effects of aircraft noise on human health.

The SAHSC comprised the NAL and two departments from the University of Sydney, the Department of Public Health and the Department of Psychology. The first proposal by the SAHSC was finalised in March 1993. It proposed a number of studies which would utilise several approaches to determine a range of possible noise effects on people. These studies were designed to compare the health and responses of people before and after (phase one and phase two) the opening of the third runway. These studies were designed to cover all the major possible effects.

Nine different studies of the impact of aircraft noise on health were recommended. These studies included:

- cardiovascular health in persons over age 18;
- cardiovascular health/blood pressure response in children;
- gestation period and birth weight of children;
- general mental health;
- sleep, especially response relationships between chronic noise-induced disturbance and possible health implications;
- the number and type of consultations with general practitioners;
- a time series survey, which would correlate short-term certain hospital admissions with noise events over a series of time periods;
- community reaction to changes in noise; and
- a small area study, which would analyse morbidity and mortality by census district from routinely collected public health data including births, deaths, marriages and cancer.

The estimated cost of the proposal was \$10 million.

The FAC, after consultation with the Commonwealth Environment Protection Authority (CEPA - formerly DASETT), requested the SAHSC to revise the study design to cover the most essential components. The SAHSC prepared a revised study design at an estimated cost of \$1.7 million.

The final study which was approved by the FAC will encompass two stages. The first stage aims to establish a baseline prior to full parallel runway operations at KSA. The second stage will follow some time after parallel runway operations at KSA have stabilised to identify any changes in the status of people's health. The study will consist of four elements:

- a study of mental health and reaction to aircraft noise;

- a study of blood pressure in primary school children in noise impacted and non-noise impacted areas;
- an evaluation of the CAA Noise and Flight Path Monitoring System and the software for computing noise exposure; and
- a small area study (not funded as yet by FAC).

These surveys will compare areas which:

- experienced high aircraft noise levels before opening of the parallel runway and will have low aircraft noise after it opens;
- experienced low aircraft noise levels before opening of the parallel runway and will have high aircraft noise after it opens;
- experienced aircraft noise before opening of the parallel runway and will have no change; and
- experienced no aircraft noise before and after opening of the parallel runway.

The FAC has commissioned the first stage (baseline) of the study at a cost of more than \$550,000. It was expected to be completed in September or October 1995. Shortly after Stage 1 has been completed, decisions will be made about the scope of further stages of the study.

The FAC has also agreed to fund a study into the reasons for the current reaction to the opening of parallel runway operations at KSA at a cost of over \$50,000. The results of this study will be applicable to the prediction and management of community response to future changes of noise environments.

The SAHSC has proposed two studies in addition to its original proposal to the FAC. These studies are:

- a study of sleep disturbances of shift workers including the affect of reduced Stage 4 (deep) sleep on the immune system; and
- a study of consultations with general practitioners.

The FAC considers these surveys to be outside the parameters determined by an expert review panel when the initial SAHSC proposal was reviewed.

The FAC has also commissioned a review of the real or potential human health effects of aircraft emissions by doctors at Austin Hospital in Melbourne. The review is being prepared in two parts. First, there is a brief review of the main human health effects of substances produced as a result of operations and projects at Sydney Airport. Second, there will be a

detailed assessment of human health impacts with specific consideration being given to the patterns of local meteorology, the patterns of fuel usage at the airport, the patterns of emissions from the airport into the Sydney airshed and the patterns of health effects in the population of metropolitan Sydney which might occur as a result of the interactions of these variables. The FAC is awaiting the final report.

In its submission to the Senate Inquiry into Aircraft Noise in Sydney, the NAL reiterated its concern over the lack of any reliable measure of the relationship between aircraft noise and human response and stated that the SWA Sub-Region required specific research because it was likely to be exposed to a sudden change in aircraft noise exposure and night flights:

In examining the noise impact on the communities around SWA, a dose/response relationship must be established which accounts for the effects of *change* in noise exposure. ANEF does not do this.... Dose/response relationships between sleep and noise must be evaluated both in terms of night and day operations, since SWA is to be a curfew-free airport. These dose/response relationships must be established in the context of fundamental research on noise, sleep quality, health and performance.

## RECOMMENDATIONS

- 80. The NSW Government should enter into negotiations with the Commonwealth Government with the aim of completing the original SAHSC proposal for a comprehensive, long term study of the relationship between aircraft noise and human health in Sydney with a specific focus on impacts arising out of SWA.**

In particular, the Committee believes that a study of the impact of sleep disturbance on shift-workers is crucial because SWA will operate as a non-curfew airport, which might make similar demands on the affected population.

Such a study would provide definitive information on the links between aircraft noise and health which would be invaluable in the future both in Australia and overseas.

## RECOMMENDATIONS

- 81. The NSW Government should press the Commonwealth Government to ensure that material explaining the possible health implications of living near an airport is included in a plain English SWA information kit to be distributed to all residents in affected areas.**

### 4.2.11 THE DEVELOPMENT OF A NOISE MANAGEMENT PLAN FOR SWA

In addition to distributing information to potentially affected residents about SWA, there is a need for comprehensive community involvement in a transparent process to develop a noise management plan for SWA. The precedent for such a plan was laid down in the recommendations of DASETT when it responded to the Third Runway EIS.

DASETT recommended that a Steering Committee should prepare a Sydney (Kingsford Smith) Airport Noise Management Plan (NMP). The Steering Committee comprised representatives of the FAC, the CAA, the NSW EPA and the NSW Department of Transport. Representatives of the Commonwealth Department of Transport (DOT) and a residents group, the Community Advisory Committee (CAC), were granted observer status. The Steering Committee set its own terms of reference, which established its objectives and the working groups which would provide input to them. At an early stage, the chairman of the Steering Committee raised the impracticality of developing a noise management plan for Sydney Airport because the Steering Committee had no executive authority to implement or regulate it. In the event, the Noise Management Plan never proceeded beyond draft stage because of disputes about the committee's direction.

In a briefing to the Committee, Dr Hugh Milloy of the Commonwealth Department of Transport, indicated that a noise management plan would be developed for SWA as part of the EMP for the airport. As a preliminary step, a noise monitoring program had already been established at the site by the CAA to provide base line data on ambient noise levels prior to the establishment of the airport. In the preparation of the noise management plan, specific aircraft noise contours for the operation of the airport with the 2900m runway would be prepared and distributed to Western Sydney residents to improve their knowledge of the noise impacts of the initial airport development.

Dr Milloy indicated that, subject to operational safety requirements, the flight paths for SWA would be designed to minimise the impact of aircraft noise on residential areas of Western Sydney. Comprehensive community and industry consultation would be undertaken before the flight paths were determined.

**The Committee is concerned that there is no repetition of the circumstances which resulted in a Noise Management Plan never being formally approved for KSA.**

**An Aircraft Noise Management plan which involves community participation is essential to the successful acceptance of SWA as a productive institution in Western Sydney.**

## RECOMMENDATIONS

- 82. The SWADC, DUAP and the EPA should be the primary NSW representatives on any Steering Committee to develop a Noise Management Plan for SWA.**
- 83. The SWADC should be charged with the responsibility of formulating a structure of community-based working groups which can participate in the development of a Noise Management Plan for SWA.**
- 84. The NSW Government should enter into negotiations with the Commonwealth Government with a view to ensuring that local communities have direct influence over the final outcome of the noise management plan for SWA.**

#### **4.2.12 A PROHIBITION ON RESIDENTIAL DEVELOPMENT NEAR SWA**

As a result of doubts over the applicability of the ANEF system for the conditions which will prevail at SWA, the Committee investigated the possibility of alternative methods for dealing with aircraft noise such as tighter land use planning controls to restrict further residential development in the SWA Sub-Region.

Land use controls are the most direct method by which the NSW Government can alleviate the impact of aircraft noise.

The NSW Government has already applied a Section 117 Direction, issued under the Environmental Planning and Assessment Act, to ensure land use in the vicinity of Sydney West Airport was not changed to a less compatible use.

The Committee looked for additional mechanisms whereby the NSW Government could use its land use powers without waiting for the results of the EIS update on aircraft noise to be concluded.

**The Committee was particularly concerned at the encroachment of new residential development into the SWA Sub-Region, especially housing adjacent to or within the 20 ANEF contour identified in the 1985 EIS. While Australian Standard 2021-1994 permits residential development in the 20 ANEF range, doubts about the ANEF system mean that further residential development must be carefully considered at least until the EIS update on aircraft noise is completed.**

**The Committee looked at existing and proposed residential development in the SWA Sub-Region and found that the need for residential development to facilitate infrastructure provision in the SWA Sub-Region must be carefully managed in order to avoid placing additional environmental stress on the SWA Sub-Region.**

There are a number of existing residential areas north-east of SWA which are located near

the 20 ANEF zone.

In Liverpool, east of the airport, these are areas zoned: 1(a) rural, 2(a) residential, 6(a) public recreation and 3(a) business. These areas include Hoxton Park and lie just outside the 20 ANEF zone.

To the north-east of the airport is Cecil Hills (the Elizabeth Park Estate developed by Landcom), which is 4.5km from SWA and outside the 20 ANEF. This release area is now being developed, with a completion date of 2000. It comprises 1,600 lots and will be home to between 5000 and 6,000 people. The estate has been planned as a major development with a multi-purpose community centre, a long day child care centre, local parks, sports fields, passive open space and cycle ways. Other facilities to be supported through Section 94 contributions include a youth centre, branch library, occasional care centre, cultural facility, indoor recreation centre and pool, athletics track and netball complex.

Fairfield Council has expressed concern about the effects of noise over its municipality. There is concern for example that Smithfield (population 10,397 in 1991) might lie in the flight path - although this is unlikely - and that rural areas such as Cecil Park (population 470 in 1991) will be affected. Horsley Park (population 2,151 in 1991) lies outside but near to the 20 ANEF contour. In 1992, under pressure from residents, council drafted a new LEP which has reduced the minimum lot size in Horsley Park from 2ha minimum to 1ha minimum. This has the potential of doubling population numbers in that area.

There are a number of areas south of Horsley Park which have been or are being released under the UDP. There is some concern that these areas, although outside the 20 ANEF, might also be affected by noise. These areas (with their 1991 populations) include Abbotsbury (2,871), Bonnyrigg (7,697), Bonnyrigg Heights (5,299), Bossley Park (13,851), Edensor Park (6,626) and Greenfield Park (4,875).

Further developments under the UDP are planned, with the greatest lot production (1,050) in the five years 1994/95 to 1998/99 being in the northern part of Abbotsbury, just to the south of Horsley Park. The Fairfield City Community Profile (1994) notes that changes in the City Plan (in line with the UDP) will include:

- the rezoning of additional land in Bonnyrigg Heights to residential which could provide lots for an additional 1,000 residents;
- zoning changes in the rural - residential area to allow smaller lot development;
- the extension of medium density zoning across all residential areas
- the rezoning of Abbotsbury North and South residential extensions which will yield lots for at least another 4,700 residents; and
- medium density development (including dual occupancy) has taken place across the whole municipality and is currently running at 6 per cent of housing



stock.

**Whether these areas in Liverpool and Fairfield LGAs may be affected by aircraft noise will depend on the results of the revised ANEF system being developed by the FAC as part of the EIS update on SWA.**

**The Committee investigated the possibility of:**

- **placing a temporary prohibition on residential development in areas in Liverpool and Fairfield LGAs which are close to SWA until the likely level fo aircraft noise was clarified; and**
- **establishing an exclusion zone on residential development in areas which are close to the proposed runway alignment for SWA.**

In evidence before the Committee, the Chairperson of WSROC, Mr Alex Sanchez, supported a moratorium on further residential development in the SWA Sub-Region:

**Mr RIXON:** You would like to see residential development kept out of an area within 10km of the flight path?

**Mr SANCHEZ:** Subject to the noise contours, sure. Our idea is to put a residential embargo, if you like, based on the noise contours and the maps, around the airport, and leave that area aside for commercial, industrial, and tourism type uses.

**Ms NORI:** What is your ANEF limit—up to 20?

**Mr SANCHEZ:** Yes, up to 20.

**Ms NORI:** That is about the limit at Glebe. (T1, 6)

Mr Sanchez also spoke about the need to consolidate land use powers in the region into a single authority, the Sydney West Airport Development Corporation, which could coordinate and control development:

That is the objective of the development corporation, in effect: to remove some of those planning controls from some of the local councils and to resist some of what are just pressures of local government, I guess. But we see the Airport Development Corporation as having not only a planning aspect but also a control aspect in putting an embargo on residential release. (T1, 6)

Mr Ian Reynolds of Blacktown Council supported stricter land use planning in the SWA Sub-Region, noting that the airport was still at a developmental stage unlike KSA, where encroaching development compromised all options for relieving aircraft noise:

**Mrs BEAMER:** Given that Sydney West Airport is not to have a curfew, do you consider it appropriate for the New South Wales Government, in concert with Local Government, to consider more strict land use planning regulations than are usual with the ANEF system, and also given the hullabaloo over the third runway?

**Mr REYNOLDS:** I certainly think that is right. We have been in contact with the

Federal Government on a number of occasions asking that those sorts of issues be addressed as part of its environmental studies.... Should those studies identify areas which may be noise affected to an extent where residential development is not appropriate, we have the chance in western Sydney to maximise the benefit of the airport by allocating other land use, such as employment, which may be not so sensitive to the noise. I think we are at a stage where we can make that decision rather than at the situation with Kingsford-Smith airport. (T3, 47)

It is important to note that the scale of residential development around SWA is not comparable to KSA and that the opportunity does exist to minimise aircraft noise impact in the future by careful land use control.

The Committee also took evidence of the scale of existing residential development in and around the existing 20 ANEF contour for SWA. The Committee was particularly concerned about the impact of aircraft noise on heavily-populated areas to the north-east of SWA in Penrith, Blacktown, Holroyd, Fairfield and Liverpool LGAs. It found that most residential development was located some distance from SWA and would suffer minimal impact if the additional operational safeguards which the Committee has recommended are instituted. However, existing residential areas in Fairfield LGA would be exposed to aircraft noise.

Liverpool Council has specifically located new residential developments in areas such as Cecil Hills well outside the 20 ANEF contour line from the 1985 EIS. In evidence before the Committee, Mr Russell Winlaw of Liverpool Council stated that, "the 20 to 25 ANEF is some significant way from Cecil Hills.... On my rough estimation, it is about 4.5km as the crow flies." (T3, 56)

Holroyd Council noted in its submission (s.34) that "the south-western part of the city is only 10 nautical miles from Badgerys Creek Airport." It suggested that "Merrylands, Pendle Hill, Greystanes and part of Smithfield... will specifically be affected by noise from aircraft operations."

Fairfield Council stated in its submission to the Committee (s.2) that "the ANEF 20 contour affects some 4 per cent of the land area of the City of Fairfield. The rural areas of Horsley Park and Cecil Park are primarily affected. These areas presently contain a population of 22,000 persons which may double under current zoning controls." Mr Klaus Kerzinger of Fairfield Council was concerned about the level of residential development which had taken place since 1985:

Over the last 10-year period there has been an enormous amount of residential development on the edge of that corridor which forms the main approach route to Badgerys Creek. It includes the Minchinbury release area, St Clair and Erskine Park as well as the areas around Penrith, all backing on to that corridor.... the residential areas of Abbotsbury are very close... Bossley Park is another and the Capital Hill area, which is just outside the cities of Fairfield and Penrith, is well within the ANEF 20. (T2, 30)

While the residential development at Abbotsbury is a concern to the Committee, the areas identified by Mr Kerzinger in Penrith LGA are located some distance from the runway alignment at SWA and will not be directly overflown by aircraft.

Mr Bruce McDonald of Penrith Council indicated in his evidence before the Committee that there was minimal noise-affected development in the 10km range in Penrith LGA:

**Mr McDONALD:** ... there would already be some development that has already encroached to the north within 10km, on the boundaries of the bottom end of Erskine Park perhaps and St Clair, which would come close to that, but there are no major concentrations of new residential development of new estates in that area, and there is an opportunity to make sure that does not happen....

**Mr RIXON:** You are saying it is still reasonably possible to have a 10km zone?

**Mr McDONALD:** Certainly to the north, to which most of my knowledge relates. (T2, 35-6)

The Committee eventually selected 10km as a reasonable distance for a prohibition on new residential development based on an assessment of current aircraft noise levels in inner Sydney.

This prohibition on new residential development in the SWA Sub-Region would mean that urban areas began at about the same distance that Drummoyne and Cronulla are from KSA.

**The noise problem in inner Sydney and at Kurnell as a result of parallel runway operations at Sydney Airport has demonstrated the limitations of the ANEF system and reinforced the need for effective prohibitions and buffer zones to disallow residential developments which are likely to be affected by operations at Sydney West Airport.**

**The responsibility of the NSW Government to ensure that aircraft noise is minimised at SWA is reinforced by two unique factors:**

- **SWA must operate as a "no curfew" airport to realise its economic potential for western Sydney.**
- **The SWA Sub-Region is a greenfields site with very low levels of ambient background noise.**

**The pressure on councils to approve residential development in the SWA Sub-Region precludes any delay in implementing tight new land use controls while the EIS update on aircraft noise is concluded.**

**The Committee believes that a number of strong measures should be immediately undertaken by the NSW Government to ensure that further residential development in the SWA Sub-Region is stopped.**

**The Committee has recommended that an authority must be established which can take**

control of all planning for the SWA Sub-Region. The Sydney West Airport Development Corporation is the mechanism proposed by the Committee for ensuring that residential and industrial developments are targeted, properly timed and environmentally sustainable.

## RECOMMENDATIONS

- 85. The SWADC should exercise tight control over residential development in the SWA Sub-Region with a specific charter to minimise aircraft noise exposure for new residents.**
- 86. The SWADC should:**
- place a prohibition on all new residential developments along proposed runway alignments at SWA for a distance of 10km; and
  - have the power to prohibit residential development beyond 10 km where it has jurisdiction and it considers that aircraft noise will be a major disturbance to quality of life.

In tandem with restrictive flight corridors, limits on aircraft operations to the north-east during the night and the use of the ICAO A Departure Procedure, the prohibition on further residential development should ensure that aircraft noise is minimised for the overwhelmingly number of people living in proximity to SWA.

However, measures are also needed in the short term in LGAs outside the SWA Sub-Region until the results of the EIS update on aircraft noise are considered.

## RECOMMENDATIONS

- 87. The Department of Urban Affairs and Planning should:**
- place a moratorium on new residential developments in Penrith, Liverpool and Fairfield LGAs within a distance of 20kms from SWA until the EIS update on aircraft noise is completed in 1996 and a review has taken place of likely aircraft noise impacts; and
  - ensure that priority is given to developing urban release areas in Liverpool LGA at Carnes Hill and Prestons, which are the furthest areas from SWA and which have the advantage of proximity to the proposed rail link between Glenfield and SWA.

The Committee believes that a definitive master plan for the full and final development at SWA must be completed as soon as possible and must act as the blueprint for all land

**use planning decisions in the SWA Sub-Region. Creeping development such as that which has occurred at KSA must be avoided at all costs.**

#### **4.2.13 PROPOSED RESIDENTIAL DEVELOPMENT TO THE SOUTH-WEST OF SWA**

In addition to considering the total requirements of residents surrounding SWA with regard to aircraft noise, the Committee focused on the specific circumstances of communities immediately to the south-west of SWA. These communities are largely located in Wollondilly LGA.

The runway alignment for SWA would place flight paths directly over the townships of Warragamba and Silverdale and land to the south.

There are two matters of concern to the Committee in considering this area to the south-west of SWA:

- very low background noise in the towns of Warragamba and Silverdale;
- environmentally sensitive wilderness areas of Blue Mountains National Park and the Bents Basin State Recreation Area. This matter is considered in a separate section. (see 4.3)

There is also some concern that the elevation of Warragamba and Silverdale (at 191m to 204m above sea level) compared with airport elevation (89m to 109m above sea level) will exacerbate the noise problem.

Wollondilly Council itself would like to see further assessment of aircraft noise impact and general environmental impact on land surrounding the SWA site, especially the northern area of Wollondilly, Warragamba Dam, Warragamba and Silverdale.

Clearly, the Committee's recommendations for minimising aircraft noise exposure on densely-populated regions north-east of SWA will have the effect of increasing aircraft noise impact on the area to the south-west of SWA.

The Committee has already recommended that any concentration of aircraft operations to the south-west of SWA should result in a reassessment of noise amelioration programs for this region.

The Committee also sought information about proposed residential developments in the Wollondilly shire in this potentially noise-affected region.

Wollondilly Council provided the Committee with information about its residential development strategy in the Warragamba/Silverdale region south-west of SWA.

**There are proposed developments that will fall within 20-25 ANEF and adjacent to 20 ANEF in Wollondilly Shire.**

In summary, Warragamba and Silverdale have a combined population of 4,000 people located in about 1,300 dwellings at present. In 1991, Wollondilly Council prepared a strategy to expand the population, largely on rural residential and rural urban fringe lots of 4,000sq/m to 1ha. A population in the vicinity of 12,000 to 14,000 people in that area over the next 10 to 20 years was anticipated.

Wollondilly Shire has been under considerable pressure to release land for residential development. Between 1986 and 1991, the Shire's population grew by 4.3 per cent. Concern about growing shortages of serviced land to accommodate this growing population led the council in 1986 to commission an environmental study of the Warragamba/Silverdale area. The recommendations were based on the area accommodating between 7,000 and 8,000 people.

Continued pressures for housing led the council to undertake another study of the areas further north and south of Ridgehaven Road (1990). In addition, it undertook an industrial study. These studies formed the basis of the current Draft LEP which allows for an increase of 7,348 in the shire's population over the next 10 to 20 years. This will yield a total population of 40,848.

The council has also drafted a new Draft Local Environmental Plan, Local Environmental Study and Draft Development Control Plan for these areas. These documents are currently on exhibition and council is receiving submissions.

There are three key elements to council's planning philosophy:

- to offer a variety of residential alternatives;
- to provide for an increase in population that will meet service thresholds; and
- to preserve the environment.

The council sees the LEP as an attempt to:

...provide an overall structure of the Warragamba/Silverdale area for the next 10 to 20 years. While it is accepted that there may be differing future trends this plan will provide a basis for genuine residential choice while at the same time provide the residents both present and future with adequate facilities. (Submission, 1995:1)

To allow for residential diversity, Council is proposing to provide for three different forms of residential areas. They are:

- traditional urban - services include water, sewerage and underground power and telephone;

- low density residential (0.4ha) - reticulated water, rollover kerb and underground power; and
- rural (1ha) - no town water, rural standard roads, overhead power.

The new release areas are outlined in the table below. With the exception of Sunrise Hill these areas are immediately adjacent to the 20 ANEF zone.

**TABLE 27: NEW RELEASE AREAS IN WOLLONDILLY SHIRE**

Type of Area	Location	Estimated Increase in Population
Urban (total pop. 2,505)	Warragamba East	617
	Lion Park	1,504
	McGarritys Creek West	72
	McGarritys Creek East	312
Low Density Residential (total pop. 1,534)	Eltons Road East	538
	Eltons Road West	394
	Silverdale	411
	North East Silverdale	200
Rural/Residential (total pop 1,726)	Bushrangers Creek East *	204
	Bushrangers Creek Central	135
	Bushranger Creek West	299
	Bushranger Creek North	260
	Sunrise Hill	429
	Taylor's Road West*	116
	Beres Creek South	283

In its submission Wollondilly Council indicated that it was aware of the problems associated with the ANEF levels themselves and the problems experienced by residents living within or near to these zones.

Wollondilly Council plans to develop land for residential development very close to the 20 ANEF zone. This land is at 94 Taylor's Road Silverdale where Council plans to subdivide 13ha into 34 lots. A deposited plan (DP 852389) for registration has just been submitted to the Land Titles Office.

Wollondilly Council acknowledges that the parts of Bushrangers Creek falls within the 20-25 ANEF contour area. As part of its DCP Council is seeking to require modifications to dwellings in the 20-25 ANEF zones in order to ameliorate noise problems once the airport is operational. The Draft Development Control Plan for Bushranger's Creek states:

The subject site is under flight paths associated with the proposed Badgerys Creek Airport. Due to the spatial extent of this impact it is not possible to develop the subject land and avoid exposure to noise. However consideration can be given in the design and construction of dwellings to minimise the intrusion of aircraft noises. Guidelines for such action are contained in Australian Standard 2021 Acoustics - Aircraft noise intrusion - Building siting and construction.

A report from the Director Development and Environment to the Development and Environment Committee Meeting of Council (4 September, 1995) notes that the FAC has been consulted on the issue of the noise impact of SWA on Wollondilly.

The FAC recommended that development within the 20-25 ANEF contour area be appropriately sound proofed. The Director, Development and Environment, on Wollondilly Council proposes to extend this recommendation by suggesting that Council:

- include the soundproofing standard to cover rural residential (rather than just urban residential) within the zone;
- insert an appropriate clause into the Draft LEP to ensure compliance with Australian standards;
- advise prospective purchasers of the land about aircraft noise; and
- consider the possibility of having a soundproofing clause cover the entire Bushrangers Creek zone and indeed areas to the north as well since all new dwellings may be affected by aircraft noise. This policy will be reinforced in the Local Approvals Policy for the construction of dwellings.
- review the situation as soon as the flight paths and ANEF zones are made available.

**The Committee sought further information on proposed residential development in Warragamba/Silverdale in its public hearings.**

Wollondilly Shire Council stated in its submission (s.47) to the Committee that this strategy for Warragamba/Silverdale included 350 rural residential developments in the southern area known as Bushrangers Creek, which is identified as 20-25 ANEF in the 1985 EIS.

This matter of promoting new residential development inside the 20 ANEF contour was taken up when representatives of Wollondilly Council gave evidence to the Committee:

**CHAIRMAN:** As the Warragamba/Silverdale area population will increase by a factor of three or four under the strategy, how many people will be in an area with an ANEF level below the 20 ANEF zone?

**Mr SINCLAIR:** Most of them.... The 20 to 25 ANEF zone covers the southern portion of the structure plan area which extends south of Bushrangers Creek, south



of Eltons Road and west of Taylors Road. The area along the river flats and Bents Basin Road is the agricultural zone, and we do not anticipate any major urban residential developments in the area....

**CHAIRMAN:** What is the population involved?

**Mr SINCLAIR:** I estimate that in the order of 50-100 dwellings would be affected by the 20 to 25 ANEF zone—4,000 dwellings are in the area—and with an average of three persons per dwelling, 150-300 people will be involved within the 20 to 25 ANEF zone. (T2, 57-8)<sup>4</sup>

As with other councils which proposed developments in proximity to SWA, Wollondilly Council prepared its strategy in good faith by adhering to the land use planning controls in AS 2021-1994 and undertaking consultation with the FAC.

The dilemma for both the Committee and Wollondilly Council is that despite the diligence with which AS 2021-1994 was adhered to and even extended, the ANEF system on which it is predicated has been called into question by the aircraft noise impact from parallel runway operations at KSA.

The doubts over the ANEF system necessitate tough land use controls on residential development anywhere in proximity to 20 ANEF contour.

There will be aircraft noise exposure on the existing communities in Warragamba and Silverdale. Any further residential development must be carefully considered in the context of the unique circumstances of this area.

Wollondilly Council raised the following matters with the Committee which would exacerbate the impact of aircraft noise on Warragamba and Silverdale:

- elevation - the region is more than 100m higher than the SWA site (see T2, 46)<sup>5</sup>; and
- very low background noise (see T2, 48).

These factors will mean that the spread of aircraft noise over the Warragamba and Silverdale region south-west of SWA is greater than it would be in an urban area.

Council officials raised these concerns in evidence before the Committee. Mr John Sproule stated that previous ambient noise measurements taken by council indicated that Wollondilly

---

<sup>4</sup> It should be noted that these figures of 50-100 dwellings and 150-300 residents located in 20-25 ANEF zones at Bushrangers Creek were provided by Wollondilly Council as one of their amendments to the draft transcript of public hearings. Mr Sinclair of Wollondilly Council originally provided verbal evidence to the Committee of 200 dwellings and up to 600 residents in 20-25 ANEF zones.

<sup>5</sup> The original version of the ANEF system, which was used for the 1985 EIS, was not able to take hilly terrain into account, which caused the ground and the aircraft's flight path to be closer than the model allowed.

had generally low background noise levels and that Warragamba was particularly quiet. (T2, 48)

This evidence from Wollondilly Council officials suggests that the proposed development of Warragamba and Silverdale will be exposed to aircraft noise even outside the existing 20 ANEF contour. Such a development is at odds with the council's own intention to provide good quality of life for its residents. In evidence before the Committee, Mr Ian Sinclair outlined Wollondilly Council's strategy for the entire municipality:

Wollondilly is trying to provide lifestyles for all types of living opportunities, urban, rural living in a rural atmosphere, and in a rural-urban fringe on larger blocks of land within cooee of a larger residential area. (T2, 53)

While such a strategy is admirable, it must be considered inappropriate for the Warragamba and Silverdale region where scattered and exposed rural/urban fringe residences will be exposed to aircraft noise.

The Committee is particularly disturbed that Wollondilly Council has held a meeting of the Development and Environment Committee of Council on 4 September 1995 in order to approve the submission of the Bushrangers Creek rezoning application to the Department of Urban Affairs and Planning when it was well aware of the Committee's concerns about the development and had indicated that the application was still some months off.

In evidence before the Committee on 9 August 1995, council's officials indicated that the rezoning application would probably be submitted in October 1995:

**CHAIRMAN:** When was Bushrangers Creek approved by council?

**Mr SINCLAIR:** The rezoning has been exhibited but not yet endorsed by council. We are currently considering submissions on the issue. We anticipate we will be putting the matter to council in October or November for endorsement to allow it to go to the Department of Urban Affairs and Planning for gazettal. We have taken into consideration the impact on the airport with the new dwellings. (T2, 47)

Indeed, the Chairman of the Committee indicated to Wollondilly Council officials that they should consider holding back the rezoning application until the Committee's report was tabled:

**CHAIRMAN:** The Committee is concerned about the issue and would hope to report by mid-October at the very latest. I understand your draft local environmental plan is on exhibition.

**Mr SINCLAIR:** It came on exhibition in May. We anticipate that people will want to consider submissions over the next couple of months in council.

**CHAIRMAN:** I hope council can wait until it receives a copy of the report. (T2, 54)

**The Committee is disturbed by the apparent attempt by Wollondilly Council to pre-empt the Committee's report by submitting the rezoning application for Bushrangers Creek**

to the Department of Urban Affairs and Planning well in advance of its proposed timetable.

The Committee believes that this action constitutes disingenuous conduct by Wollondilly Council.

#### RECOMMENDATION

**88. The Department of Urban Affairs and Planning should:**

- reject the Bushrangers Creek rezoning application submitted by Wollondilly Council as a result of its meeting of 4 September 1995.
- suspend any approval for new residential development in the Warragamba and Silverdale regions.

#### 4.2.14 THE INSULATION & ACQUISITION PROGRAM AT SWA

The Committee has considered the manner in which the insulation and voluntary acquisition programs at KSA has been implemented as a model which can be augmented to consider the specific conditions at SWA.

Aircraft noise will have an impact on far fewer people around SWA due to the scattered settlement in the region and the larger size of the airport site. As a simple method of comparison, virtually the entire 40 ANEF zone at SWA is located on-site. This is very different to KSA where the 40 ANEF zone extends into the suburb of Sydenham and is therefore subject to acquisition.

The voluntary acquisition and insulation programs for KSA were announced by the Federal Government in a package of noise management initiatives on 8 December 1994. These announcements came after the opening of the Third Runway in November 1994.

The voluntary acquisition program for KSA involved acquiring 112 properties within the 40 ANEF zone in Sydenham.

The insulation program involved about 4,200 dwellings within the 30 ANEF zone and 12 schools, 25 child care centres, churches and health centres within the 25 ANEF zone over three years. A pilot program was introduced, which was completed in August 1995. The total insulation program is expected to cost around \$260 million and will be partly funded by a levy on passengers using KSA.

The insulation program at KSA will insulate houses to two levels:

- 60 dB(A) for normal domestic activities; and

- 50 dB(A) for sleeping and relaxation.

Residents will bear the ongoing costs of ventilation and insulation systems. These costs may include airconditioning filters, electricity, maintenance and repair and eventual replacement of equipment.

The Australian Standard for noise attenuation within new buildings, AS 2021-1994, specifies recommended maximum aircraft noise levels as:

- below 20 ANEF, sites are acceptable for all building types;
- between 20-25 ANEF, sites become conditional for the most noise-sensitive building types (residential, schools and hospitals);
- above 25 ANEF, land is rated as unacceptable for noise-sensitive building types; and
- above 35 ANEF, sites are rated as unacceptable for all building types other than industrial buildings.

Under current planning controls, special building control provisions are required in the 20-25 ANEF zone to meet interior noise standards within residential dwellings. It should also be noted that AS 2021-1994 is designed for noise insulation of new buildings and that some additional expenditure can be expected in insulating existing dwellings around SWA.

With regard to SWA, the Commonwealth Government has already announced the voluntary acquisition of land<sup>6</sup> and dwellings above the 35 ANEF contour as part of its airport construction package. Of the 20 properties earmarked for purchase, over 10 have already accepted the acquisition offer.

The insulation project for SWA will involve dwellings above 30 ANEF and public buildings above 20 ANEF.

The Committee received submissions and took evidence from groups representing residents living in areas within the ANEF zones from the 1985 EIS. The major resident group in the Badgerys Creek region, the Sydney West Airport Residents Panel (SWARP), indicated that it was reconciled to the construction of SWA and that it was focussing its campaign on the EIS update and improved noise insulation and acquisition programs.

Mr Stephen Oliver, Chairman of SWARP, stated in evidence before the Committee that the land acquisition program should be expanded:

Even though it is a Federal issue, we would like to see the State Government put

---

<sup>6</sup> Building blocks without dwellings but with more than 50 per cent of the land within the 35 ANEF contour will be eligible for acquisition.

some pressure on the Federal Government to be a bit more lenient in its stance on the 35 ANEF. We would like to see it come down to 20 ANEF. (T4, 30)

Mr Oliver rightly pointed out that many of these issues including aircraft noise are subject to Federal jurisdiction and that SWARP had already had contact with relevant Commonwealth Departments and met with the Commonwealth Minister for Transport, the Hon Laurie Brereton.

**The Committee believes that the status of SWA as a no curfew airport on a greenfields site where residents will be exposed to aircraft noise for the first time warrants special consideration in developing an insulation and voluntary acquisition program.**

**In particular, the Committee has already recommended that Warragamba and Silverdale should be given special consideration in determining eligibility for the insulation program if night time flights are concentrated through the region to the south-west of SWA.**

**The Committee believes that the revised ANEF system for the EIS update of SWA should provide the standard for eligibility for building insulation and acquisition. AS 2021-1994 should be amended to conform to this new ANEF standard.**

## **RECOMMENDATIONS**

- 89. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that the insulation and voluntary acquisition programs for SWA:**
- **are specifically developed to take into account the fact that SWA will be a no curfew airport on a greenfields site;**
  - **consider the particular circumstances of Warragamba and Silverdale in the event that night operations are concentrated south-west of the airport;**
  - **conform with AS 2021-1994 and the revised ANEF system;**
  - **are completed prior to the opening of the airport to ensure that residents are exposed to minimum aircraft noise disturbance from Day One of operations at SWA in 1999; and**
  - **are in the case of ongoing costs for the insulation program, funded by the Commonwealth Government through a passenger levy.**

## **4.3 THE ACOUSTIC ENVIRONMENT IN BUSHLAND AREAS**

### **4.3.1 INTRODUCTION**

The Committee has concentrated on formulating plans to minimise the impact of aircraft noise on the densely-populated suburbs to the north-east of SWA.

However, the Committee is well aware of the proximity of National Parks and the Bents Basin State Recreation Area to Sydney West Airport.

The Committee is also aware that the perception of noise in National Parks is sharpened because there is much less background noise than in urban settings, and they specifically attract visitors eager to enjoy the natural acoustic environment. The potential for disturbance and irritation by aircraft noise is therefore much greater in National Parks.

The Committee received submissions and evidence urging it to consider the impact of SWA on the acoustic environment of National Parks to the south-west of the airport and the Bents Basin State Recreation Area.

The Committee looked at the possible impact of SWA on these important bushland and wilderness areas.

### **4.3.2 BENTS BASIN STATE RECREATION AREA**

Bents Basin State Recreation Area is 400ha of forest and woodland on the Nepean River, 14km south of Wallacia. Its centrepiece is Bents Basin, a deep waterhole forming part of the Nepean River gorge surrounded by grassy areas for recreation and camping.

In the draft EIS (1985), the Bents Basin State Recreation Area was identified as being in the 20-25 ANEF zone for SWA when the airport was operating at full capacity of 275,000 aircraft movements per year. The north-east tip of Bents Basin SRA was zoned above 25 ANEF. Bents Basin itself is approximately 8kms from the initial runway at SWA, along the runway alignment.

The Richard S Venables Education Centre at Bents Basin features displays and videos on the unique wildlife, scenery and history of the area and its importance to the Aboriginal culture of the Gandangara people. It is used as a field studies centre for school and community groups.

There are proposals to expand the community educational programs at Bents Basin SRA.

Mr John Sproule of Wollondilly Council outlined a proposed education centre at Bents Basin SRA for school groups and trainee teachers:

Recently, the Bents Basin Trust sought and gained funding to expand its community education role by providing a hands-on environmental education program utilising the unique natural features of the site.... through the establishment of a Bents Basin field study centre, which will use the facility as a cornerstone of its program. The trust will also educate teacher trainees through a visitation training program to be instituted with the universities of the Sydney basin. (T2, 50)

**As ANEF contour maps for the initial stage of development at SWA in 1999 are not yet available, it is impossible for the Committee to determine the aircraft noise impact on Bents Basin from the initial stage of development at SWA in 1999.**

**However, Bents Basin itself and Bents Basin SRA clearly fall within the 20 ANEF zone for the ultimate development of SWA.**

**The Committee has already recommended in section 4.2 that noise monitoring terminals should be established in the Bents Basin SRA to provide baseline data on the existing acoustic environment and any change caused by aircraft noise when SWA opens in 1999.**

**The Committee believes that aircraft noise in Bents Basin State Recreation Area and the likelihood of a concentration of night flights south-west of SWA mean that it will no longer be suitable for camping after 1999.**

#### **RECOMMENDATIONS**

**90. Camping at Bents Basin State Recreation Area should be terminated when SWA opens in 1999.**

**The Committee is also concerned about the proposed expansion of community education programs at Bents Basin SRA given the likelihood of aircraft noise. This would make it an inappropriate site for such a program.**

#### **RECOMMENDATIONS**

**91. The NSW National Parks and Wildlife Service should review the role of Bents Basin SRA as a community education centre in the light of the development of SWA.**

#### **4.3.3 NATIONAL PARKS**

The exposure of National Parks to aircraft noise was raised in submissions by the Colong Foundation for Wilderness (s.28) and the Nature Conservation Council (s.40).

In its submission (s.28), the Colong Foundation for Wilderness outlined the value of the

acoustic environment in wilderness areas and the potential danger posed by SWA:

In the Blue Mountains wilderness areas, natural sounds determine the acoustic environment. The undisturbed background noise in a wilderness area is called natural quiet. It is an essential quality.... The establishment of a 24-hour operation airport at Badgerys Creek poses a significant threat to the natural quiet of the Blue Mountains National Parks and its wilderness areas.

The Colong Foundation's submission (s.28) concluded:

The proposed airport at Badgerys Creek has the potential to severely affect the natural quiet of the Blue Mountains, Kanangra-Boyd and Nattai National Parks and the Nattai and Kanangra-Boyd wilderness areas. It may also affect the natural quiet of the Yengo and Wollemi National Parks and the Wollemi and Macdonald wilderness areas in those parks.

The Committee looked at National Parks north and south-west of SWA to determine their distance from the airport, relationship to runway alignments and possible flight corridors. It is the position of locations to the runway alignment which largely determines the level of aircraft noise; although the natural acoustic environment of National Parks is particularly sensitive to aircraft noise.

#### **National Parks north of SWA.**

Yengo National Park is the northern boundary of the Sydney region and begins at Wisemans Ferry. It is approximately 60kms north-west of the runway alignment at SWA.

Wollemi National Park is west of Yengo National Park on the other side of the Putty Road. It is bounded by Blue Mountains National Park to the south. It is approximately 60kms from SWA at a tangent to the runway alignment.

Blue Mountains National Park is north-west of SWA at a tangent to the runway alignment. The south-eastern portion of the park is bounded by Lake Burragorang and Warragamba Dam near SWA. The park is at a tangent to the runway alignment for SWA.

Air traffic which overflew these National Parks would probably be landing from or departing to the south-west of SWA.

#### **National Parks south-west of SWA.**

Kanangra-Boyd National Park is to the south-west of SWA along the runway alignment. Its boundary is Lake Burragorang about 30kms from SWA.

Nattai National Park is south-east of SWA adjacent to the runway alignment. It is bounded in the north-west by Kanangra-Boyd National Park. Its northern boundary is about 40kms



from SWA.

Thirlmere Lakes National Park is a small park east of Nattai National Park about 50kms south-east of SWA.

Air traffic would overfly these National Parks.

**The Committee believes that the position of Wollemi National Park and Yengo National Park in relation to SWA make it unlikely that they would be affected by aircraft noise.**

**The Committee also believes that overwhelmingly the body of Blue Mountains National Park will be free from overflights because of its position at a tangent to the runway alignment at SWA.**

**The Committee is unable to determine whether aircraft will overfly the south-east portion of the Blue Mountains National Park and Kanangra-Boyd, Nattai and Thirlmere Lakes National Parks because flight corridors south-west of SWA have not yet been developed.**

**The Committee has already recommended at 3.7 in this report that use of airspace above Sydney's water supplies be minimised. Such a safeguard should also protect the south-east portion of Blue Mountains National Park from overflights.**

**The Committee is concerned that flight corridors for SWA may direct air traffic over Kanangra-Boyd, Nattai and Thirlmere Lakes National Parks.**

## **RECOMMENDATIONS**

**92. Noise monitoring terminals should be established as soon as possible at the following sites in order to determine the current state of the acoustic environment in National Parks and any change caused by aircraft noise to the acoustic environment of National Parks:**

- **at the eastern border of Kanangra-Boyd National Park near the Burratorang Valley (35kms from SWA);**
- **at the northern boundary of Nattai National Park (45kms from SWA); and**
- **at Yerranderie near Mt Colong in Kanangra-Boyd National Park (55kms from SWA).**

**93. The NSW Government enter into negotiations with the Commonwealth Government which:**

- **emphasise the value and sensitivity of the acoustic environment in National Parks;**
- **lead to the development of specific guidelines in Australia for monitoring and minimising aircraft noise in wilderness areas;**
- **result in Air Services Australia (formerly the CAA) being instructed to develop flight corridors for SWA which avoid overflying National Parks in the Sydney region where it is considered safe practice.**

## **4.4 AIR QUALITY**

### **4.4.1 SYDNEY'S AIR QUALITY PROBLEMS**

Air quality is a pressing issue in Western Sydney and the development of Sydney West Airport at Badgerys Creek has raised community concerns about the likely effect of aircraft and airport-related pollution on the health of residents.

Western Sydney is already exposed to high levels of emissions, primarily caused by motor vehicles. The deferral of proposed urban development in the South Creek Valley region in 1991 because of doubts about air quality demonstrated the seriousness of the issue. Councils surrounding Sydney West Airport and local interest groups addressed the need for better monitoring of air quality and surveys of resident health in submissions and at public hearings before the Committee.

Sydney West Airport will certainly increase the levels of air and road traffic emissions in Western Sydney. However, it should not be viewed just as a negative influence on air quality in the region. Sydney West Airport can also become a significant part of the program to stabilise and reduce air emissions in Western Sydney by creating local jobs which reduce the daily flow of 250,000 people to work in eastern Sydney. The creation of local employment which reduces travelling times has obvious benefits for the people of Western Sydney in terms of improved quality of life.

Air quality in Western Sydney is an issue for the entire Sydney region because south-western Sydney acts as a reception area for emissions produced by the entire metropolis. One of the most important and telling discoveries of the recent Metropolitan Air Quality Study (MAQS) was that a plume of ozone generated in the Newcastle region during summer it flows south and is eventually trapped in Western Sydney. This discovery reinforced the need to consider Sydney's airshed as an inter-related unit which requires a regional strategy to maintain good air quality. Indeed, one of the ironies of the Sydney airshed is that areas in Sydney's south-west which produce no significant emission levels are subjected to the greatest concentration of ozone in summer.

Sydney's overall population will continue to increase with related increases in emissions. Current strategies can only hold the line on air quality. A combination of innovative fuel consumption, urban planning and ground transport strategies must be developed as part of a holistic approach to air quality in the Sydney region. In particular, the community needs to become more involved in programs to reduce individual fuel consumption. Air quality is one issue where Government policy can only go so far. Great strides have already been made in reducing the levels of industrial emissions. It will require the commitment of individuals to improve air quality in Sydney to the standards which are now expected by the population. This means that Government policy on air quality should be geared towards community education and personal responsibility.

The prime Government responsibility for air quality management rests with the EPA, with some responsibilities resting with the RTA. A further important responsibility for air quality will fall on the Commonwealth Government because of the control it will exercise over operations at Sydney West Airport. Comprehensive strategies have already been put in place

by both the EPA and the RTA to address air quality in Sydney. In addition, the Commonwealth Government has ordered an updated study of air quality to augment the 1985 EIS. The Committee believes that some refinements to these strategies may be appropriate in order to consider the unique requirements of the SWA Sub-Region.

It is important to understand the types of emissions which affect air quality in Sydney and the structure of the Sydney airshed to assess the possible impact of SWA and of related commercial and residential development in the Sub-Region.

#### **4.4.2 POLLUTION TYPES IN SYDNEY**

The dominant air pollutants in Sydney change with the seasons. Photochemical smog in summer and brown haze in winter are the principal air quality problems confronting both the Greater Sydney Region and Western Sydney in particular.

Photochemical smog is the main constituent of ozone and it is formed when oxides of nitrogen and volatile organic compounds (also known as reactive organic compounds) respond to the presence and intensity of sunlight. More than 80 per cent of oxides of nitrogen in the Sydney region are generated by motor vehicles. Western Sydney suffers disproportionately from the impact of ozone because of the prevailing meteorological conditions. In calm, hot summer weather, polluted air is effectively trapped in the Sydney air shed as overnight cool air, which usually drains out to sea during the morning, is blown back inland by sea breezes. Peak ozone levels in the Western Sydney region have reached 0.15 parts per million (ppm) during such days. The EPA has provided the Committee with computer models which indicate that the peak concentration area for this plume of ozone stretches from Campbelltown to Mittagong taking in key agricultural areas and centres such as Camden and Picton. It should be noted, however, that the National Health and Research Council target of 0.12ppm is currently exceeded on fewer than five days per year in Sydney.

Brown haze consists of particulate matter from motor vehicles, industry, solid fuel home heating and bushfire hazard reduction burning (or "backburning" as it is commonly known). It usually occurs on calm winter days and it is more evenly distributed around Sydney. There has been a decrease in both the frequency and intensity of brown haze over the last decade, partly as a result of Government prohibitions on backyard burning and improved emission controls of industry and motor vehicles.

#### **4.4.3 AIR QUALITY STUDIES IN WESTERN SYDNEY (1991)**

The air quality of the Sydney Basin and, Western Sydney in particular, was extensively investigated as part of the South Creek Valley Regional Environmental Study in 1991 with major studies being carried out by Macquarie University, the CSIRO and the State Pollution Control Commission (SPCC).

These investigations concluded that:

- Over the 15 years prior to the RES, there had been a reduction in the number of days on which ozone standards were exceeded in the Sydney Basin, while there was an increase in nitrogen oxide emissions.
- While ozone health standards had been breached less frequently across the whole Sydney region in the past 15 years, there was little or no improvement in peak ozone concentrations in the south and south-west sectors of Sydney.
- The Hawkesbury Basin is a receptor area for pollution from all over the Sydney Region. It tends to retain pollution rather than disperse it as a result of unique air movements and topography.
- The capacity of the Hawkesbury Basin to assimilate pollutant emissions is less than the eastern sectors of the Sydney Region.
- Frequent high concentrations of reactive organic compounds (ROCs) and nitrogen oxides were found, despite few such emission sources within the locality.
- Data published previously by the SPCC underestimated the severity of photochemical smog in the Sydney Region.
- There were major deficiencies in knowledge about the distribution of photochemical smog in Sydney.
- Assuming continuation of current management strategies, ozone pollution could be expected to increase by up to 50 per cent in some areas, and by 2011, frequently reach unhealthy levels in the Hawkesbury Basin on days when weather conditions are conducive to the presence of pollution-forming precursors.
- Even without further urban growth in Western Sydney, stringent emission controls will be needed to ensure Sydney's air quality is brought into compliance with existing health standards for NSW of 0.12ppm ozone not to be exceeded more than once per year.

The South Creek Valley RES in 1991 found that significant amounts of near-ground-level local air pollutants in the region (which includes SWA) were caused by:

- smoke from domestic fires.
- odour from rural and industrial activities (chicken, mushroom and pig farming, rendering works, manufacturing processes); and
- nitrogen oxides from industrial furnaces and motor vehicles.

Airtrak measurements of potential smog production indicated that there were frequent

concentrations of reactive organic compounds (ROC) and nitrogen oxides present in South Creek Valley air despite the paucity of emission sources in the region itself.

These concerns about air quality resulted in the EPA commissioning a Metropolitan Air Quality Study (MAQS) for the entire Sydney airshed. As part of this project, monitoring began at sites adjacent to SWA. There has also been monitoring in the area adjacent to the SWA Sub-Region as part of the proposal to develop the former ADI site at St Marys.

#### 4.4.4 EXISTING AIR QUALITY MONITORING IN THE SWA SUB-REGION

There is already some useful statistical data coming out of the SWA Sub-Region. An air quality monitoring station was established at Bringelly, within the SWA Sub-Region, in 1992 to provide data on air quality conditions as part of the MAQS. Additional monitoring stations in the vicinity of the SWA Sub-Region are located at St Marys, Blacktown, Smithfield, Liverpool and Campbelltown.

The results of data collected at the Bringelly station indicate that since monitoring started in October 1992, air quality has generally remained within current standards. The exception was in January 1994 when Sydney was subjected to intense and widespread bush fires which equated with a 1-in-a-100 year fire event. During the conflagration, ozone standards were exceeded on three days and the readings for particulate matter were substantially higher than the accepted USA EPA standard. It is believed that these fire storms were the principal cause of the extremely poor air quality, and represented a sharp variation from preceding and subsequent readings.

Analysis of air quality has also taken place for the ADI site at St Marys which is reasonably close to the SWA Sub-Region. The ADI air quality survey indicated that:

- exhaust from motor vehicles was the main source of the constituents of photochemical smog, contributing up to 45 per cent of total emissions of volatile organic compounds, about 90 per cent of carbon monoxide emissions, and more than 90 per cent of lead in air;
- current National (Australian) Health and Medical Research Council (NH&MRC) goal of 0.12ppm of ozone was exceeded on two days in 1993 and on one day during the first nine months of 1994;
- ozone measurements at St Marys compared favourably with results in the central part of the Sydney metropolitan area, however, they confirmed that there was very little margin available for increases in ozone levels in the area during peak months of the year; and
- greater margins of safety between current concentration levels and air quality goals exist for pollutants other than ozone.

Based on these results, the following conclusions were made:

- air quality presents a constraint on future development at the ADI site;
- no single control measure or strategy will make a major impact on air quality. A combination of strategies is required;
- planning controls should aim to reduce vehicle use through a combination of education, pricing mechanisms and changes in driving habits. The main planning control remains the provision of alternative modes of transport; and
- commercial and industrial developments at the ADI site should release minimal emissions of nitrogen oxides into the atmosphere. Restrictions should also apply to commercial emissions of volatile organic compounds such as solvents, cleaning agents and degreasers.

These conclusions are all pertinent to the development of Sydney West Airport. The Committee considers strategies to minimise these air quality issues in the following sections.

#### **4.4.5 THE METROPOLITAN AIR QUALITY STUDY (MAQS), 1992-95**

The Metropolitan Air Quality Study (MAQS) has been conducted by the Environment Protection Authority (EPA) since 1992 throughout the Sydney, Hunter and Illawarra regions. It was commissioned as a result of the adverse findings on air quality in Western Sydney contained in the South Creek Valley Regional Environmental Study.

MAQS was a three year scientific study designed to provide detailed data on air quality and related health issues within the Sydney Region. It is managed by the Environment Protection Authority with parallel studies coordinated by the Department of Health.

The aims of the study included:

- providing comprehensive data on air quality, particularly for use in studies into health impacts and comparisons of air quality with health criteria;
- producing reliable and timely reports, forecasts and warnings on air quality; and
- providing projections of potential air quality over the next 20 years, which can be used in decision making for urban planning.

The main elements of the study included:

- expansion and upgrading of field monitoring capabilities, with all 20 stations in the Sydney Region collecting continuous real-time data on ozone, nitrogen oxides and particulate matter, and several stations collecting additional information on hydrocarbons, carbon monoxide, sulphur dioxide, and lead;

- extension of scientific knowledge and understanding of local meteorology and pollutant emissions and their behaviour in the atmosphere; and
- development of airshed models (covering the Sydney, Illawarra and lower Hunter Regions) to provide day-to-day forecasting of pollution levels and long-term projections of air quality trends. The models will be able to take into account population distributions and trends, as well as changes in industrial development, and the types of vehicles using the roads.

The results of MAQS confirmed that photochemical smog (which becomes ozone) and brown haze are the principal air quality issues confronting the Greater Sydney Region.

The major precursors of photochemical smog, oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOC), are overwhelmingly produced by motor vehicles. Mobile sources account for 82 per cent of all NO<sub>x</sub> emissions in Sydney. Almost half of these emissions (48 per cent) are caused by passenger vehicles. Heavy vehicles using diesel fuel produce disproportionate levels of emissions given their numbers: 39 per cent of mobile emissions (which is about 30 per cent of all NO<sub>x</sub> emissions). Mobile sources account for 49 per cent of all VOC emissions. About 65 per cent of these emissions are caused by passenger vehicles. Again, a disproportionate amount of VOCs are caused by heavy vehicles using diesel fuel: 28 per cent of mobile emissions (which is about 15 per cent of all VOC emissions). In addition to mobile sources, domestic and commercial sources produce 41 per cent of VOC emissions; of which 39 per cent is solvents and 23 per cent is surface paint and thinners

Total suspended particulate emissions (TSP), which produce brown haze in winter, are spread evenly between domestic/commercial, mobile and major industry sources. There are opportunities for reductions in TSP emissions. The domestic and commercial sectors contribute 28 per cent of annual TSP emissions. Fuel combustion, particularly from domestic fireplaces and wood heaters, is responsible for 63 per cent of emissions from this source or more than 20 per cent of total annual TSP levels. In winter, this figure rises to more than 30 per cent.

These statistics from the MAQS for the entire Sydney region demonstrate that emissions which affect air quality in Western Sydney can only be improved by implementing a range of coordinated strategies at both a broad regional and a local, individual level. There are currently two Government strategies working in tandem to reduce emissions and improve Sydney's air quality:

- The MAQS Air Quality Management Plan (AQMP); and
- The Roads and Traffic Authority's "Plan for Reducing Vehicle Emissions".



#### 4.4.6 INITIATIVES ARISING FROM THE MAQS

The Minister for the Environment, the Hon Pamela Allan, noted in her submission to the Committee (s.60) that the "results from the recently released Metropolitan Air Quality Study (MAQS) highlight the importance of effective control mechanisms for air emissions, especially in Sydney's west where the majority of Sydney's growth is occurring."

The MAQS has resulted in the following initiatives being introduced in NSW:

- an extensive monitoring network which reports on air pollution levels three times daily for five regions in the Sydney-Hunter-Illawarra airshed;
- an emissions inventory of the sources and the relative contribution of those sources to air pollution;
- computer modelling tools which integrate monitoring, inventory and air flow data in order to predict the air quality implications of urban and transport planning decisions and industrial developments;
- the development of an Air Quality Management Strategy for the Sydney, Hunter and Illawarra regions using data from these computer modelling tools;
- a "Plan to Reduce Motor Vehicle Emissions" (July 1995) by the Roads and Traffic Authority (RTA); and
- a study of the relationship between air quality and health by the Department of Health.

#### 4.4.7 THE RTA'S PLAN FOR REDUCING MOTOR VEHICLE EMISSIONS

The Roads and Traffic Authority released its "Plan for Reducing Motor Vehicle Emissions" in July 1995 as part of its policy to minimise the impact of the roads and traffic system on air quality.

This plan addresses the concerns of the Minister for the Environment, the Hon Pamela Allan, in a submission to the Committee about controlling motor vehicle emissions in the SWA Region:

In terms of ozone pollution, the SWA site is in an area identified in the MAQS as being a NOx-limited area.... Motor vehicles are a major contributor to NOx emissions.... Therefore, options to reduce the impact of cars, such as a comprehensive public transport system, should be a high priority when assessing the infrastructure needs for the SWA. (s.60)

Statistics from the 1991 Census on the method of transport which residents of Western Sydney LGAs in close proximity to SWA use to get to work demonstrate the extent to which motor vehicle transport has become entrenched in Sydney.

**TABLE 28: METHOD OF TRAVEL TO WORK FOR WESTERN SYDNEY RESIDENTS**

LGA	No. of Employed Persons 1991	Method of Travel to Work			
		Train	Bus	Driving Car (or Bike)	Passenger in a Car
Blacktown	85,495	13,971	4,964	46,412	8,852
Camden	10,242	549	317	6,239	862
Campbelltown	53,791	9,629	2,691	29,136	5,258
Fairfield	62,948	8,091	4,023	34,762	7,328
Holroyd	34,326	4,395	2,156	19,228	3,166
Liverpool	39,659	4,194	2,224	21,566	3,974
Parramatta	57,149	8,308	3,703	30,552	4,762
Pearith	65,188	9,196	3,066	36,336	6,412
Wollondilly	12,691	659	211	7,913	1,108
<b>TOTAL</b>	<b>421,489</b>	<b>58,992</b>	<b>23,355</b>	<b>232,244</b>	<b>41,722</b>

These statistics show that 55.1 per cent of employed persons in LGAs adjacent to the SWA Region drive cars to work compared with 13.99 per cent who use trains and 5.54 per cent who use buses. A further 9.89 per cent are passengers in a car. The Department of Transport *Travel Survey* (1991/92) concluded that about 13 million trips are made in the Sydney region per day during the week and that almost eight out of every 10 working trips originate from the outer north-west growth suburbs of Blacktown and Baulkham Hills.

It is this reliance on car transport which the RTA is attempting to address in its "Plan to Reduce Motor Vehicle Emissions". The RTA Plan has identified 40 different measures to deal with air quality problems in Sydney including:

- an evaluation of emissions testing systems in conjunction with the EPA and the Federal Office of Road Safety to identify polluting vehicles and how they can be repaired. Trials will begin in 1996;
- tighter emission standards for new vehicles commencing in 1997 and reaching full compliance by 1999;
- annual road worthiness inspections to ensure that pollution control equipment in vehicles is operational;
- better Inspection and Maintenance standards through repair industry education and new technology;
- driver education on the environmental and economic benefits of vehicle maintenance;
- roadside air monitoring studies to gather information of the effects of road

proposals;

- training RTA inspectors to identify polluting vehicles;
- a pilot study on Remote Sensing Devices (RSD) to screen car emissions. RSD "breathalyzes" vehicles using infra-red technology to record the presence and concentrations of pollutants from motor vehicle exhausts;
- continued promotion of unleaded petrol;
- promoting reformulated fuel (which has had its composition altered to specifically reduce emissions) and alternative fuels such as LPG;
- providing more transit and bus lanes to encourage car pooling and the use of public transport;
- enhancing the Sydney Coordinated Adaptive Traffic System (SCATS) to reduce emissions by improving traffic flow.

The RTA has incorporated relevant components of this strategy into its proposed road network for SWA and the Sub-Region. In evidence before the Committee, Mr Brian Watters, RTA General Manager for Network Development, stated that public transport options were being considered as an alternative to individual passenger movement by car:

"In general terms, the opportunity with the new roads will exist in the longer term to widen them by creating exclusive bus lanes.... With Elizabeth Drive there would be a median, in the same way that the M2 is designed and includes exclusive bus lanes in the centre." (T3, 10)

This proposal for Elizabeth Drive is part of an RTA policy to target areas where buses will be effective in reducing congestion and travelling times:

"We have a program of providing bus lanes on roads. I must say, that is an accelerating program; we are doing more and more each year in that respect, working with BCA (Bus & Coaches Association), with Sydney Buses and with the Department of Transport to identify the places where the bus operators themselves have problems. Through bus priority signals, bus priority lanes, continuing transit lanes and bus bays, for example, to allow express buses to pass stopping buses, we have an active program of identifying opportunities to give priority to buses." (T3, 11)

**The Committee supports the RTA's efforts to encourage alternative forms of transport and believes that they are particularly important in the SWA Sub-Region where air quality is already under stress. Part of the program to enhance air quality in Western Sydney must be the minimisation of point sources within the Sub-Region.**

**Buses must be encouraged as an alternative to passenger vehicles. However, buses should form part of a coordinated ground transport system which provides flexibility**

**and regular service to SWA and related industrial and residential areas.**

**The Committee also believes that the RTA and the SRA should consider the feasibility of introducing "Park and Ride" ticket systems which would provide a single ticket for both car parking and public transport to SWA. "Park and Ride" systems could provide secure car parking facilities at convenient access points around Sydney with high-speed bus or rail links to SWA.**

**The Committee has made a number of other recommendations in its section on land transport infrastructure for the SWA Sub-Region which build on this strategy.**

**The Committee believes that part of the strategy for controlling emissions in the SWA Sub-Region must be a rail link to SWA with limited residential development concentrated along the rail line to maximise public transport usage. This is an essential environmental and quality-of-life measure.**

**As indicated elsewhere in this report, the Committee believes that the state of air quality in the SWA Sub-Region is such that unlimited residential development of the kind proposed in the South Creek Valley RES is not feasible.**

**The Committee considers limited residential development clustered around public transport nodes and service centres is the best environmental option for the SWA Sub-Region.**

**The Committee has raised elsewhere in this report the possibility of an environmental levy on car parking at SWA being used to fund a rail link to SWA.**

#### **4.4.10 HOW INDIVIDUALS CAN HELP IMPROVE AIR QUALITY IN SYDNEY**

Increased community awareness of environmental issues in recent years has raised community expectations about the quality of the environment. It has also resulted in public participation programs such as Clean Up Australia which have produced dramatic environmental gains. This community enthusiasm for making a direct impact on living environments must be harnessed if air quality in Sydney is to be enhanced.

The NRMA "Monitor of Public Attitudes", June 1995, which was undertaken as part of its CLEAN AIR 2000 campaign, disclosed that air quality was considered to be the most important environmental issue facing Sydney (43 per cent of respondents) and that a significant proportion of people were prepared to assist in programs to reduce emissions if they were told how. A Clean Air 2000 Advisory Taskforce has been established by the NRMA to promote awareness of air quality issues in the run up to the year 2000 Olympics.

Strategies for reducing vehicle emissions which cause photochemical smog have been heavily promoted in recent years by the EPA and the RTA. These strategies have included campaigns to promote increased vehicle occupancies and utilise alternative forms of transport. Part of

the recent RTA strategy to reduce vehicle emissions has been driver education campaigns such as *"Here's why keeping your car tuned doesn't cost the earth"*. These campaigns have demonstrated that achieving maximum vehicle efficiency results in both environmental gains and savings to the driver.

**The Committee believes that education campaigns on vehicle emissions must continue as part of a holistic approach to enhancing air quality in Sydney.**

The MAQS has identified areas where VOC emissions, which also precipitate photochemical smog and ozone, can be influenced by community awareness and action. Painting solvents and surface coats account for a high proportion of VOC emissions which cause ozone.

**The Committee believes that the EPA should develop programs which educate the community about the impacts of paints, spray paints and painting solvents on air quality. In particular, the Committee believes that the EPA should consider targeting certain periods of the year when Sydney is prone to high ozone emissions by designating them as "no paint days" on which domestic painting is prohibited during daylight hours.**

The MAQS has also identified specific areas where domestic activities have a significant impact on levels of brown haze which affect Sydney's air quality in winter. One of the most major causes of particulate emission which precipitates brown haze is domestic fuel combustion. Fuel combustion is responsible for well over 20 per cent of total annual particle emissions and this figure rises to well over 30 per cent in winter. In other words, fireplaces are a major contributor to brown haze in Western Sydney.

Clearly, there is room for substantial improvement on the incidence and intensity of Brown Haze through community education and participation.

**The Committee believes that the EPA, as a priority, should develop and implement programs to educate the community about the impact of excessive fuel combustion. This campaign should be completed prior to winter 1996.**

#### **4.4.11 THE IMPACT OF AIRPORT OPERATIONS ON AIR QUALITY**

The draft EIS (1985) addressed the total impact of airport operations both from aircraft movements and related vehicular traffic movements on the air quality of the SWA Sub-Region.

Six main sources of pollution from airport operations were identified:

- aircraft engine exhaust during aircraft operations;
- aircraft fuelling systems;
- ground service vehicles and equipment;

- aircraft engine emissions during maintenance;
- fuel storage systems; and
- access traffic entering and leaving the airport.

The EIS acknowledged that the topography of the Sydney Basin influenced the movement and concentration of pollution and that the Hawkesbury Basin (within which SWA is located) was a receiving area for photochemical smog and winter haze, formed both locally and elsewhere in the Sydney Basin. The EIS concluded that any increase in local pollution levels would lead to an overall decrease in air quality in the Hawkesbury Basin.

As a proportion of the pollution likely to exist in the Sydney Region, the airport-related emissions were predicted to add 0.6 per cent to carbon monoxide (increasing existing Sydney Basin levels of 710,000 tonnes per annum by 4,333 tonnes), 0.5 per cent to hydrocarbons (adding 649t/a to existing loads of 127,000t/a), and 2.1 per cent to nitrogen oxides (adding 2,159t/a to existing emissions of 102,000t/a).

In regard to vehicle emissions, the EIS estimated that 57,000 vehicle movements per day would be generated by the airport, including passengers, visitors and employees. It concluded that the additional emissions contributed by airport-related traffic would represent largely a geographical redistribution of pollution within the Sydney Region, and that when compared with the growth in traffic related to general urban expansion within Sydney's urban release areas, the airport would contribute relatively little additional pollution. The EIS also stated that the likely pollution levels on a square kilometre basis would be significantly less than the city centre and inner city areas of Sydney.

Jet engines emit a variety of combustion products including oxides of nitrogen, carbon and sulphur in gaseous form, hydrocarbons and particulate matter. In addition, a certain amount of unburnt fuel is released by jet aircraft through incomplete combustion. These compounds are also produced by combustion of petroleum and diesel fuels by motor vehicles and other sources. It has been estimated that aircraft only contribute approximately 1 per cent of total air pollutants in the Sydney basin, including 0.6 per cent CO and 2.6 per cent hydrocarbons. (see Stevenson Report, Draft Air Quality Management Plan)

Aircraft operations are not considered to be a major source of emissions in the Sydney Region as a whole in either the Draft EIS or recent EPA monitoring programs. The 1985 HORSCAN report on "Aircraft Operations and the Australian Community" recommended that State Ministers responsible for environmental matters should "include pollution from airports in any State monitoring programs" (Recommendation 3). However, the HORSCAN report added that "on the evidence presented the Committee must conclude that aircraft emissions have a negligible effect on overall air pollution."

Despite these findings, the delicacy of air quality in the SWA Sub-Region means that every avenue to control emission levels in the Sub-Region itself must be explored.

Sydney West Airport will become a point source which attracts ozone and increases the

concentration in the Sub-Region. Incomplete combustion occurs when jet engines are operating at full power on take-off, generating very small particles less than 10 micrometers in size (PM 10) and larger particles of soot. These particles remain concentrated close to the airport in a narrow strip and will have some impact on emissions causing brown haze in winter. Some overseas airports are also investigating monitoring equipment that is capable of detecting excess emissions of this kind from individual aircraft.

Research by the NSW EPA, supported by the Draft Air Quality Management Plan for KSA, also emphasises the impact of ground-running engines on air quality.

**The Committee believes that its proposed exclusion zone for residential development around SWA (see section 4.2) will avoid exposing people to any adverse impact on air quality from aircraft and airport-related operations.**

## RECOMMENDATIONS

94. **The NSW EPA should begin negotiations with the FAC to ensure that strategies are developed which minimise ground-running by aircraft while preserving maintenance and safety standards.**
95. **The delicate state of air quality in the SWA Sub-Region warrants the implementation of aircraft emission monitoring equipment if it is found to be effective.**

### 4.4.12 THE EIS UPDATE ON AIR QUALITY: 1995

As part of the revision of the 1985 EIS for a Second Sydney Airport at Badgerys Creek, the Federal Minister for Transport, the Hon Laurie Brereton, announced a series of environmental updates to be funded in the 1995/96 Federal Budget including a study of air quality. This revised study will be completed in 1996.

This announcement by Mr Brereton responds to community concerns about the possible impact of aircraft operations on fragile existing air quality in Western Sydney. The decision to find out more information about the possible repercussions of an airport on air quality has been supported by councils which appeared before the Committee. Mr Klaus Kerzinger of Fairfield Council stated:

The Metropolitan Air Quality Study was released recently, and has led to serious concerns about deterioration in air quality in the western suburbs. The 1985 impact statement has only scant details about the impact on air quality.... Our people at Fairfield are asking us questions but we have nothing with which to respond. (T2, 23)

**The Committee believes that the decision by the Federal Government to update the EIS assessment of air quality represents an important component in developing a model of**

how SWA will affect air quality in Western Sydney.

#### 4.4.13 CONCLUSIONS

**Air quality is an issue which cannot be instantly corrected by massive capital contributions. The sources of emissions are dispersed throughout the Sydney region and it is clear that no single strategy is capable of producing dramatic results on air quality, such as the introduction of unleaded fuel achieved over the past decade.**

**A combination of land use and alternative transport strategies and a holistic approach to the problem are the only means of providing Sydney's residents with the air quality standards which they now expect.**

**The delicate state of air quality in Western Sydney and the unique structure of the Sydney airshed necessitate comprehensive monitoring of the SWA site and its Sub-Region beginning prior to airport operations.**



**RECOMMENDATIONS**

- 96. The EPA should open negotiations with the Federal Airports Corporation (FAC) to establish a comprehensive air quality monitoring system on the SWA site. Air quality monitoring stations should be located around the airport boundary and in adjacent suburbs to monitor emissions, in particular nitrogen oxide, nitric oxide, hydrocarbons, carbon monoxide, particulate matter and sulphur dioxide concentrations.**
- 97. The SWADC should work with the EPA to establish an Emissions Control Strategy as part of its Environmental Management Plan for the SWA. This strategy should include:**
- an emissions inventory;
  - emissions standards for all criteria pollutants in the SWA Sub-Region;
  - limits or prohibitions on industries which produce large quantities of emissions, especially precursors of photochemical smog and brown haze;
  - cumulative assessment of emissions from existing industries in the SWA Sub-Region when considering applications by new industries; and
  - methods of attracting clean industries to the SWA Sub-Region.
- 98. The SWADC should have the power to grant immediate approval to industrial developments which produce emissions within the prescribed standards of the Emissions Control Strategy which it develops for the SWA Sub-Region so long as these developments comply with other general air quality requirements. However, scheduled industries and non-scheduled industries with acknowledged pollution problems (such as mushroom composters) should not be exempted from EPA scrutiny.**
- 99. Comprehensive education programs should be introduced by the EPA to make the community aware of strategies for:**
- further reducing motor vehicle emissions;
  - controlling domestic use of paint sprays and solvents at certain critical points in summer;
  - reducing domestic fuel combustion in winter.

**Individual commitment is central to environmental gains on air quality in Western Sydney because of the propensity of the Sydney airshed to trapping emissions from all over Sydney in Western Sydney.**

## 4.5 WATER QUALITY

### 4.5.1 INTRODUCTION

Water quality management in the SWA Sub-Region has been identified as a very high priority by the Committee because of the need for a holistic program to deal with problems in the Hawkesbury-Nepean River system.

The airport site at Badgerys Creek feeds into South Creek, the most polluted catchment in the Hawkesbury-Nepean River system. It is essential that water quality in this catchment is not degraded further by airport operations and related development; although it should be noted that water quality in South Creek significantly declines downstream from the SWA site when it reaches heavily-urbanised areas around St Marys.

Clean Up Australia reported in its submission to the Committee (s.50) that the South Creek catchment:

- has one of the fastest rates of urbanisation in Australia;
- will be affected by planned major developments including SWA, the ADI site and Rouse Hill (8,000 lot potential in next 5 years);
- suffers heavy metal pollution directly influenced by urban areas surrounding St Marys and Mt Druitt;
- is viewed by Sydney Water as the most polluted section of the Hawkesbury-Nepean River; and
- has levels of lead, copper and zinc in its sediments which are approximately double background concentrations.

The NSW Minister for the Environment, the Hon Pamela Allan, detailed the problems downstream of the SWA site in a submission to the Committee (s.60) and outlined what must be done to prevent any further deterioration of water quality:

The water quality generally in South Creek is under stress, particularly in the downstream sections of South and Eastern Creeks. Further discharges of effluent, unless disinfected and treated to potable water standards are likely to exacerbate the existing situation. South Creek discharges into a particularly sensitive reach of the Hawkesbury-Nepean River system. Thus any strategies for the South Creek sub-catchment should take into account the existing deteriorated water quality in South Creek and promote strategies that enhance water quality within the South Creek sub-catchment.

In its submission (s.38) Hawkesbury-Nepean Catchment Management Trust stated that a concerted effort was needed by everybody who lived and worked right along South Creek to improve water quality:

There is no doubt that the quality of water in South Creek is unacceptable. To improve the quality, action will be necessary by all who live, operate and work within the catchment.

The development of Sydney West Airport at Badgerys Creek within the Hawkesbury-Nepean River catchment will have a cumulative environmental impact on water quality as the initial major airport development grows and induces flow-on commercial, industrial and residential development.

The Committee was concerned with two facets of this process:

- water quality strategies introduced by the Commonwealth to control output from the SWA site; and
- mechanisms for ensuring water quality control for residential and industrial development in the SWA Sub-Region in the medium to long term.

The following activities at SWA and in the SWA Sub-Region will have an environmental impact on the Hawkesbury-Nepean catchment:

- construction of the airport facilities;
- ground servicing and aircraft flight activities associated with airport operations;
- land access activities; and
- airport-associated industries and flow-on development.

The evolution of SWA to full operational capacity means that the impact of these activities on water quality will accumulate over time. In particular, creeping airport-associated development must be controlled. This means that a holistic approach to SWA and related development needs to be fostered in regional planning at the formative stage. In short, a blueprint must be developed, implemented and executed for SWA and the SWA Sub-Region, which recognises enhanced water quality as a primary goal when determining land use.

The Committee received a number of submissions about water quality in the Hawkesbury-Nepean River System and took additional evidence from two experts in this field.

The overwhelming body of opinion was that:

- there must be an effective water quality monitoring system put in place at South Creek and Badgerys Creek;
- water quality in South Creek must be improved by new residential and industrial developments achieving high quality outputs;

- sewage management at SWA must be at Best Management Practice standard;
- sewage must be treated on-site at SWA and not downstream (at St Marys STP);
- on-site effluent/waste water must be of a potable standard to allow re-use in airport buildings and grounds;
- adequate stormwater management programs must be put in place to control quality and quantity of stormwater from the SWA site;
- flooding must not be exacerbated by the quantity of water discharged from the SWA site;
- bio-diversity in the region must be rehabilitated;
- there is currently no coordinated strategy or development controls to alleviate pollution; and
- a central authority needs to be put in place to ensure high quality environmental outcomes throughout the Sub-Region.

Responsibilities for the control and management of the water cycle in this region rest with several major agencies at the moment: the EPA, Sydney Water, the DWR, the DoP, the Office of Water and, for some estuarine aspects, the PWD. Clearly, there is a need to consolidate water quality management programs and to ensure that water quality issues in the SWA Sub-Region are controlled by a single authority with power over all developments and catchment inputs.

The outlook at SWA is not entirely negative. Mr Malcolm Hughes of the Hawkesbury-Nepean Catchment Management Trust argued in evidence that SWA could improve the quality of the airport site:

I think there are opportunities to improve the quality of the environment on this site and the surrounding area as a result of the airport development, associated development and provision of the infrastructure. (T2, 12)

Several factors can positively influence the level of environmental impact which SWA and related developments in the Sub-Region will have on water quality in Badgerys Creek:

- the early establishment of an environmental management and monitoring program under a single authority;
- adequate soil erosion control and rehabilitation strategies to limit the level of disturbance from earthworks during the construction phase;

- adequate control of drainage and water quality;
- adequate sewage treatment and waste disposal; and
- ensuring the compatibility of land use with land capability in the SWA Sub-Region.

The Committee investigated ways in which these water quality outcomes could be achieved at SWA and in the SWA Sub-Region, taking into account the respective spheres of Commonwealth and State control.

The Committee recognises that SWA cannot be separated from the problems of the entire Hawkesbury-Nepean catchment. Therefore, the Committee sought to determine ways in which water quality management could be integrated into an effective planning and monitoring program.

#### **4.5.2 THE HAWKESBURY-NEPEAN RIVER SYSTEM AND SOUTH CREEK CATCHMENT**

The Hawkesbury-Nepean River system is already suffering from severe environmental stress as a result of increased urbanisation in Western Sydney. The river runs 220km from Camden Weir to the sea and is subject to some of the most intense urban stress of any water body in Australia. As metropolitan Sydney expands over the next 50 years this stresses will increase as a projected 750,000 people settle in the catchment.

The length of the main stream and tributaries of the Hawkesbury-Nepean catchment is about 470km. The catchment size is about 21,700sq/km and the average discharge rate is about 3 million megalitres a year, or about 8,000 megalitres a day.

The Hawkesbury-Nepean River system is highly regulated with 18 dams with a total storage capacity of about 2.8 million megalitres. The greater part of the catchment yield is transferred out of the catchment to supply water for Sydney. This regulation of water by Sydney Water profoundly affects the environment. Changes in riverine flow regimes and habitats have had significant effects on aquatic and riverine biota, water quality and human uses.

The South Creek catchment is located within the Hawkesbury-Nepean River Basin and occupies the western part of Sydney bounded by Windsor (north), Narellan (south), Penrith (west) & Blacktown (east). Total catchment area is 490sq/km. The central area of the catchment, bounded by the Main Western Railway (north) and the F4 Western Freeway in the south, is partly urbanised. The remainder of the catchment is rural, it's population scattered in small villages and farms.

The South Creek catchment is markedly affected by flood-prone lands subject to flooding probability of 1-in-100 years (1 per cent AEP flood). The flat terrain and low bed slope of South Creek has resulted in extensive flood plains, particularly around the confluence of

Kemps Creek and downstream of the Main Western Railway. The flood plain width along South Creek ranges from 100-800m with a median of 300-600m. Along west bank tributaries such as Badgerys Creek, it generally ranges up to 100m. Development in such areas will require contingency management plans. Flooding is addressed in REP 20 in relation to agricultural practices, river management plans and the consideration of development applications. It can both cause and be caused by cumulative effects on the environment. The change to hydrology caused by advancing urbanisation and loss of wetlands can cumulatively exacerbate the impact of floods.

Flow in most streams in the South Creek catchment is only short lived, which has led to channels becoming choked with trees and bushes. However, sudden thunderstorms can lead to a dramatic increase in flow levels. In evidence before the Committee, Mr Richard McManus of Clean Up Australia outlined the implications for water quality of the change between low and high flow conditions in South Creek:

The actual water quality that is in South Creek during low flow is dominated by the sewage treatment plants of St Marys, Quakers Hill, Riverstone and the Rouse Hill project. Point sources to the actual creek account for 85 megalitres per day which flow through to South Creek at Windsor. These point sources contribute all of that flow. During high flows, run-off from agricultural lands, urban areas and so forth can increase this flow by up to 100 times.... This brings with it flushes from agricultural lands, urban areas and so forth that wash off the whole catchment and bring pollutants into the actual discharge of the creek and river. (T2, 4-5)

There are about 100 significant farm dams in the catchment above the F4 Freeway. The largest are:

- 640,000c/m storage at the junction of South and Badgerys Creeks; and
- 400,000c/m storage on Kemps Creek just upstream from South Creek junction.

However, these storage capacities are too small to have any flood mitigation effect in major floods.

### 4.5.3 WATER QUALITY IN SOUTH CREEK

The Committee looked at water quality in the Hawkesbury-Nepean River and its tributaries, especially South Creek. The airport site at Badgerys Creek feeds into South Creek, well upstream of major urban and industrial areas such as St Marys. Water quality testing in South Creek to date has taken place near these densely-populated regions, which are well downstream of the SWA site.

The Committee received evidence from Mr Richard McManus of Clean Up Australia on the nature and location of land use along South Creek:

Grasslands and agricultural areas account for approximately 75 per cent of the actual catchment area, urban areas account for about 15 per cent of the catchment area, and natural forest accounts for only 10 per cent of the catchment area.... The agricultural lands within the South Creek catchment are located towards the south of the catchment, stretching down towards Liverpool and Camden. The urban areas go from a bridge across South Creek catchment - St Marys, Mount Druitt, Rooty Hill and similar areas. The top area of the catchment, stretching up towards Windsor, is more agricultural. (T2, 3)

Mr McManus indicated during questioning that water pollution in South Creek was overwhelmingly the product of urban development:

**Mr McMANUS:**... South Creek urban area accounts for 50 per cent of the urban pollution within the whole Hawkesbury-Nepean catchment. In 1992 the CSIRO carried out a study into this, and came up with a geographic information system. The organisation found that within the South Creek catchment the urban area accounts for 50 per cent of the nutrient pollution to the whole Hawkesbury-Nepean catchment and grazing accounts for five per cent of the nutrient pollution going into the whole Hawkesbury-Nepean catchment.

**Mr RIXON:** What was the area of grazing?

**Mr McMANUS:** The area of grazing was 75 per cent of the catchment.

**Mr RIXON:** So 75 per cent is contributing 5 per cent of the pollution?

**Mr McMANUS:** Five per cent, yes.

**Mr RIXON:** What was the area of residential development?

**Mr McMANUS:** About 15 per cent.

**Mr RIXON:** And that is contributing 50 per cent of the pollution?

**Mr McMANUS:** Yes, 50 per cent to whole Hawkesbury-Nepean catchment. (T2, 3-4)

The EPA Report on Water Quality in the Hawkesbury-Nepean River (1990-93) found that water quality had improved since 1981 as a result of the 1985 water quality management strategy, which introduced enhanced treatment at sewage treatment plants. However, the levels of phosphorous, nitrogen and phytoplankton still exceeded relevant criteria and the potential for algal blooms remained. In addition, faecal coliform levels were sufficiently high to exceed criteria for recreational use at many sites, particularly around urban centres such as Camden, Penrith and Windsor.

Water was sampled at monthly intervals at 60 sites including 20 tributaries. Among the tributaries was South Creek, which was sampled at:

- Richmond Road Bridge, Marsden Park, downstream from the St Mary's Sewage Treatment Plant; and
- Fitzroy Bridge, Windsor, beyond the junction of South and Eastern Creeks and downstream from South Windsor and Windsor STPs.



**The results at these sampling sites are not specific to water quality issues relating to SWA and its Sub-Region as they are almost 40kms from the SWA site and well beyond heavily-urbanised areas such as St Clair and St Marys, which produce the majority of water pollution.**

In an additional study, the EPA began monitoring recreational water quality in the Hawkesbury-Nepean River in October 1993 with reports being produced every six months. The program was designed to specifically evaluate water quality at the locations where the community chooses to use the river for recreation. The range of parameters that are assessed include:

- bacterial water quality using the indicator organisms, faecal coliforms and enterococci;
- presence of nuisance organisms such as algae;
- visual clarity and colour;
- measurement of pH and toxic chemicals; and
- water temperature.

Between April and September 1994, 12 sites were selected including South Creek at Governor Phillip Park ramp, Windsor.

**The sampling site on South Creek in 1994 was almost 40km from the SWA site and well beyond heavily-urbanised areas at St Clair and St Marys. Therefore, it was not strictly relevant to water quality issues arising from SWA.**

**This means that the data which has been collected by the EPA about South Creek to date has not been specific to water quality at or near SWA.**

The SWA Task Force considered that recent studies for the ADI site at St Marys provided the best indication of the likely water quality conditions within the SWA Sub-Region, although they were only able to conclude that more frequent water quality testing and sampling was required.

The ADI studies indicated that the quality of the water in South Creek is adversely affected by:

- treated effluent discharge from the St Marys Sewage Treatment Plant (STP);
- urban run-off from suburbs such as St Marys, Mt Druitt, Colyton and Werrington; and
- run-off from agricultural activities.

As a consequence, South Creek carries high concentrations of nutrients (nitrogen and phosphorous) which have very low assimilation rates. In low flow conditions, the flows in South Creek downstream of the STP consist largely of treated effluent.

Preliminary conclusions of the ADI site study include:

- water quality in South Creek upstream of St Marys STP is poor, with faecal coliform levels frequently found to be unacceptable; and
- the institutional framework of catchment management is unwieldy and uncoordinated due to the structural reporting process. In its present form, it will not be able to implement improvements necessary in the upper reaches of the catchment.

In addition, the South Creek Valley RES (1991) found that considerable loads of nutrients and bacteria were being discharged into South Creek, which eventually affected the quality of water in the Hawkesbury River. Without preventative measures, it was expected that urban development within the South Creek catchment would exacerbate the poor water quality conditions.

**The sites mentioned in the EPA and ADI site studies are all located at least 10km downstream from the SWA site and are relevant only as an indication that the South Creek catchment cannot tolerate further environmental stress.**

**This merely confirms that all developments in the SWA Sub-Region will have to be carefully planned to minimise any impact on water quality in South Creek.**

**However, the Committee warns that a strategy to control the quality of discharges from SWA must not be used as an excuse to defer action on water quality issues downstream of the SWA Sub-Region, where the overwhelmingly majority of water pollution is created.**

**Clearly, there is no extant baseline data on water quality in Badgerys Creek.**

**The Committee sought more information on the current state of Badgerys Creek in its public hearings. It also looked at the capacity of existing water catchment management practices to deal with water quality problems in the SWA Sub-Region.**

**These investigations are detailed in the following sections.**

#### **4.5.4 THE NEED FOR WATER QUALITY TESTING NEAR THE SWA SITE**

Given the lack of formal studies, the Committee asked expert witnesses to provide anecdotal evidence of the state of Badgerys and South Creeks near the airport site.

Mr Richard McManus of Clean Up Australia stated that Badgerys Creek was polluted and that the airport construction phase raised the possibility of significant sediment loads.

However, Mr Malcolm Hughes of the Hawkesbury-Nepean Catchment Management Trust argued that the water quality from Badgerys Creek at the SWA site itself had improved since the Commonwealth acquisition of land had ended agricultural activity.

It is interesting to note that in my opinion the quality of water that would come off the site today is fairly reasonable because over the last several years the intensity of use of that area has substantially reduced as a result of the Commonwealth purchasing large amounts of the land - this is on the SWA site itself. Consequentially, whereas you might have had your poultry farms and market gardens in the past - and there is potential for this land use to generate pollutants - they have been substantially left or removed and it is classified at the moment as unimproved pasture, grazing land. (T2, 13)

The South Creek Valley RES (1991) concluded that there was a lack of information about the water quality of South Creek within the Sydney West Airport Sub-Region. Studies which have been undertaken do not specifically address water quality at or near the SWA site. They do provide some background material on the environmental stress affecting South Creek.

Mr Malcolm Hughes of the Hawkesbury-Nepean Trust stated that there was no proper monitoring program of water quality in Badgerys Creek near the airport site:

My understanding is that there is not a satisfactory water quality monitoring regime in that upper part of South Creek catchment. Some monitoring is done by a private waste disposal operation just on the other side of Elizabeth Drive - Pacific Waste. (T2, 14)

In its submission to the Committee, the South Creek Catchment Management Committee, which is one of five Catchment Management Committees in the Hawkesbury-Nepean Trust network, supported additional water quality testing at the SWA site as a precursor to the introduction of a total water cycle management system:

To assess the existing quality of water emanating from the site a comprehensive range of water quality testing should be commenced immediately to provide an adequate data base from which to assess the extent of water quality improvement that can be achieved through implementation of effective total water cycle management systems. (s.14)

**The Committee is disturbed by the lack of baseline data on water quality at Badgerys Creek.**

**The Committee is well aware of the poor water quality of South Creek and the necessity of ensuring that airport construction and operations and future airport-related development do not further degrade South Creek.**

**The Committee supports moves by the EPA, the Hawkesbury-Nepean Trust and Clean Up Australia to introduce systems which will improve water quality both in South Creek and in the Hawkesbury-Nepean River.**

## **RECOMMENDATIONS**

**100. Water quality monitoring stations should be established by the EPA and SWADC on four sites in the vicinity of Sydney West Airport to gather baseline data on the state of Badgerys Creek and South Creek before residential, commercial and industrial development commences. These sites are:**

- on Badgerys Creek before the entrance of water from the airport site;
- on Badgerys Creek between the airport site and the junction with South Creek;
- on South Creek prior to the junction with Badgerys Creek; and
- on South Creek before urban development at St Clair but beyond the proposed Erskine Park Employment Park.

**101. Water quality data gathered near the SWA site by the SWADC should be used as the basis for a total water cycle management system for the SWA Sub-Region.**

**The Committee looked at the current state of water catchment management practices in the SWA Sub-Region and South Creek to determine their capacity to undertake such a task.**

### **4.5.5 THE EXISTING WATER QUALITY MANAGEMENT STRUCTURE IN THE HAWKESBURY-NEPEAN RIVER SYSTEM**

The management of the water of the Hawkesbury-Nepean Catchment was originally addressed with the introduction of Regional Environmental Plan (REP) 20 in 1989 and the establishment of the Hawkesbury-Nepean Catchment Management Trust and associated catchment management committees. REP 20 was developed in conjunction with the Department of Planning's broader strategy document for planning in Sydney titled, *Cities for the Twenty-First Century*.

REP 20 has eleven general aims:

- water quality improvement;

- provision of recreational facilities;
- promotion of the economy of the river valley;
- retention of farmland character;
- protection of vegetation and wildlife habitats;
- protection of environmental heritage;
- protection and enhancement of scenic quality;
- sand extraction regulation;
- providing for urban expansion to be undertaken in an environmentally sensitive manner including water quality;
- promotion of TCM (Total Catchment Management); and
- providing a framework for future planning.

REP 20 seeks to introduce Total Catchment Management (TCM) practices into the Hawkesbury-Nepean catchment.

TCM provides coordinated management direction for catchment activities. The important features of TCM that assist the sustainable use of resources are:

- cooperation between government, business, and the community;
- a coordinated approach to natural resource management;
- consideration of the impacts that activities have on each other;
- provision of a forum to resolve natural resource management conflicts;
- an understanding of the eco-systems within the catchment;
- community identification of catchment issues and involvement in establishing priorities for them; and
- community access to government resources.

The legislative and operational framework for TCM was created by the Catchment Management Act 1989. The objectives of the Act are to:

- coordinate policies, programs and activities as they relate to total catchment management;
- achieve active community participation in natural resource management;
- identify and rectify natural resource degradation;
- promote the sustainable use of natural resources; and
- provide stable and productive soil, high quality water and protective and productive vegetation cover within each of the State's water catchments.

In order to achieve these objectives, the Act:

- provides for a network of Catchment Management Committees, coordinated by a State Catchment Management Coordinating Committee and linking Government with the community to achieve the objectives of TCM; and
- provides for Catchment Management Trusts to replace Catchment Management Committees in some situations in order to raise revenue for particular TCM purposes.

The Hawkesbury-Nepean Catchment Management Trust was established under the Catchment Management Act 1989 and the Hawkesbury-Nepean Catchment Management Trust Regulation 1993.

In its submission to the Committee (s.38), the Hawkesbury-Nepean Trust stated that its purpose was to achieve a healthy and productive Hawkesbury-Nepean River system by:

- encouraging the protection and, where appropriate, the restoration, of the Hawkesbury-Nepean River system;
- facilitating the ecologically sustainable use, development and management of natural resources, the flood plain and the built environment; and
- fostering orderly and proper physical, environmental and socio-economic planning and management as the basis for the well-being of the people and all life within the Trust area.

The role and responsibilities of the Hawkesbury-Nepean Trust are to:

- coordinate catchment management;
- develop and make input to catchment planning and strategy development; and
- consult with the catchment community.

As part of its consultation process, the Hawkesbury-Nepean Trust established five catchment management committees. SWA will be located in the South Creek Catchment Management Trust Committee area.

In response to perceived limitations in the control which the Hawkesbury-Nepean Trust could exercise over water quality in the catchment, the draft Sydney REP 20: Hawkesbury-Nepean (Amendment No 2) was developed and placed on public exhibition on 7 December 1994 until 28 February 1995. It proposed the following amendments to strengthen the powers of the Hawkesbury-Nepean Trust:

- a requirement for council consent and the concurrence of the Hawkesbury-Nepean Trust for certain types of development; and
- a requirement for councils to consult with the Hawkesbury-Nepean Trust for some types of development before granting consent to a development application.

The following five types of development cannot be approved by councils without the concurrence of the Hawkesbury-Nepean Trust:

- sewerage systems or works;
- waste management facilities or works;
- large marinas;
- maintenance dredging operations; and
- development in wetlands.

The Hawkesbury-Nepean Trust also has a consultation role for other types of development including intensive livestock keeping and horticulture establishments, caravan parks or camping grounds, and manufactured home estates, for which the Trust has 28 days to respond.

REP 20 is currently being amended by the Department of Urban Affairs and Planning.

The Committee looked at the suitability of the administrative structure which is currently overseeing the standards laid down in REP 20 in the following section.

#### **4.5.6 THE NEED FOR BETTER ORGANISATION OF WATER QUALITY MANAGEMENT**

The diverse nature of impacts on water quality in the Hawkesbury-Nepean catchment has resulted in a complex administrative arrangement for water cycle management.

Responsibilities for the control and management of the water cycle currently rest with several major agencies in New South Wales: the EPA, Sydney Water, the Department of Water Resources, the Department of Planning, the Office of Water and, for some estuarine aspects, the Department of Public Works. In addition, the Commonwealth Government, Local Government and the private sector all play a role in providing and maintaining water cycle infrastructure. It is critical the provision and maintenance of this infrastructure is coordinated so it fits into a system designed to achieve consistent objectives.

The Committee was disturbed that the consultants for the ADI site studies found that the current organisational apparatus for water catchment management was considered to be unwieldy and uncoordinated. This opinion was reiterated in evidence before the Committee.

In its submission (s.60), Clean Up Australia complained about the lack of a coordinated water management strategy in the Hawkesbury-Nepean River system:

As yet there is no effective catchment-wide developmental controls, on either urban or agricultural land uses along South Creek or the larger Hawkesbury-Nepean Catchment, to alleviate pollution from urban, and agricultural run-off. Rather there is an amalgam of various different ideas, practices and solutions to run-off, and pollution from new and existing urban developments within the catchment.

**There is a pressing need to resolve this dislocated administrative structure before any development occurs in the environmentally sensitive South Creek catchment of the Hawkesbury-Nepean River system, which includes the SWA Sub-Region.**

**Clearly, there is a need to consolidate water quality management programs to ensure that the SWA Sub-Region is overseen by a single authority with power to dictate and enforce water quality standards. The Committee believes that the proposed SWADC should take on this role.**

**The existing Hawkesbury-Nepean Catchment Management Trust has not had the power or resources to exercise such a function since its establishment in 1989.**

Evidence before the Committee suggested that airport-related development in the SWA Sub-Region was far more likely to cause serious problems for water quality in South Creek than was the airport.

Mr Malcolm Hughes of the Hawkesbury-Nepean Trust indicated that while water quality emanating from the SWA site was important, flow-on development had more potential for causing water pollution:

It is certainly that associated development, the flow-on development, which might have more of an impact on the environment than the airport itself. People tend to lose sight of that flow-on development. It could be industrial development or it could be some of the (residential) development that is proposed in the South Creek Valley Regional Environmental Study.... Those cumulative impacts are substantial. (T2, 12)



Given this scenario, the Committee looked at the ways in which water quality was affected by various types of development and how it could be protected in the SWA Sub-Region in the medium-to-long-term.

Mr Malcolm Hughes of the Hawkesbury-Nepean Trust stated that residential development was more difficult to monitor and control than industrial development:

... there is probably a potential to manage industrial land uses more effectively from the viewpoint of water quality because it is easier to place controls on those types of land use rather than on Mr and Mrs Smith who have a house and use fertiliser on their garden, which might wash into a stream, or who might use detergent to wash their car on a concrete driveway, et cetera. It is easier for a system to control industrial land use activities than to control residential land use activities. Industrial land use activities might be subject to a trade waste agreement with Sydney Water; they might have a licence from the EPA; they would probably have consent from the council on land use. There is a myriad of controls on land use.... There have been recent investigations by commissions of inquiry, and there has been a judgment by the Land and Environment Court about water quality from residential areas. A commission of inquiry held for the Helensburgh area came to the conclusion that water quality control measures in place for residential areas were still in their infancy and at an experimental stage, and that further work had to be carried out on them. (T2, 19)

Mr Hughes suggested that medium density residential development was likely to offer better opportunities to control water pollution than the traditional quarter-acre-block type of suburb:

**Mr HUMPHERSON:** Is medium-density housing a better option in this regard for residential land use?

**Mr HUGHES:** Potentially, better water quality outcomes could be achieved with medium-density development than with detached housing as more regulation is involved with medium-density housing. Also, it is easier to incorporate some water control structures on a group of, say, 15 town houses than on individual houses. (T2, 20)

Given the environmental sensitivity of the SWA Sub-Region, the authority which takes control of water quality issues in the SWA Sub-Region must develop a water quality management plan based on recognised environmental standards.

The legislative controls to ensure water quality in the SWA Sub-Region are already in place.

In evidence, Mr Malcolm Hughes of the Hawkesbury-Nepean Catchment Management Trust reinforced the need to stringently comply with the existing Act and REP 20:

It is important that any infrastructure that is provided by the State or others that has not previously been approved is assessed under the provisions of the Environmental Planning and Assessment Act. The Trust encourages the consideration of the Sydney

regional environmental plan Hawkesbury-Nepean River No. 20 when those assessments are carried out on those State infrastructure projects. (T2, 14)

Environmental assessment will be necessary for all state infrastructure proposals in the SWA Sub-Region. This will occur under Part IV or Part V of the Environmental Planning and Assessment Act.

REP 20 is the existing framework planning control for the Hawkesbury-Nepean River system and all development and subsequent local environmental plans prepared by Councils are supposed to be consistent with the framework laid down in REP 20. The Committee has looked at the structure of REP 20 in the previous section.

REP 20 has an objective of managing water quality and ensuring that water quality is satisfactory for recreational and tourism purposes.

The Committee also believes that local communities must continue to be involved in the planning and implementation processes for the South Creek catchment, as has been the case with the Catchment Management Committees which were formed as part of the Catchment Management Act 1989. The involvement of the Hawkesbury-Nepean Catchment Management Trust in the development of a Total Water Cycle management plan for the SWA Sub-Region should preserve this important avenue of community consultation and input.

In its submission to the Committee (s.14), the South Creek Catchment Management Committee emphasised the need to ensure community confidence in the transparency of the airport and regional development process:

Local and regional communities must be confident that the infrastructure and management systems that are proposed for the development can effectively deal with the broad impacts of SWA.

**The Committee recognises that urban development in the SWA Sub-Region is likely to impose more pressure on water quality than the airport site itself and will require stringent land use controls and monitoring programs.**

**The Committee believes that the SWADC has an important role to play in ensuring that high quality environmental outcomes are achieved.**

**RECOMMENDATIONS**

- 102. The EPA and DUAP should review the institutional framework of catchment management in the Hawkesbury-Nepean River system to determine whether it is capable of delivering the necessary improvements to improve water quality.**
- 103. REP 20 should remain the framework planning control for all developments in the SWA Sub-Region.**
- 104. The SWADC in consultation with the EPA, DUAP and the Hawkesbury-Nepean Catchment Management Trust should develop a Total Water Cycle management program for the SWA Sub-Region incorporating Best Management Practices. As part of this process:**
- **the SWADC should consider the impact on water quality as a priority when it is considering urban developments in the SWA Sub-Region;**
  - **community involvement should be a priority; and**
  - **the SWADC should be the overall authority for monitoring and enforcing water quality standards in the SWA Sub-Region.**
- 105. The SWADC should take over the powers of the Hawkesbury-Nepean Catchment Management Trust to act as consent authority in the SWA Sub-Region for developments requiring an EIS under Schedule 3 of the EPA Regulations.**

**The Committee believes that in this role, the SWADC should establish mechanisms for liaison with the Hawkesbury-Nepean Catchment Management Trust so that the Trust's expertise can be utilised in the decision-making process over water quality matters.**

## RECOMMENDATIONS

**106. The SWADC should pay specific attention to the following activities in the SWA Sub-Region which are likely to affect water quality:**

- major urban developments at sub-regional level;
- major transport arteries;
- existing agricultural practices and any proposed change to them;
- existing extractive industry and mining developments (other than maintenance dredging) and any change to them; and
- public sector sewage treatment works.

### 4.5.7 THE RIVERKEEPER PROJECT

The Committee also looked at a program being developed by Clean Up Australia to address water quality issues in the Hawkesbury-Nepean catchment.

In its submission (s.50), Clean Up Australia outlined its work with the Community Research Centre for Waste Management and Pollution Control on the "Riverkeeper Project".

The Riverkeeper Project is:

- a joint venture by Clean Up Australia & Community Research Centre for Waste Management and Pollution Control;
- an opportunity search into the major pollution sources within the Hawkesbury-Nepean Catchment which will then put forward recommendations into the best and most effective solutions to these pollution sources; and
- overseen by a steering committee with Ian Kiernan as chairman.

The representatives on the Riverkeeper Project include:

- Hawkesbury-Nepean Catchment Management Trust;
- NSW Environment Protection Authority;
- Department of Land and Water Conservation;
- Department of Urban Affairs and Planning;

- Sydney Water;
- Clean Up Australia;
- The CRC for Waste Management and Pollution Control; and
- Environment Industry Development Network.

It has identified 10 major sources and potential sources of pollution to the River which will form its core projects. Its objectives are to introduce best management practices into these projects to alleviate existing pollution and propose development within the catchment which will have minimal pollution impact. The Riverkeeper Project has targeted SWA as its priority project.

In evidence before the Committee, Mr Richard McManus of Clean Up Australia indicated that the steering committee had begun meeting in August/September 1995 to develop a concept plan to address the SWA site:

**Mr STEWART:** What level of on-site and regional industrial development is being envisaged in this plan in the short and longer term?

**Mr McMANUS:** In the short term we are focusing mainly on the actual Badgerys Creek airport site. At the moment the area around Badgerys Creek is treated by septic systems for base water treatment. We are looking at putting in a sewage treatment plant that can treat the water to a potable level, which means it can be reused either by putting it back into the human water cycle ...

**CHAIRMAN:** Would that be within the enclosure of the SWA?

**Mr McMANUS:** Within the enclosure but also looking at the broader scale of developments that happen around the airport site - industrial and some residential sites. Within 10 years we hope to have an idea of incorporating all the area around to make it a fully potable reuse site. (T2, 7)

The time-frame for the Riverkeeper Project's concept plan for SWA coincides with the Committee's own reporting date in late 1995. Therefore, the Committee is unable to consider any of the recommendations reached by the steering committee in this report.

**The Committee supports the Riverkeeper Project as a strategy to promote holistic solutions to water quality problems in the Hawkesbury-Nepean River catchment.**

## RECOMMENDATIONS

- |                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>107. The SWADC should liaise with the Steering Committee of the Riverkeeper Project with a view to arranging membership on that Committee for the duration of its project on the South Creek region which includes SWA.</b></p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 4.5.8 WATER QUALITY AT THE SWA SITE: INTRODUCTION

The quality of waste water and stormwater emanating from the SWA site was raised as a matter of concern before the Committee, principally because of the lack of information about drainage and sewerage facilities in the first stage of accelerated development at SWA.

Witnesses indicated that the water cycle management program for the SWA site should:

- incorporate Best Management Practices, particularly for sewage management;
- treat sewage to potable standard on-site to minimise nutrient input into South Creek;
- re-use stormwater and effluent for airport facilities and irrigation; and
- ensure that the accelerated development of the airport will not result in inadequate controls on water quality in South Creek.

The Committee addresses these concerns in this section, first by reviewing the information contained in the 1985 EIS and then by assessing the 1995 concept design for drainage and sewerage systems at SWA.

#### 4.5.9 WATER QUALITY AT THE SWA SITE: THE DRAFT EIS (1985)

The Draft EIS (1985) investigated methods for minimising the impact of the airport on water quality in Badgerys Creek, South Creek and the Hawkesbury-Nepean River system.

The SWA site contains three main drainage basins:

- Duncans Creek, which drains into the Nepean River about 2kms upstream of Wallacia and 8kms west of the airport site;
- Cosgroves Creek, which drains into South Creek; and
- Badgerys Creek, which also drains into South Creek.

The proportion of each basin within the SWA site is indicated in the following table.

**TABLE 29: DRAINAGE BASINS ON THE SWA SITE**

Drainage Basin	Approximate total area (sq.kms)	Approximate Area of Basin within SWA site (%)
Duncans Ck	23	10
Cosgroves Ck	21	25

Badgerys Ck	28	65
-------------	----	----

Source: draft EIS (1985), 279

In summary, more than 90 per cent of the proposed SWA airport site drains into South Creek which, in turn, enters the Hawkesbury River about 2kms downstream of Windsor. The rest of the airport site drains westward from Duncans Creek into the Nepean River. Badgerys Creek is the only perennial watercourse on the SWA site.

The developed flood plain at Badgerys Creek extends into the north-east section of the proposed SWA site south of Elizabeth Drive. The 1:100 year flood plain map shows the flood plain as about 150m wide at this point. Most of the other creeks draining the site are considered to have a sufficiently steep gradient to render flooding unlikely for any duration longer than the particular storm event.

The EIS investigated the possible increase in run-off as a result of full airport development that could lead to flooding:

About 50 per cent of the proposed site would become an impervious surface from which the run-off water would be directed into semi-natural and lined channels, thus increasing the flow rate and volume of water passing a given place at a given time. It is estimated that run-off from the proposed site would be increased by about 26 per cent as a result of paving and of building development (full capacity)... (286)

The EIS concluded that the adverse affects of increased run-off and greater potential for flooding would be minimised by retarding basins on each of the main sub-catchments flowing from the proposed site. Satisfactory storage capacity for run-off and peak flows would ensure that there was no damage to the downstream environment:

By ensuring that there would be sufficient storage capacity to contain peak flows from a 1:100 year storm event, flows along the creeks should, in general, be similar to those experienced at present. This would also ensure that any potential effects on riparian vegetation or on agricultural or recreational areas downstream would be minimised. (286)

It should be noted that the storage and drainage system outlined in the EIS to deal with 1:100 year events to deal with increased run-off into South Creek as a result of operations at SWA was based on maximum airport development with two runways and associated tarmacs.

The EIS reported on the state of Badgerys Creek as a result of rural and agricultural development:

... the ground cover of native forest vegetation has for the most part been cleared and replaced by grazing land and market gardens, and by buildings and other impervious surfaces. This has affected natural run-off... by increasing the peak flow of the drainage channels. (280)

Extensive urban and rural areas also drained into South Creek with five sewage treatment plants located within the catchment at St Marys, Quakers Hill, Riverstone, Windsor and HMAS Nirimba. South Creek was said to contain high concentrations of nutrients (nitrogen and phosphorous) with very low assimilation rates. This indicated that South Creek functioned for part of the time as a drain for effluent, discharging considerable amounts of nutrient into the Hawkesbury River.

The Committee investigated the possible effects on water quality of both the construction and operational stages of SWA.

#### 4.5.9.1 AIRPORT CONSTRUCTION STAGE

The construction stage at SWA was recognised as a period in which stress may be placed on water quality if steps were not taken to control sedimentation from disturbed areas by the installation of temporary silt traps to collect sediment from run-off. The progressive revegetation of disturbed areas and the early installation of the drainage system would be coordinated with the construction work to further reduce sedimentation. The drainage system would consist of retention basins to contain the first flush of stormwater and retarding basins to control the rate of flow of run-off.

The draft EIS (277-9) identified significant potential pressures from soil erosion during land shaping for the construction stage at SWA, which could have an impact on drainage systems and water quality. The necessity of achieving relatively flat grades for airport development would require reshaping of the ground surface by excavation and filling. Much of the airport site would have to be cleared and levelled for the construction of runways, taxiways, aircraft terminal facilities and maintenance and cargo handling areas. This process would involve up to about 10m of fill in some locations (mainly creek beds) and up to about 20m of cut where the existing ridge line runs parallel with the connecting taxiway.

The draft EIS (1985) contained the following estimate of earthworks for future airport construction at SWA (in thousands of cubic metres):

**TABLE 30: EARTHWORKS AT THE SWA SITE**

Facility	Cut	Fill	Balance
Long Runway & Associated Taxiways	4,266	3,666	600 (cut)
Short Runway & Associated Taxiways	2,076	2,383	307 (fill)
Connecting Taxiway	220	444	224 (fill)
Terminal and Cargo Areas	9,192	9,330	138 (fill)
<b>Total</b>	<b>15,754</b>	<b>15,823</b>	<b>69 (fill)</b>

A range of measures would be adopted during airport construction to minimise the amount



of earthworks and to ensure that appropriate procedures for erosion and sediment controls were established and implemented. Future airport facilities would utilise existing topography and natural features where possible. Land shaping would only be carried out on areas under construction as opposed to shaping the entire site. (Draft EIS. 279) Soil erosion measures would be implemented to address the fact that the SWA site contained soils which were moderately to highly susceptible to erosion. Specialised erosion and sediment control measures would be implemented to minimise any problem of sedimentation in the surrounding drainage systems.

The specific measures proposed included:

- ensuring that the site was only partially cleared and that, during construction, progressive rehabilitation of disturbed areas was undertaken through revegetation and landscaping;
- special measures for the removal and stockpiling of topsoil, including the progressive use of topsoil for rehabilitation;
- land reshaping and contouring to avoid excessive concentration of drainage;
- where possible, the location of slopes away from areas yielding excessive run-off;
- ensuring that contour drains were constructed at as low an angle as possible over the entire length of slopes;
- creating diversion banks to disperse run-off and protect rehabilitated work;
- sediment control basins where necessary to trap sediments during construction work so that downstream areas would not be adversely affected.

The proposed site contained areas of saline soils which were likely to inhibit revegetation. Such soils require special treatment, because they are usually present in areas where erosion is likely to be high and vegetative cover is sparse. Procedures would therefore be taken to remedy salinity by removing saline groundwater through drainage.

The EIS concluded that water quality would be affected to some extent during initial construction on the proposed site:

Water quality in the streams draining the site is likely to be temporarily affected by increased nutrient loads, since total nitrogen and phosphorous entering the system from run-off would be expected to increase. However, once development was finished the contribution of total nitrogen and total phosphorous to the system from run-off would be expected to decrease significantly. (288)

#### 4.5.9.2 AIRPORT OPERATIONAL STAGE

Once the airport was in operation, the EIS envisaged the low flow conditions existing for most of the time in South Creek would pose potential problems for water quality all the way to the Hawkesbury River:

Under low flow water conditions, most of the present flow in South Creek is treated sewage, carrying high nutrient loads. There is little assimilation of these nutrients with the result that South Creek acts as a discharge for effluent into the Hawkesbury River. Considerable population increase is forecast for areas in the catchments of South and Eastern Creeks and, as a result, significant increases in nutrient loads... (288)

A list of possible sources of contaminants from SWA site run-off and effluent was developed from inventories conducted at KSA and other airports in the Sydney Region.

**TABLE 31: POSSIBLE RUN-OFF CONTAMINANTS FROM THE SWA SITE**

Contaminant	Source
Sediments	Natural erosion, site earthworks
Nutrients	Soil sediments, fertilisers, sewage effluent
Contaminated food & water	Kitchen waste from international flights
Sulphuric acid	Wet oil batteries used for standby power supplies at some airport facilities
Emulsified oil, grease, decarbonising solvent cleaners	Workshops for conventional engine maintenance
Detergents	Aircraft wash-down areas, vehicle service and maintenance areas
Paint strippers	Aircraft & vehicle maintenance
Acid, fluorocarbon and hydrocarbon solvents	Fire-fighting equipment
Trade wastes	Kitchens
Aircraft fuel	Fuel storage, aircraft refuelling
Rubber detritus	Aircraft touchdown
Pesticides & herbicides	Ground maintenance

Source: Draft EIS (1985), p.283.

The Draft EIS grouped these contaminants into four categories:

- chemical or process effluent;
- domestic sewage;
- contaminated stormwater; and

- clean stormwater.

The EIS concluded that it would be necessary to either treat domestic sewage in a dedicated plant located on the airport site or to discharge it to a future sewer for treatment in a water pollution control plant located off-site and designed to serve not only the airport but development in surrounding areas. (284) As a water pollution control plant would discharge effluent into South Creek, a high degree of treatment was assumed including the removal of nutrients.

The effect of nutrients from SWA on water quality in South Creek at the maximum airport development level shown in the preliminary master plan was calculated using the following assumptions:

- domestic sewage for 20,000 population equivalents treated at a new water pollution control plant located off-site; and
- nutrients in site run-off equivalent to a fully developed urban area.

The EIS concluded that water quality in South Creek would be only marginally affected by the initial airport development if these parameters were followed:

... if it were assumed that the airport were 50 per cent developed by the year 2000, and that there was no assimilation of airport nutrients in the upper reaches of South Creek, then airport development would contribute about 2.2 per cent of the nitrogen load and 2 per cent of the phosphorous load in South Creek... (288)

As part of the EIS review announced by the Commonwealth Government as part of the acceleration of first stage development at SWA, the 1985 concept design was updated to take into account current environmental expectations, which are considerably more stringent than those of 10 years ago.

The Committee looks at how the 1985 concept design study was updated to meet 1995 standards in the next section.

#### **4.5.10 UPDATED EIS ON WATER QUALITY (1995)**

The Committee was concerned about the implementation of the 1985 draft EIS concept design to preserve water quality in South Creek.

The Committee corresponded with the Commonwealth Department of Transport, which made available the updated 1995 concept design study for the first stage of SWA.

In his correspondence of 30 August 1995, Dr Hugh Milloy of the Commonwealth Department of Transport, also indicated further areas for research and consultation as part of the SWA development process:

Further details will be developed in the forthcoming detailed design of the airport infrastructure. Relevant NSW authorities will be consulted during that process. Environmental Management Plans (EMPs) will be prepared for both the construction and operation of the new airport....

In addition, Dr Milloy indicated that further water quality monitoring programs would be undertaken and that the airport development would be referred to the Commonwealth Minister for the Environment in compliance with the Environment Protection (Impact of Proposals) Act 1974 to determine any further assessment that may be required.

The concept design for SWA has been updated in 1995 to address more rigorous contemporary public expectations about the standard of environmental management. Therefore, the 1985 strategy was reviewed to bring it up to Best Management Practice standards.

In some areas, such as the management of soil erosion and run-off during airport construction, the 1995 review concluded that the "previous concept study are considered to be appropriate and compatible with the currently proposed facilities."

However, there were areas where the 1995 study differed markedly from the 1985 study, particularly in regard to stormwater quality.

The Committee looked at the 1995 concept design study and how it differed from that in 1985.

#### **4.5.10.1 PROPOSED SWA DRAINAGE SYSTEM**

A master drainage plan for the ultimate development of the SWA site was prepared as part of the 1985 concept design. It has been reviewed in the 1995 study. The review identified some amendments to the original design, largely based on improved data.

The drainage system for SWA must take into account the likelihood of flooding in the South Creek catchment area and ensure that post-development discharges do not exceed pre-development discharges.

The large area of paved or impervious surfaces characteristic of an airport and the construction of a dedicated drainage system would normally result in the post-development discharges exceeding the pre-development discharges.

The SWA drainage system therefore controls site discharges through the use of retarding basins. These ponds temporarily store water during storm events and release it at a controlled rate through a restricted outlet.

The objectives of the airport drainage system are that it should:

- have adequate capacity to avoid interruption to aircraft operations and facilities during storm events;
- be compatible with the ultimate development of the airport (two runways);
- ensure that airport development does not cause the rate of run-off to exceed the pre-development discharges;
- be separate from any adjacent urban drainage systems;
- remove pollutants from the stormwater run-off in order to protect the receiving waters; and
- not increase the attractiveness of the airport to birds.

The drainage system is planned to ensure that the design flows can be conveyed without scouring channels, during both storm events and low flows. Ponding of water following the passage of a storm event will also be minimised.

The airport drainage system follows the following criteria:

**TABLE 32: AIRPORT DRAINAGE SYSTEMS**

<b>Runways</b>	No ponding during 50 year ARI event
<b>Taxiways</b>	No ponding during 50 year ARI event
<b>Aprons (general)</b>	No ponding during 10 year ARI event
<b>Aprons (within 65m of bldgs)</b>	No ponding during 50 year ARI event
<b>Runway strip</b>	Ponding within 75m of runway centre line during five year ARI storm event not to exceed 12 hours.
<b>Taxiway and apron flanks</b>	Ponding within 1m of pavement edge during five year ARI storm event not to exceed 12 hours.
<b>Terminal buildings</b>	Floor level 0.3m above 100 year ARI flood level.
<b>Other buildings</b>	Floor level 0.2m above 50 year ARI flood level.
<b>Airport access road</b>	Depth of flooding during 50 year ARI storm should not exceed 0.1m.
<b>Other roads, car parks</b>	Depth of flooding during 10 year ARI storm should not exceed 0.1m for roads and 0.03m for car parks.

The drainage plan for the first stage of SWA development is generally aligned with the runway and taxiways. The site has been divided into five basic catchments to conform with natural drainage division and run-off from each catchment discharges via a dual purpose water quality and flood storage basin.

A system of grass lined open channels with concrete low flow channels has been adopted where possible. Culverts are utilised where the drainage must cross taxiways and runways.

The ponds are dual function:

- they provide flood storage sufficient to reduce post-development discharges to levels less than or equal to pre-development discharges; and
- they serve as sedimentation ponds for improving water quality.

#### 4.5.10.2 PRESERVING STORMWATER QUALITY

The 1995 Concept Design Study addressed rising public concerns about pollution levels in the Hawkesbury-Nepean River system by reviewing the 1985 stormwater management strategies to reflect current Best Management Practices (BMPs).

The Committee believes that it is important to detail the manner in which stormwater management strategies have changed between the 1985 and 1995 concept designs.

The previous stormwater concept (1985) divided the site into "clean" and "dirty" areas, with separate drainage systems for each area. Stormwater run-off from the dirty areas was to be passed through Gross Pollutant Traps (GPTs), which incorporated oil traps, before entering one of five proposed stormwater management ponds. The stormwater run-off from the clean areas entered the ponds via a trash rack.

The 1985 stormwater concept was based on the expectation that the majority of potential gross pollutants, such as coarse sediment, litter and oil spills, would originate from the dirty areas and only some litter would enter the clean drainage system. Stormwater management ponds served to improve water quality through sedimentation and had sufficient storage to reduce post-development discharges to pre-development levels.

Ideally, stormwater management ponds contain wetland plants that facilitate the sedimentation process and feed on soluble nutrients which further improves the water quality prior to discharge.

However, the 1985 concept did not incorporate wetlands into the pond design because of the fear of attracting birds.

The ponds therefore relied solely on sedimentation as a treatment process. Dosing with flocculating agents such as gypsum or alum was considered to remove fine sediments, dissolved solids and nutrients. However, there were concerns about the effect of chemicals on the receiving water and so dosing was not recommended. However, it was to be investigated in the detailed design.

The proposed 1995 stormwater management strategies can be divided into two components:

- non-structural source controls, which emphasise the prevention and reduction of pollution by minimising fertiliser usage and reducing discarded litter; and

- structural management controls, which mitigate the hydrologic and pollutant loadings of water.

The alternative strategy to the 1985 Draft EIS consists of a series of modular structural controls to enable design to be varied for each pond and to permit a staged approach to implementation.

Investigations in the wake of the 1985 strategy indicated that:

- ponds which rely solely on sedimentation can suffer considerable build-up of nutrients with resulting algal blooms; and
- gypsum or alum dosing produces very good nutrient removal (especially for total phosphorous, heavy metals, suspended solids and bacteria) and there are no adverse impacts on the receiving waters if the pond water is held for several days prior to release.

Therefore, it was decided in the 1995 strategy that:

- dosing should be utilised;
- pond design be modified to avoid potential algal blooms; and
- GPTs should be placed on all inflow drainage lines into detention basins as litter, sediment and oil may wash off in varying quantities from the entire site.

The central feature of the 1995 master plan strategy is the provision of five extended detention basins.

Prior to entering the basins all stormwater run-off will be passed through a GPT before being dosed with a flocculant. The dose water will then enter a settling basin before flowing into an extended detention basin. Effluent from the extended detention basin will then be released over a specified period into sub-surface, gravel-based filter beds with low growing water tolerant plants.

The 1995 concept design study also concluded that at sites such as SWA, which are characterised by slow percolating solid and relatively flat topography, "detention basins often provide the Best Management Practice" for controlling stormwater pollutants.

Detention systems reduce stormwater pollutants by settling solids and providing opportunities for a variety of physical, chemical and biological processes to transform pollutants from dissolved to particulate substances. Pollutant removal primarily occurs through settlement of particles and therefore extended retention times will enhance performance.

Extended detention basins are adaptations of flood-control detention basins with a smaller controlled outlet to extend emptying time. The basins proposed for SWA will store run-off

from a one-year, two-hour ARI event and discharge it over a 20 day period.

The advantages of dry detention basins are that:

- the gravel base and water tolerant plants promote de-watering and sediment stabilisation;
- there is an increase in soluble pollutant removal due to biological uptake of water tolerant plants; and
- bird populations are less likely to be attracted compared to systems with large open water ponds.

Dry detention basin systems represent a significant extra capital cost which has been included in the quantity and cost estimates prepared for the SWA master plan.

#### **4.5.10.3 STAGED DEVELOPMENT OF DETENTION BASIN SYSTEM AT SWA**

The extended detention basin system was designed to offer the option of staging development to match increasing airport operations at SWA.

This option would result in a first stage stormwater management system which included three extended detention basins with associated Gross Pollutant Traps and alum dosing plants.

The 1995 concept design study concluded with regard to this option:

If the performance of the system is considered unacceptable, the gravel filter beds could then be constructed, otherwise they may be omitted. If, however, the filter beds are to be omitted, it may be necessary to consider the provision of first flush systems in the wash-down areas in order to reduce the nutrient loading on the system.

First flush facilities for aircraft wash-down and refuelling areas remove the first 50mm of run-off for separate treatment. This effluent is then either disposed off-site or directed to on-site sewage treatment facilities. At SWA, the introduction of the first flush system would require the sewage facilities to be doubled in size to treat expected additional loadings at considerable extra cost.

The 1995 concept design study concluded that:

... a first flush system may not be required with the improved stormwater quality treatment facilities. This would be further reviewed at the preliminary detailed design stage.

**It is clear to the Committee that the options for stormwater treatment facilities at SWA**



are either:

- the initial construction of gravel filter beds as part of a comprehensive stormwater treatment system; or
- a stormwater treatment facility without gravel filter beds which will have to be monitored with the distinct possibility that expensive first flush facilities will have to be installed if water quality is degraded.

The Committee believes that rising community concerns about pollution levels in the South Creek and the Hawkesbury-Nepean River system warrants the inclusion of the filter bed treatment system at SWA as part of stormwater management strategy.

The Commonwealth Department of Transport has included such filter beds in the budget estimate for SWA.

There should be no short-term savings on stormwater treatment facilities at SWA when there is a reasonable chance that they will result in poorer water quality and extra costs in the medium term.

The Committee believes that the dry detention basin system prepared for the 1995 concept design study at SWA represents a distinct improvement on the stormwater control strategies outlined in the 1985 study.

## RECOMMENDATIONS

**108. The NSW Government should enter into negotiations with the Commonwealth Government to ensure that gravel filter beds are included in a comprehensive stormwater treatment system at SWA.**

### 4.5.10.4 SEWERAGE TREATMENT AND THE RE-USE OF EFFLUENT

The Committee outlined the proposed sewerage collection, treatment and disposal system for first stage development at SWA at section 3.6 of this report.

The 1985 EIS outlined a sewerage treatment plant for final stage development of SWA that was capable of dealing with an equivalent population of 20,000 people, which would cater for an airport capacity of 13 million passengers per year. There was no detailed data about sewerage treatment for first stage development of SWA.

The proposed sewerage system for first stage development at SWA in the 1995 concept design study involves an on-site sewerage treatment plant capable of dealing with an equivalent population of 2,000 people, which will cater for an airport capacity of about 750,000 people per year.

A number of witnesses outlined the need for Best Management Practice strategies to be introduced at SWA. This would mean measures such as treating sewerage at an on-site facility and then re-using treated effluent in airport facilities and for irrigation.

The 1995 concept design study included plans for an on-site sewerage treatment plant and then re-using treated effluent on the SWA site for irrigation. These plans involved pumped effluent being spray-irrigated in the grassed flank areas around the runway and taxiways. Effluent might also be pumped to a suitable area within the airport site for trickle irrigation of crops or pasture.

The study concludes that the final location of effluent disposal will be selected to ensure that effluent does not enter water courses in dry or wet weather. First flush wet weather storage and effluent disposal wet weather storage will also be provided.

Witnesses before the Committee were concerned that there was a lack of detail in publicly-released documents about the proposed sewerage system at SWA. For example, Mr Malcolm Hughes of the Hawkesbury-Nepean Catchment Management Trust said that "it is unclear to the Trust about the provision of sewerage services." (T2, 14)

**The Committee believes that the 1995 concept design study has been developed using appropriate parameters for sewerage treatment and largely addresses the issues raised by witnesses.**

**However, the Committee is concerned about the lack of detailed information about the scale of the sewerage treatment system for first stage development at SWA.**

**The Committee believes that the proposal for a sewerage treatment system which will cater for a capacity of 750,000 passenger movements per year sits uneasily with the proposed development of SWA as an international and freight airport which can cater for one million passengers in 1999.**

**The Committee believes that the surge in air traffic volume in Australia and the unreliability of past forecasts about air traffic volume in Australia warrants airport developments which anticipate growth beyond initial requirements.**

## **RECOMMENDATIONS**

**109. The NSW Government should seek assurance from the Commonwealth Government that the proposed sewerage system for first stage development at SWA:**

- will maximise beneficial re-use of sewage; and
- can be quickly upgraded to handle increases in passenger numbers.

**110. The NSW Government should enter into negotiations with the Commonwealth Government with a view to the SWADC (during its life time) acting as a consent authority to all proposed extensions of the drainage and sewerage systems at SWA in subsequent phases of airport development.**

## **4.6 WASTE MANAGEMENT**

### **4.6.1 WASTE MANAGEMENT AT THE SWA SITE**

The development of SWA comes at a time when waste management strategies in New South Wales are being overhauled to eliminate past practices based on uncontrolled waste production and large-scale waste disposal. The NSW Government is now shifting to a strategy based on waste minimisation and recycling.

A waste minimisation strategy is based on the following hierarchy of principles (given in order of priority).

1. Consumption Reduction.
2. Product Re-use.
3. Material Recycling.
4. Bio-degradation.

The previous NSW Government adopted the Australian and New Zealand Environment and Conservation Council (ANZECC) target of 50 per cent reduction in waste per head in the Sydney region by the year 2000. Prior to the March election, the State Labor Party outlined its policy to increase the reduction target to 60 per cent when it took office.

Recent developments in waste management in New South Wales include:

- the release of a timetable for the closure of the Castlereagh Waste Depot by the end of 1997;
- the preparation of alternative methods for waste disposal incorporating world's best technology;
- new measures to encourage the reduction, reprocessing and recycling of waste to be funded by increased charges for waste disposal;
- a clampdown by the EPA on illegal dumpers through random audits and stiff new fines; and
- negotiations with industry over improved waste reduction programs.

Other developments which have been foreshadowed include:

- the conversion of the Waste Recycling and Processing Service (WRAPS) into a Government Trading Enterprise with representation from Local Government, industry and environmental groups on the board of directors;

- A state-wide Waste Management Plan to be developed by the EPA which will analyse the waste stream, set goals to fulfil the 60 per cent reduction target for the year 2000 and clearly delineate State and Local Government responsibilities.
- a Waste Minimisation and Resource Recovery Bill to enshrine waste reduction targets in law and require industry to take financial responsibility for waste; and
- the dedication of Section 29 waste management levy funds to the EPA to fund waste minimisation strategies (such as the Council Recycling Rebate Scheme).

It is in the context of this shift towards direct accountability for waste that strategies for waste management at SWA should be considered.

The Committee investigated waste management strategies for SWA in relation to water quality issues at 4.5. In this section, the Committee looks at solid waste disposal from the SWA site and from proposed development in the SWA Sub-Region.

#### **Waste Disposal from the SWA Site.**

The Committee's efforts to investigate waste disposal were hampered by the lack of clear strategies at this stage of the airport's design.

The 1985 EIS included minimal information about waste disposal:

The second airport at maximum development would generate about 16,000 cubic metres of solid waste weekly, which would be disposed of in regional waste disposal sites operated by the metropolitan Waste Disposal Authority. (329)

The Committee consulted the FAC and the Commonwealth Department of Transport, who advised that waste management strategies would form part of the Environmental Management Plan for the project design stage at SWA. This stage was due to get under way in 1996.

The Committee sought information on the exact type of waste which SWA would produce and which would require disposal.

In a submission to the Committee (s.60), the NSW Minister for the Environment, the Hon Pamela Allan, identified grease trap, quarantine, and maintenance and service area wastes as the types of hazardous and liquid wastes most likely to be produced at SWA, based on experience at KSA. The submission also explained how those wastes might be handled:

- disposal of grease trap waste from food preparation areas would require an agreement with Sydney Water and use of Sydney Water's "Wastesafe" bar-coded tracking system;

- currently the majority of quarantine waste is incinerated at the Waverley-Woollahra Processing Plant, with a small proportion being treated by an autoclave process;
- the various hazardous wastes from maintenance and servicing areas (quantities and types would depend on the types of maintenance proposed to be carried out at Sydney West Airport) would include electroplating wastes, cadmium cyanide diluted with hypochlorite, sulphuric and chromic acid, caustic cleaning solutions (from cleaning of engine parts), surfactants and paints.

The NSW Minister for the Environment noted that the following safeguards were in place to monitor and control the disposal of waste from SWA:

- disposal consent from the EPA would be required for all liquid and hazardous wastes (other than grease trap and quarantine waste);
- the hazardous waste manifest system would be utilised; and
- all wastes would be required to be transported by licensed transport waste contractors and disposed of at depots registered by the EPA.

The Committee also received a submission from Waste Service NSW (s.15) which called attention to the need for careful planning of airport waste disposal strategies, especially with regard to quarantine waste.

Quarantine waste is waste discharged from aircraft and shipping whose port of origin is outside Australia and which has the potential to spread undesirable pests to Australian agriculture. The Australian Quarantine Inspection Service (AQIS) is charged with the surveillance of waste management practices to ensure that the handling and disposal of such waste is undertaken in a safe and efficient manner.

The only incineration facility for quarantine waste in Sydney is the Waterloo Incinerator, which is operated by Waverley and Woollahra Councils under a joint agreement. Approximately 144,000 tonnes of solid mixed waste is processed here each year, resulting in 44,000 tonnes of residue going to landfill.

In 1993, Waste Service NSW was commissioned by the FAC to prepare a proposal for total waste stream management at KSA, including reductions in the quantity of Quarantine waste which is currently subject to disposal at the Waterloo Incinerator.

The general thrust of the proposal was to carry out a waste audit which would lead to recommendations for:

- source minimisation;
- segregation of quarantine from non-quarantine waste; and

- recycling of materials for which a recycling market existed (glass, cardboard, paper and aluminium cans, etc).

In July 1993, Waste Service NSW presented the FAC with a two part report: *Part 1 - Waste Audit and Management Study* and *Part 2 - Alternative Options for Disposal of Quarantine Waste*.

In early 1994, the FAC engaged Waste Service NSW to provide a tender specification for storage, collection and transport of waste from the KSA.

Waste Service NSW recommended a trial at KSA in which quarantine waste was segregated and recycling facilities were upgraded:

We recommended a trial be initiated to quantify how much segregation could be safely implemented so as to reduce Sydney Airport's reliance on the Waverley-Woollahra Incinerator, and the reduction in tonnage that could be achieved through recycling.

It was during this trial at KSA that Waste Service NSW was alerted to the difficulties of waste management at a major international airport:

It was during execution of this second phase consultancy that we realised that including waste management segregation of Quarantine from Non-Quarantine waste and the provision of Recycling facilities at a major international airport requires careful planning in the initial building design and construction phases in order to achieve safe and acceptable waste management practices.

**Clearly, waste management strategies must be developed at a conceptual stage in airport design in order to integrate them into airport activities and establish good environmental practices.**

**The Committee was concerned by the lack of planning for waste management strategies given the recently-announced accelerated development of SWA.**

**The Committee was particularly concerned about the prospect of quarantine waste being transported from Sydney West Airport to Waterloo Incinerator.**

**Clearly, the proximity of KSA to the Waterloo Incinerator has encouraged the straightforward disposal of quarantine and other waste from airport operations by incineration.**

**SWA is not located in close proximity to an incineration facility.**

**Indeed, it appears to the Committee that waste from SWA will have to travel by road from Badgerys Creek across the length of Sydney to reach Waterloo Incinerator.**

**The Committee believes that this distance alone increases the pressing need for a comprehensive waste minimisation strategy at SWA.**

## **RECOMMENDATIONS**

- 111. The NSW Government enter into negotiations with the Commonwealth Government to ensure that, as a result of the accelerated development of SWA, urgent consideration is given to preparing a waste management strategy for Sydney West Airport which integrates first stage development with full capacity project design.**
- 112. The waste management strategy for Sydney West Airport should incorporate the following features to reduce waste disposal (especially by incinerator):**
- waste minimisation at its sources;**
  - on-site segregation of Quarantine and non-Quarantine waste; and**
  - comprehensive recycling and composting facilities.**

### **4.6.2 WASTE MANAGEMENT IN THE SWA SUB-REGION**

The Committee looked at waste management strategies for the SWA Sub-Region using the same fundamental criteria that will apply to SWA: that waste must be minimised at its sources and recycling should become a priority.

The Committee feels that the opportunity exists in the SWA Sub-Region to implement waste management strategies using World's Best Technology which are not compromised by existing developments and which can become a benchmark for New South Wales.

In particular, the SWA Sub-Region must be overseen by an authority which will implement and monitor new measures to encourage the reduction, reprocessing and recycling of waste in tandem with increasing charges for straightforward waste disposal.

While industry must be attracted to the SWA Sub-Region, the economic and employment development of Western Sydney must not come at the cost of increased pressure on existing waste disposal facilities.

It is clear that landfills and incinerators are redundant as the central feature of waste disposal strategies and must become a 'last resort' practice.

In addition, residential and commercial development in the SWA Sub-Region must be undertaken with clear guidelines for waste minimisation.



Currently, there is too much domestic waste in Sydney being dumped in landfills when it could be re-used if public awareness was raised through education programs and if simple equipment was made available in the home. For example, organic and garden waste currently constitutes half all waste disposed of in landfill. This refuse could easily be composted in backyard bins or collected and converted into re-useable organic matter for parks.

The Committee believes that improved composting education programs and the provision of compost bins in residences could significantly alleviate Sydney's waste problems and must be applied to residential development in the SWA Sub-Region.

In addition, commercial waste from shopping centres could be reduced if simple, alternative forms of waste separation were introduced. For example, the introduction of split bins in shopping centres to divide rubbish into glass, paper, plastic and compostable categories would reduce waste and increase community awareness about this issue.

## RECOMMENDATIONS

**113. The SWADC should work in close consultation with the EPA to ensure that the Environmental Management Plan (EMP) for the SWA Sub-Region includes a waste management strategy which incorporates:**

- waste minimisation at its sources;
- comprehensive recycling and composting facilities; and
- increased charges for industrial and commercial waste disposal.

**109. The SWADC should work in consultation with the EPA and Local Government to ensure that development in the SWA Sub-Region incorporates:**

- comprehensive community education programs about waste minimisation;
- backyard composting bins as part of all residential developments; and
- the introduction of waste minimisation strategies in industrial estates and shopping centres (for example, split bins).

## 4.7 ISSUES RELATING TO ABORIGINAL CULTURE

As part of its inquiry, the Committee considered the level of consultation with Aboriginal people living in the SWA Sub-Region as part of the 1985 EIS process and whether the increased awareness of Aboriginal issues in the past 10 years warranted updated consultation with the Gandangara people who had inhabited the region which now includes the Sydney West Airport site.

It should be noted that the 1985 EIS concluded that there were no archaeological sites located within the proposed airport site. However, no work was done on the surrounding region, which is an area of State responsibility.

The 1985 EIS outlined a process of consultation with the Western Metropolitan Regional Land Council and the Gandangara Local Aboriginal Land Council which involved meetings and a written survey of 29 residents in 14 different suburbs in the region. (209) The survey acknowledged that it represented the views of only a small proportion of the 4,800 Aboriginal people in the region.

The EIS reported that the Gandangara people were extremely interested in uncovering new information about their traditional life and culture. This was a product of the fact that little information was available about their heritage due to the development of the area soon after European colonisation and the displacement of Aboriginal people. The 1985 EIS noted that this lack of detail about the heritage of the Gandangara people increased the significance which current residents placed on such information.

The environmental safeguards proposed by the Gandangara Local Aboriginal Land Council for the SWA site included:

- contractors should be informed that sites containing Aboriginal relics or remains of any kind are protected under the National Parks and Wildlife Act, 1974, and any material uncovered during construction work should be immediately reported to the National Parks and Wildlife Service and the Local Aboriginal Land Council;
- an Aboriginal site officer should be employed for the duration of site clearance;
- the Gandangara and Tharawal Local Aboriginal Land Councils should be contacted with a view to selecting an appropriate name for the airport in the local Dharawal language; and
- an appropriate commemorative tribute to Aboriginal people of the area should be included in the airport design after consultation with the Gandangara and Tharawal Local Aboriginal Land Councils. It may take the form of a special park or display in the airport terminal illustrating the local Aboriginal history. An Aboriginal curator should be appointed to carry out this work.

**The Committee believes that the significant increase in community awareness of Aboriginal issues since 1985 warrants a renewed study of Aboriginal archaeology and anthropology in the SWA Sub-Region including extensive consultation with the Gandangara people.**

**An area of concern to the Committee was that the 1985 EIS confined its anthropological assessment to the airport site and nearby acquisition area.**

**There was no assessment of the possible impact of airport-related developments in the SWA Sub-Region on Aboriginal anthropology and archaeology.**

## **RECOMMENDATIONS**

**115. The NSW Minister for Aboriginal Affairs through the NSW Aboriginal Land Council should:**

- **initiate a new process of consultation with Aboriginal people living in the SWA Sub-Region in collaboration with ATSIC;**
- **undertake an assessment of the possible impact of airport-related developments in the SWA Sub-Region on Aboriginal anthropology and archaeology;**
- **work towards the proper acknowledgment of Gandangara and Tharawal Aboriginal culture in the SWA Sub-Region by promoting Aboriginal place names for suburbs, parks and main roads; and**
- **enter into negotiations with the Commonwealth to ensure that a significant, permanent presentation of the history of local Aboriginal culture is included in the SWA terminal. This display should be developed by an Aboriginal curator in consultation with the lessee of the airport.**

## 4.8 FLORA AND FAUNA

### 4.8.1 FLORA

The impact of the airport on local flora in the Badgerys Creek region was subject to assessment and action as part of the 1985 EIS process.

The 1985 EIS noted that the Badgerys Creek site was largely cleared agricultural land and areas of rural-residential development with only scattered stands of vegetation housing native species amounting to less than 10 per cent of the total site. The largest single stand of 50 ha was located beside Anton Road north-west of the airport site near the proposed second runway. In addition, the channel of Badgerys Creek, which forms the southern and western boundary of the airport site, contained about 30ha of native plants.

Two vegetation types were dominant:

- remnant grey box/red gum woodland (usually regrowth); and
- cleared areas (shrubland and grasslands).

The EIS concluded that the area was of low vegetation value:

None of the areas examined on or near the proposed airport site could be described as an authentic remnant of the natural plant cover for this area, and consequently its floristic value is considered to be low. (336)

Only one plant species was considered to be of significant conservation value:

- *Pultenaea parviflora*, an erect shrub of the pea family growing to 1m high.

About 30 plants were noted near the middle of the airport site, which would be destroyed during the clearing and construction stage.

The EIS concluded:

With the exception of *P. parviflora*, the removal of vegetation cover on the site could not be considered a significant loss to the flora of the region. (338)

The EIS outlined a process for the preservation of *Pultenaea parviflora* which included:

- collection of seeds to serve as possible propagules, deposited at the National Herbarium of New South Wales; and
- removal of existing plants prior to airport construction then on-site replacement in a protected location.

In its submission to the Committee (s.24), the Royal Botanic Gardens Sydney outlined its role in the subsequent preservation of *Pultenaea parviflora*:

... as mentioned in the EIS, the only significant occurrence of a rare species on the development site was *Pultenaea parviflora*, which is classified as endangered, or restricted distribution and at serious risk of extinction. The Royal Botanic Gardens was funded by the Federal Department of Transport and Communication to undertake horticultural research on this species and has been successful in propagating it and establishing collections which have been planted into special conservation areas of the Mount Annan Botanic Garden. Seed from two years of harvesting has been placed in the RBG seed store and viability testing has so far been successful. The work has also involved investigation of the habitat of this species, including the physical and chemical characteristics of soils and its response to horticultural conditions.

The Royal Botanic Gardens Sydney concluded that the conservation of *Pultenaea parviflora* was best served by its retention at Mount Annan Botanic Garden rather than wholesale replanting on the airport site:

The limitations on the habitat for *Pultenaea parviflora* are substantial and its conservation is best served by its continued maintenance at the Mount Annan Garden and elsewhere, rather than necessarily requiring replanting in the immediate vicinity of the airport. Nevertheless, it may be appropriate that some plants be introduced there, perhaps in relation to some exhibition or informative material on the original natural features of the site.

**The Committee is satisfied with the proposal to retain samples of *Pultenaea parviflora* at Mount Annan Garden.**

**However, the Committee believes that the SWA airport site should be utilised to preserve or regenerate natural vegetation wherever possible.**

The Royal Botanic Gardens noted that the vegetation of the Sydney region had been largely destroyed by development and that remnant vegetation on the airport site should be carefully preserved:

The vegetation of the Cumberland Plain is distinctive and has been very greatly affected by the development of Sydney, both by the city's urban spread and the agricultural activities at the periphery of the city as it has spread. It is appropriate that any remnant vegetation that can be retained on the site should be protected so far as possible.

## **RECOMMENDATIONS**

**115. The SWADC, in consultation with the EPA, should develop a strategy as part of its Environmental Management Plan (EMP) for the SWA Sub-Region which will:**

- **preserve remnant vegetation; and**
- **regenerate the native vegetation of the Cumberland Plain in the Sub-Region, especially along buffer zones around the airport boundary and main transport corridors.**

#### **4.8.2 FAUNA**

The Committee reviewed the detailed fauna survey undertaken on the airport site as part of the 1985 EIS process and the consequent determination of ecological value.

The faunal survey found the following species:

- one native mammal species (the common brushtail possum, which is well adapted to an urban environment);
- seven introduced mammal species;
- 61 bird species;
- two amphibian species; and
- four reptile species (only the garden skink is common).

It became apparent during the faunal survey that local dams provided an important habitat for avifauna. All the bird species are classed as common or abundant in Australia with the exception of the introduced mallard, which is uncommon in New South Wales.

The faunal survey noted that there were species normally expected in areas similar to Badgerys Creek, which were not apparent on the airport site. For example, the nearby Mulgoa Valley was characterised by 38 reptile species as well as higher numbers and varieties of birds and mammals.

The ecological value of a site with regard to wildlife is determined using the following criteria:

- a high diversity of faunal species;
- use by rare or endangered species; and

- potential as habitat for scarce or important fauna.

The 1985 EIS concluded that the Badgerys Creek survey area did not meet any of these criteria and was of "low ecological value". (343)

Ameliorative measures such as limits on clearing were proposed to reduce habitat loss on the airport site, especially along Badgerys Creek, which acts as a corridor for wildlife migration.

The Committee notes that the 1985 faunal survey was confined to the airport site itself and did not assess the potential impact from clearance requirements for associated infrastructure corridors to support SWA.

## **CHAPTER 5      TERM E. FUNDING SWA INFRASTRUCTURE PROGRAMS**

The Committee's Terms of Reference require it to inquire into and report on:

*the balance of public and private sector involvement including who should pay the final bill for the infrastructure.*

This chapter brings together issues relating to the provision of infrastructure for SWA and the SWA Sub-Region that have been identified in other chapters and suggests some ways which this infrastructure might be funded.

### **5.1      INFRASTRUCTURE REQUIREMENTS**

Table 33 at the end of this chapter summarises the major items of infrastructure considered:

- essential for the airport to commence operations in 1999, in accordance with the scale of the Commonwealth Government's commitment; and
- infrastructure likely or potentially required in the longer term.

The table shows estimated project costs (where known), current funding commitments for infrastructure, and suggested funding sources for items not currently funded.

The infrastructure required to service SWA is largely a function of the scale and type of aircraft operations that can be expected to take place at SWA, both in the short term and the longer term.

At this stage, limited information is available on likely use of the airport in terms of flight numbers, passenger numbers and freight. For a number of reasons, detailed information on such matters is unlikely to become available for some time.

Consequently, much of the discussion of infrastructure needs for SWA, and funding requirements, are necessarily only indicative.

Both airports will be leased by the same operator and each will have competitive advantages and disadvantages.

Nevertheless, in the public interest, the Commonwealth Government should be prepared to intervene legislatively if necessary to ensure the viability of SWA.

The likely usage of SWA in its initial phase will include international flights during KSA's curfew period, charter and other economy type flights, some freight, and general aviation.



SWA's advantages are likely to become evident over time, strengthened by marketing and promotional activities of the lessee and SWADC.

Depending on market forces to determine the shape and scale of future development at SWA necessitates a flexible approach to infrastructure planning and provision in the SWA Sub-Region.

The Economic Planning Advisory Commission (EPAC) has recently issued its Private Infrastructure Task Force Report (September 1995), which provides a framework for private sector involvement in infrastructure projects. This Report includes valuable guidelines for a planning and regulatory framework which will facilitate the right mix of public and private sector involvement in infrastructure provision.

EPAC concluded that government will remain paramount as the planning and regulatory authority for infrastructure projects:

Irrespective of whether projects are publicly or privately owned, governments will remain responsible for regulating infrastructure services. In the foreseeable future, they will also undertake most infrastructure planning.

Choosing the right projects requires good planning and investment evaluation. Good planning means accounting for system and social and environmental effects of infrastructure investments as well as economic costs and benefits. (xi)

EPAC stated that "best practice project evaluation" standards should be introduced which considered social and environmental impacts as part of cost-benefit analyses.

Recommendation 16 of the EPAC Report stated:

Designated agencies at State and Commonwealth level should:

- encourage and co-ordinate infrastructure planning across agencies;
- ensure consistent application of investment appraisal protocols;
- ensure that agencies make full cost benefit analyses and post-project audits for major public infrastructure projects available to the public;
- assist Local Government to improve its infrastructure planning and service delivery, including private provision;
- facilitate suitable skill availability for these processes; and
- refine and develop government accounts to enable better assessment of the worth of public investment in infrastructure.

## RECOMMENDATIONS

**117. Infrastructure planning by SWADC for the SWA Sub-Region should be flexible and incorporate "best practice project evaluation" standards and full cost-benefit analyses to ensure that infrastructure is properly timed and that the level of private sector involvement is prudent.**

### 5.2 CURRENT CONSTRAINTS ON STATE FUNDING FOR INFRASTRUCTURE

State Government funding for infrastructure to SWA and in the SWA Sub-Region, beyond that planned before the Commonwealth's decision to accelerate the project, should be considered in the context of a likely continuation of the present constrained State funding environment. For example, there is the need to ensure that infrastructure essential to the Olympic Games is in place by 2000, as well as meeting the many other funding obligations required of Government.

Possible funding mechanisms for additional infrastructure have been investigated by the Committee. These plans included car park levies, airline ticket levies and value capture taxation for property in the SWA Sub-Region. They are designed to ensure that users and other beneficiaries fund infrastructure such as the proposed rail line.

However, these funding options all represent methods for recouping the costs of building infrastructure. The initial funding for infrastructure must still be provided.

The amount that the NSW Government can afford to pay for new infrastructure is an obvious overall constraint on infrastructure provision. Funding for public sector services is not unlimited and depends on:

- the value of the annual receipts and potential revenue raising available to the NSW Government; and
- the existing and future levels of debt which can be sustained by the public sector.

The revenue sources to finance infrastructure in NSW include:

- retained earnings, largely the return from charges levied by Government Business Enterprises (GBEs);
- Budget (Consolidated Fund) support, principally from State taxation revenue but also including dividend, guarantee fee and tax-equivalent payments from

- GBEs;
- borrowings;
- asset sales proceeds;
- Commonwealth capital payments, most of which are designated for a specific purpose;
- developer contributions under s.94 of the Environmental Planning and Assessment Act; and
- public/private joint venture arrangements.

Capital bids by portfolio Ministers are reviewed by the Budget Committee of Cabinet as part of the annual Budget process. This Committee, in its deliberations on individual capital proposals, takes into account the worth of the project through results of economic appraisals and value management studies. Projects may be approved subject to availability of funds in a particular year.

One potential constraint on the provision of infrastructure by the public sector and on participatory arrangements is the Loan Council borrowing arrangements set for individual States. The operation of the Loan Council takes into account the fact that public sector investment decisions are often based on non-commercial criteria and that there is a need to avoid any crowding out of private investment.

The current NSW Government's Budget strategy is to achieve a surplus in 1996-97 with no new taxes or tax increases and elimination of debt over the long term. This eliminates the possibility of using increased borrowings as a potential source of funds for projects in the SWA Sub-Region which were not already included in agencies individual budgets prior to the Commonwealth's decision to accelerate construction of SWA.

Additional Government taxes and levies have been the preferred option for funding items such as new railway infrastructure in Europe and the United States of America. For example, a dedicated project tax was levied for the BART (Bay Area Rapid Transport) System in San Francisco after local regional plebiscites supported a sales tax levy on all transactions in the region with funds being directly applied to funding the BART System. Additional Government taxes may be appropriate for regions with high populations as in San Francisco.

## RECOMMENDATIONS

- |                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>118. The very low population density in the SWA Sub-Region and the need to preserve social equity for Western Sydney residents preclude any new or increased taxes along the lines of the BART Tax System.</b></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 5.3 FUNDING THE RAIL LINK TO SWA

The most important infrastructure item requiring funding in the SWA Sub-Region is the rail link to SWA, which will service both the new airport and urban development along its course.

The major issue facing the funding of a rail line in the SWA Sub-Region is the initial cash flow required to undertake the construction activities, as special levies and land value capture revenues are unlikely to be forthcoming in large amounts until well after any railway line is operational. The project is estimated by the SRA to cost about \$294-372 million (including land acquisition costs of \$64-74 million) and, allowing \$25-30 million for capitalised interest costs, then up to \$400 million would be required to be financed.

The economic viability of the proposed rail link from SWA to the Sydney metropolitan rail system will be influenced to a significant degree by the scale, density and timing of residential development in the SWA Sub-Region, as well as the level of airport traffic. However, the immediate reservation and acquisition of the rail corridor is essential.

Funding of new passenger rail projects, in particular, creates a dilemma. Passenger rail services only recover 60 per cent of their direct operating costs and the farebox revenue does not cover the cost of salaries and wages for staff to run the system. Expansion of the rail system not only requires capital funding but also creates ongoing, recurrent funding requirements for the NSW Government. Consequently, financial and economic considerations are crucial to any consideration of new rail line proposals.

The State Rail Authority's capital budget for the CityRail system has averaged \$450 million per annum from the Consolidated Fund over the last fifteen years. With the previous Government's decision to proceed with the New Southern Railway, the forward capital program of the SRA is constrained by the need to fund the construction of that project over the next four years. Consequently the ability of CityRail to fund a major expansion of the rail network is severely limited in the next five years.

**The Committee believes that capital funding through the NSW Consolidated Fund for any rail project in the SWA Sub-Region is not feasible until beyond the year 2000.**

It has been difficult to obtain private sector funding to cover 100 per cent of the cost of rail infrastructure projects solely through farebox revenue. Internationally, there are very few examples of metropolitan railway systems which cover their costs and generate a return on fares. In addition, past studies forecasting patronage on new metropolitan infrastructure have not been accurate, resulting in losses to original project financiers. This has made the private sector wary of committing itself to entirely fund such a project.

This situation has resulted in joint public-private sector funding partnerships for new railway infrastructure, such as the New Southern Railway in Sydney. In this partnership, Government funding has been supplemented by a limited amount of private sector funding for railway

stations with ownership of these railway stations reverting to the Government after a specified period.

Such partnerships are known as Build-Own-Operate-Transfer arrangements or simply BOOT schemes.

The EPAC Private Infrastructure Task Force Report in September 1995 concluded that:

In the broad, BOOT-type structures are likely to be least beneficial for road and urban rail projects. (xii)

The New Southern Railway project has demonstrated that the private sector would only be able to raise about \$200 million in capital if it is expected to take full market risk and allowed to charge a premium fare.

It is unlikely that the private sector would, therefore, fund more than half of the \$400 million capital requirement for the SWA rail link without the NSW Government providing guarantees or underwriting the revenue payments.

**There will be continued competition for limited State Government funds for the foreseeable future and there is limited scope for private sector involvement in funding the rail link to SWA.**

**The rail line between Glenfield and SWA has been identified by the Committee as essential (Recommendation 19).**

**There are definite social, environmental and economic benefits associated with the delivery of rail public transport infrastructure, although they are sometimes difficult to accurately quantify. They include:**

- **reduced congestion on other transport infrastructure;**
- **reduced environmental impact, particularly air pollution; and**
- **reduced requirement for provision of road transport and parking infrastructure.**

**Constraints on State funding restrict potential financing arrangements for rail infrastructure in the SWA Sub-Region in the short term.**

**The immediate reservation and acquisition of the rail corridor is essential.**

**The Committee has recommended that a timetable for the reservation and acquisition of the rail corridor between Glenfield and SWA should be completed as soon as possible (Recommendation 23).**

**The Committee believes that some recent funding arrangements provide valuable lessons on the limitations of BOOT-type schemes for the funding of rail infrastructure.**

**In particular, EPAC has cast considerable doubt on the value of BOOT-type funding arrangements for urban rail infrastructure.**

## **RECOMMENDATIONS**

<p><b>119. "Build-Own-Operate-Transfer" or BOOT-type funding arrangements should <u>not</u> be used for the rail link to SWA.</b></p>
---------------------------------------------------------------------------------------------------------------------------------------

### **5.4 POSSIBLE METHODS FOR FUNDING AND RECOUPING THE COST OF INFRASTRUCTURE FOR SWA**

The Committee looked at possible funding mechanisms for recouping the cost of infrastructure in the SWA Sub-Region. These options included car park levies, airline ticket levies and value capture taxation on property in the SWA Sub-Region. They are designed to ensure that users and other beneficiaries fund infrastructure such as the proposed rail line.

#### **Carpark and Airline Ticket Levies**

The option of using levies to raise funds for infrastructure at SWA and in the SWA Sub-Region has been raised a number of times before the Committee although no firm proposals have been received. A levy is already being put in place at KSA to fund the insulation program in inner Sydney.

The Commonwealth has also indicated that an airline ticket levy will be applied to passengers using KSA as a method of refunding the cost of SWA to the airport developer. This levy will be regulated through a price-capping mechanism administered by the Prices Surveillance Authority, which will act as a consent authority on any changes to the pricing structure proposed by the airport lessee. The levy will only apply to passengers at KSA, not SWA.

The Committee believes that the practicalities of using levies to fund initial development at SWA should be investigated if it can reasonably assist in the cost of providing additional infrastructure which will benefit users of SWA and the SWA Sub-Region.

The Committee has received evidence about possible levies. There are certain parameters within which any new levy must work and certain obstacles which any levy would have to overcome: principally, the problem of a lessee collecting and transferring a levy to the State.

A levy on car parking as a means of raising money for alternative, more environmentally sustainable transport infrastructure (especially rail) has been put to the Committee as one option. The Committee considers that the idea has merit but that the actual operation of a car parking levy needs more detailed research, particularly in its implementation at or near the

airport and its potential to become a disincentive to using SWA.

The Committee also believes that any car parking levy should:

- be specifically targeted at funding the rail link to SWA and named as such; and
- be removed once rail links are completed to SWA.

There are a number of potential difficulties with a levy on KSA passengers to fund off-airport infrastructure at SWA.

The development of the airport as announced in the Commonwealth Budget in May 1995 is predicated on a strategy of KSA and SWA being leased together with the lessee of both airports being responsible for funding the later stages of development at SWA.

Upon examination, the Committee considers that the imposition of a KSA levy for off-airport infrastructure at SWA would need to take into account the following matters:

- transport infrastructure in the SWA Sub-Region is a State responsibility and the airport lessee has no role in the development and maintenance of such infrastructure;
- the airport lessee would have no legal basis on which to levy charges on airport users as proposed economic regulatory arrangements with the Commonwealth relate solely to on-site airport activities;
- it would require the imposition of specific Commonwealth tax legislation to avoid a challenge on the basis that the charge did not equate to the cost of a service provided to airport users;
- under the Constitution, a specific KSA/Sydney tax might be challenged on the grounds that tax legislation cannot be discriminatory in one State over another; and
- such a tax would have to be fully hypothecated to the NSW Government through some arrangement.

## RECOMMENDATIONS

**120. The NSW Government should enter into negotiations with the Commonwealth with a view to investigating the practicalities of using levies to recoup the cost of infrastructure in the SWA Sub-Region.**

**These negotiations should consider the following parameters:**

- **any increase in the existing KSA levy should not be applied to intrastate flights and should be limited to a modest tariff on interstate flights;**
- **the first project funded by any increased levy should be a rail link from Glenfield to SWA; and**
- **the feasibility of a levy on car parking at both Sydney airports.**

### **Value Capture Taxation**

Value capture taxation - taxing windfall gains in property values which result from the provision of infrastructure - was proposed by Mr Tim Robertson as a means of “raising a substantial part” of the capital cost of the infrastructure to service Sydney West Airport.

The Committee has looked at this concept as a means of funding land transport at 3.2.6.

WSROC indicated support for consideration being given to “capturing the windfall increases in land value in areas benefiting from the development of airport-related activities” as a source of infrastructure funding.

The concept of value capture taxation may be supported in principle, however there are a number of practical difficulties which would need to be further investigated in order for such a proposal to be adopted in relation to SWA infrastructure.

As indicated by Mr Robertson:

- the Industry Commission has supported further exploration by State and Local Government of the ways in which non-users of transport services who receive a benefit can contribute to the costs of providing and maintaining the facilities (eg. by a levy or tax on property owners or developers benefiting from increases in land values resulting from the provision of a new rail line by Government); and



- the Public Accounts Committee in its Report on Infrastructure Management and Financing recommended that “the Government develop policy on the use of value capture to help finance privately funded infrastructure projects”. The former Government’s response was that the matter was “under examination”.

Forms of value capture to fund new infrastructure, in the words of the Industry Commission, are “as old as railways”. Many early US railroads were financed by sale of land granted to the railroad by the government. Proposals for various types of value capture have been raised in recent years in connection with such projects as the Very Fast Train and the New Southern Line, but have not been adopted.

Difficulties raised with the concept in recent times in the Australian context have included:

- **political difficulties** with proposals that Government give property development rights, or taxation proceeds from associated increased property values, to the private sector proponents of “privately funded” infrastructure, particularly rail projects; and
- **“boundary” issues** - the problem of accurately measuring relative changes in property values in respect of the area and time-frame covered and separating benefits directly attributable to the project from more general property market movements (particularly near the boundary edge) or other area-specific price movements;
- **disincentive effect** - the need to set the tax or levy so that it does not have an adverse effect on property values;
- **up front costs** - value capture does not remove the need to provide up front capital for a project;
- **timing** - projected levels and timing of revenue flows in relation to project cost and timing must be considered, as well as what “base” property values are to be adopted;
- **possible compensation claims** - endorsement of value capture could give rise to claims for compensation where new infrastructure adversely affects property values; and
- **application of general taxes (stamp duty, land tax) to a specific project (hypothecation) would be unlikely to be supported by Treasury as a matter of principle.**

A method of implementing value capture without the requirement for legislating increased taxation provisions would be for the development consent authority (in this case, SWADC) to purchase or resume land which is designated for key developments (such as retail and/or

commercial centres) adjacent to or over railway stations.

Once the rezoning process has been completed, this would allow a modest proportion of the rezoning benefit to be contributed towards the cost of the rail line.

It should be noted that general Government revenue would benefit from increased stamp duties and land taxes as property values increase in the area served by the rail line (with a development levy being an additional benefit). Existence of State property taxes such as stamp duty and land tax as well as rates and Section 94 contributions by developers to Local Government are not usually discussed in the context of new value capture proposals but may provide an opportunity for funding SWA.

**In summary, the Committee believes that the proposed development of a “greenfield” rail corridor to serve SWA and potential new residential and industrial areas in the SWA Sub-Region provides a unique opportunity for considering the introduction of value capture taxation along the rail corridor.**

## RECOMMENDATIONS

<p><b>121. The potential for applying a value capture tax similar to a section 94 contribution to properties which directly benefit from the development of the rail line to SWA should be thoroughly investigated by the NSW Treasury in conjunction with the SWADC.</b></p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### Private Sector Involvement

In recent years, private sector involvement has been encouraged as a means of improving efficiency in infrastructure provision/operation and bringing forward the construction of projects.

Joint public-private sector partnerships can be beneficial. However, they raise additional issues. The EPAC Interim Report recommended that:

... the choice between public and private provision be based on which party can provide infrastructure most efficiently (in the broad welfare sense), rather than on the need to minimise the financial burden on governments.

EPAC indicated that project risks, which vary from project to project, should be allocated to the party best able to bear them.

Recommendation 2 of the final Private Infrastructure Task Force Report by EPAC concluded:

Private sector guidelines should specify that the choice between public and private

provision will be based primarily on which party can provide infrastructure most efficiently. This in turn implies that governments should allocate risk to the party best able to bear it, and not seek to automatically shift as much risk as possible to the private sector. Explicit risk management plans should be part of the project development process, to ensure that the form of private involvement best matches the risk profile of individual projects. (xv)

The Committee is equally aware that, with regard to risk allocation, public-private partnerships should not overburden the State (and, ultimately, the taxpayer) with an inequitable share of risk.

## RECOMMENDATIONS

- |                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>122. Private sector involvement in infrastructure for the SWA Sub-Region should be considered on a case by case basis by the relevant proponent agency in consultation with Treasury. This process should include full risk assessment and risk management plans.</b></p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**SYDNEY WEST AIRPORT  
INFRASTRUCTURE COSTS AND PROPOSED FUNDING**

ITEM	COST \$M	CURRENT FUNDING SITUATION	RECOMMENDED FUNDING SITUATION
<i>INFRASTRUCTURE CONSIDERED ESSENTIAL FOR AIRPORT TO OPERATE IN 1999 (max 1 million passengers p.a. approx)</i>			
<b>AIRPORT SITE</b>			
<input type="checkbox"/> Acquisition of the airport site and noise-affected properties, upgrading local access roads and preliminary design work	152	Commonwealth	-
<input type="checkbox"/> Airport development: 2900 metre runway 10,000 sq metre passenger terminal taxiways and aprons cargo handling and charter/commuter facilities relocation of the Northern Road	306	Commonwealth	-
<input type="checkbox"/> CAA facilities (control tower, fire-fighting services etc)	21	Commonwealth	-

ITEM	COST \$M	CURRENT FUNDING SITUATION	RECOMMENDED FUNDING SITUATION
<input type="checkbox"/> Environmental studies <input type="checkbox"/> Finalising the acquisition of noise affected properties <input type="checkbox"/> Relocation of power line	23	Commonwealth	Relocation of major power line: Commonwealth is currently only meeting part of estimated total cost of \$19m (1995\$). It is recommended that the Commonwealth be asked to meet total cost of relocation due to impact of SWA.
<b>MAJOR ROADS</b>			
<input type="checkbox"/> Construction of the Western Sydney Orbital and upgrading of Elizabeth Drive	260	Commonwealth	-
<b>OTHER ROADS</b>			
<input type="checkbox"/> Bringelly Road <input type="checkbox"/> Horsley Drive	not known	-	State (RTA)
<b>ELECTRICITY</b>			
<input type="checkbox"/> Supply to Site	5.5-7.5	-	To Be Negotiated
<b><i>UNFUNDED ADDITIONAL INFRASTRUCTURE CONSIDERED ESSENTIAL FOR AIRPORT DEVELOPMENT</i></b>			
<b>RAIL</b>			
<input type="checkbox"/> Acquisition of Corridor	64-74	-	To Be Negotiated
<input type="checkbox"/> Airport Site Tunnel and Box	not known	-	Commonwealth or Lessee

ITEM	COST \$M	CURRENT FUNDING SITUATION	RECOMMENDED FUNDING SITUATION
<i>INFRASTRUCTURE FOR LONGER TERM DEVELOPMENT</i>			
Establishment and Operation of SWADC	Not Known	-	Joint Commonwealth-State
Installation of Noise Monitoring Terminals	Not Known	-	Commonwealth
Installation of Air Quality Monitoring Stations	Not Known	-	Commonwealth
Installation of Water Quality Monitoring Stations	Not Known	-	State
Glenfield-SWA Rail Link	294- 372	-	To Be Negotiated

## LIST OF SUBMISSIONS

- 1 Tim Robertson, Barrister
- 2 Fairfield City Council
- 3 Liverpool City Council
- 4 Rupert Pickrell
- 5 Greystanes Progress Association
- 6 Anthony Dalla Fontana
- 7 The Glebe Society Inc
- 8 Silverdale/Warragamba Airport Group (SWAG)
- 9 Australian Business Aircraft Association Inc (ABAA)
- 10 Douglas Huntley
- 11 Peter Cork
- 12 Kay Vella (Mrs)
- 13 Holroyd Association Against Aircraft Noise (HAAAN)
- 14 South Creek Catchment Management Committee
- 15 Waste Service NSW
- 16 Bus and Coach Association
- 17 AGL Gas Companies
- 18 Speedrail Pty Limited
- 19 Liverpool SkillShare
- 20 Citizens Revolt Against Sound Harassment (CRASH)
- 21 Greater Western Sydney Regional Chamber of Commerce and Industry
- 22 Action for Public Transport
- 23 Macarthur Training and Learning Centre Limited
- 24 Royal Botanic Gardens Sydney
- 25 Liverpool Job Access Inc
- 26 Nepean Skills Centre Inc
- 27 San Miguel Family Centre
- 28 Colong Foundation for Wilderness Limited
- 29 Wagga Wagga City Council
- 30 The Institution of Engineers, Australia
- 31 CARE SkillShare
- 32 New South Wales Police Service, South West Region Command
- 33 Blacktown City Council
- 34 Council of the City of Holroyd
- 35 Motor Traders' Association of New South Wales
- 36 Penrith City Council
- 37 University of Western Sydney - Macarthur
- 38 Hawkesbury Nepean Catchment Management Trust
- 39 Blue Mountains Commuter and Transport Users Association
- 40 Nature Conservation Council of New South Wales
- 41 Department of Employment, Education and Training (DEET), South West Area Office
- 42 Department of Energy
- 43 TransGrid
- 44 Western Sydney Regional Organisation of Councils (WSROC)
- 45 Roads and Traffic Authority
- 46 Land and Water Conservation
- 47 Wollondilly Shire Council
- 48 Mission Employment Services

49	Hunters Hill Council
50	Tourism NSW
51	Shell Australia
52	Clean up Australia
53	Department of State Development
54	Mr R. Forster
55	Bicycle New South Wales
56	Greater Western Sydney Economic Development Board
57	Department of Business and Regional Development
58	University of Sydney
59	Coalition of Councils
60	Environment Protection Authority
61	New South Wales Health Department
62	Department of Public Works and Services
63	Sydney West Airport Residents Panel
64	Department of Urban Affairs and Planning
65	Sydney West Airport Residents Panel



## LIST OF WITNESSES

<b>Witness</b>	<b>Organisation &amp; Date of Appearance</b>
Mr Alexander Sanchez	Chairperson, Western Sydney Regional Organisation of Councils (WSROC). 7 August 1995.
Mr Alexander Gooding	Acting Executive Director, Western Sydney Regional Organisation of Councils (WSROC). 7 August 1995.
Mr Richard McManus	Riverkeeper for Clean-Up Australia and representative of the Cooperative Research Centre for Waste Management. 9 August 1995.
Mr Malcolm Hughes	Trustee and Director, Planning Assessment Program, Hawkesbury-Nepean Catchment Management Trust. 9 August 1995.
Mr Antonio Campolongo	Mayor, City of Fairfield. 9 August 1995.
Mr Terence Barnes	General Manager, Fairfield City Council. 9 August 1995.
Mr Klaus Kerzinger	Manager, Projects and Support Systems, Fairfield City Council. 9 August 1995.
Mr Bruce McDonald	Director of Strategic and Economic Planning, Penrith City Council. 9 August 1995.
Ms Christine Towndrow	Mayor, Wollondilly Shire Council. 9 August 1995.
Mr Ian Sinclair	Manager, Strategic Planning, Wollondilly Shire Council. 9 August 1995.
Mr John Sproule	Manager, Wollondilly Shire Council. 9 August 1995.
Mr Brian Watters	General Manager, Network Development, Roads and Traffic Authority. 16 August 1995.
Mr John Brewer	Special Projects Manager, Roads and Traffic Authority. 16 August 1995.
Mr Timothy Robertson	Barrister. 16 August 1995.
Mr Robert Lundie-Jenkins	Regional Development Manager, Greater Western Sydney Regional Chamber of Commerce and Industry (GWSRCC). 16 August 1995.
Mr Ian Reynolds	Director of Strategic and Corporate Development, Blacktown City Council. 16 August 1995.

Mr Stephen Driscoll	Town Planner, Blacktown City Council. 16 August 1995.
Mr Thomas Gellibrand	Town Planner, Blacktown City Council. 16 August 1995.
Mr Russell Winlaw	Strategic Planning Manager, Liverpool City Council. 16 August 1995.
Mr Peter Hicks	Network Development Manager, RailNet, State Rail Authority (SRA). 12 September 1995.
Mr William McNamara	Chairman, Greater Western Sydney Economic Development Board (GWSEDB). 12 September 1995.
Mr Jim Bosnjak	Chairman, Transport Sub-Committee, Greater Western Sydney Economic Development Board (GWSEDB). 12 September 1995.
Mr Stuart Graham	Mayor, Holroyd City Council. 12 September 1995.
Mr Dennis Trezise	General Manager, Holroyd City Council. 12 September 1995.
Mr Mervyn Ismay	Director, Corporate and Financial Services, Holroyd City Council. 12 September 1995.
Mr Stephen Oliver	Chairman, Sydney West Airport Residents Panel (SWARP). 12 September 1995.

## LIST OF SOURCES

**Access Research,**  
Sydney's Second Major Airport at Badgery's Creek: Analysis of Airfreight Market Opportunities and Review of Future Airport Development Issues, 1991. Prepared for the Federal Minister for Transport and Communication in consultation with Greater Western Sydney Authorities.

**Airport Coordinating Taskforce,**  
Sydney Airport Third Runway Cost/Benefit Analysis - Final Report, December, 1990.

**Australian Bureau of Statistics,**  
Census of Population and Housing, 1986.  
Census of Population and Housing, 1991.  
Census Counts for Small Areas, 1993, NSW, Cat. No. 2730.1.  
Estimated Resident Population by Age and Sex - Statistical Local Areas, Cat. No. 3209.1, June, 1994.

**Australian Construction Services,**  
Second Sydney Airport at Badgerys Creek - Concept Design Report, 1991.

**Aviation, Department of,**  
Second Sydney Airport - Final Site Selection, 1986.

**Blacktown City Council,**  
Facts and Figures, 1994a.  
Submission on "Sydney's Future" and the "Integrated Transport Strategy", February 1994b.  
Development Opportunities in Blacktown Local Government Area, October, 1994c.  
Submission on "State Road Network Strategy" and the "State Rail Strategic Plan", May, 1995.

**Task Force on Planning for the Sub-Region Surrounding Sydney West Airport,**  
Access to Sydney West Airport, June, 1994.

**Conroy, Michael,**  
The implications of the Second Sydney Airport for the Planning of South Creek Valley, 1990.

**Gutteridge, Haskins & Davey,**  
Second Sydney Airports at Badgerys Creek: Concept Design Report, 1991.

**Fairfield City Council,**  
Smithfield Wetherill Park: Sydney's West Industrial Centre, 1994a..  
Fairfield City Community Profile, March, 1994b.

**Fairfield City Employment and Economic Development Partnership,**  
Building Tourism in Fairfield and Liverpool, September, 1994a.  
Developing Industry Services in Smithfield Wetherill Park, September, 1994b.

**Fox, D,**  
Liverpool Rural Lands Study, prepared for Liverpool City Council, 1994, Normanhurst.

**Gibbs, H,**  
Inquiry into Community Needs and High Voltage Transmission Line Development, 1991, Sydney, NSW Government.

**Greater Western Sydney Economic Development Board,**  
Greater Western Sydney Economic Development Statement, 1992.  
A Tourism Action Plan for Greater Western Sydney, prepared by Macsearch, 1995.

**House of Representatives Standing Committee on Transport, Communications & Infrastructure,**  
Inquiry Into the Sydney 2000 Olympics - The adequacy of existing and planned aviation services & infrastructure, November, 1994.

**House of Representatives Select Committee on Aircraft Noise (HORSCAN)**  
Aircraft Operations and the Australian Community, September, 1985.

**Institute of Transport Studies**  
Economic Significance of Sydney (Kingsford Smith) Airport, Sydney, 1993, Sydney University.

**Kinhill Engineers P/L,**  
Third Runway Proposal Draft EIS SKSA Social Issues Working Paper.

**Kinhill Stearns,**  
Second Sydney Airport Site Selection Programme- Draft Environmental Impact Statement, 1985, Parramatta, Macarthur Press.

**KPMG Peat Marwick,**  
Economic Impact Study of the Sydney Olympics, May 1993.

**Larcombe, G,**  
An Economic Development Strategy for Liverpool, a report to Liverpool City Council, October, 1992.

**Liverpool City Council,**  
A Future for Liverpool Regional Centre, 1994a,  
Liverpool City Council Management Plan, 1994b,  
Liverpool Unlimited, October, 1994c,  
Liverpool Unlimited, February, May, 1995a,  
Local Environmental Plan, 1995b.

**Milloy, Dr Hugh,**  
The Development of Sydney West Airport, delivered at the Future of Airports in Australia Conference, June 1995

**National Institute of Economic & Industry Research (NIEIR)**

Employment & economic study - the new Sydney International Airport at Badgerys Creek, a report to the WSROC, November, 1991, Melbourne.

Accelerating the Development of Badgerys Creek Airport: The Freight Option & New Policy Initiatives, a report to Liverpool and Penrith councils, Melbourne.

**NSW Government,**

Submission on the Draft EIS for the Proposed 3rd Runway Sydney (KS) Airport.

**NSW Parliamentary Standing Committee on Public Works,**

Report Relating to Badgerys Creek Airport Development Stage 1, 1992.

**Penrith City Council,**

Business Plan for Economic Development 1995/96, (1995a).

A Harmony of urban and rural Lifestyles - Penrith City Council Management Plan, 1995-96, 1995b.

**Planning, NSW Department of,**

Sydney into its Third Century: Metropolitan Planning Strategy for the Sydney Region, 1988, Sydney, Department of Planning.

Draft Regional Environmental Plan, Sydney, 1991a, Department of Planning.

South Creek Valley-Regional Environmental Study, 1991b, Sydney, Department of Planning.

Hawkesbury-Nepean Draft Sydney Regional Environmental Plan No.20 - Explanatory Brochure, 1994.

Cities for the 21st Century, 1995a, Sydney.

UDP-The 1994/95-1998/99 Program: Local Government Area Supplement, 1995b, Sydney, NSW Government.

**Plant Location International,**

Economic Development Marketing Plan, 1992, Sydney.

**Price, Waterhouse, Urwick,**

Local Tourism Plan for the City of Penrith, Vol 2: Action Plan, 1992.

**Purden Associates,**

Bushranger's Creek Draft Development Control Plan, prepared for Wollondilly Shire Council, 1995a, Turner, ACT.

Bushranger's Creek Local Environmental Study, prepared for Wollondilly Shire Council, Turner, 1995b ACT.

**Roads and Traffic Authority,**

Roads for the Future - Western Sydney.

**South Western Sydney Institute of TAFE**

Sydney West Airport: Potential Business Opportunities, 1994, Liverpool, Liverpool College.

**State Rail**

State Rail Strategic Plan, 1994.

**Tourism NSW**

NSW Tourism Masterplan: An Overview, Sydney, 1994, NSW Tourism.

**Transport, Commonwealth Department of,**

Submission to the Senate Select Ctee on Aircraft Noise in Sydney, June 1995.

**Transport, NSW Department of,**

A balanced transport future for Sydney

**Travers Morgan,**

South Creek Transport Study.

**ULI Research,**

The Economic Impact of a Major Airport, Working Paper Series, Paper 622, 1993, Washington, DC.

**Water Resources, Department of,**

Discussion Paper, Flood Management in the South Creek Catchment, April, 1989.

**WESROC,**

Regional Road Network - Submission to Federal and NSW Governments Regarding the Regional Road Network in Western Sydney, June, 1991.

Submission on the Metropolitan Review Strategy, November, 1992.

**Wollondilly Shire Council,**

Warragamba/ Silverdale Structure Plan.

## **LIST OF TABLES**

- Table 1: Approximate Distance of Suburbs from Sydney's Major Airports (Direction from Airport in Parentheses). (Executive Summary)
- Table 2: Responsibilities of State Departments and Agencies for the SWA Sub-Region. (1)
- Table 3: Summary of the Costs of Developing SWA. (3.1.3)
- Table 4: Costings for Relocation of TransGrid Power Line. (3.5.2)
- Table 5: Population Growth in Western Sydney, 1986-1994. (3.9.1)
- Table 6: Lot Releases Under the UDP. (3.9.3)
- Table 7: Lot Production and Potential Populations under the UDP. (3.9.3)
- Table 8: Significant Release Areas Under the UDP. (3.9.3)
- Table 9: Density Options for Residential Developments in SCV as Proposed by the RES. (3.9.4)
- Table 10: Increases in Employment and Unemployment in Sydney's Greater West, 1986-1991. (3.10.3)
- Table 11: Unemployment Rates in Western Sydney. (3.10.3)
- Table 12: Manufacturing Employment Change, Sydney Sub-Regions, 1989-1992. (3.10.4)
- Table 13: Manufacturing Establishments, 1981-1989, by LGA. (3.10.4)
- Table 14: Major Occupations of the Work Force in Western Sydney as a Proportion of Total LGA Work Force. (3.10.4)
- Table 15: Vacant Industrial Land in Industrial Estates. (3.10.4)
- Table 16: LGA Plans for Maximising Industry and Commerce Opportunities Created by SWA. (3.10.6)
- Table 17: Costs of Water and Sewerage Service Provision to Erskine Park Employment Zone. (3.10.6)
- Table 18: Key Industrial Estates in Blacktown LGA. (3.10.6)
- Table 19: Features of Smithfield/Wetherill Park Industrial Estate. (3.10.6)
- Table 20: Agricultural Activity by Local government Area, 1991-1992 Season. (3.10.7)

- Table 21: Gross Value of Agricultural Commodities in Statistical Area, NSW, 1995-1986 (by LGA). (3.10.7)
- Table 22: Agricultural Produce from Liverpool LGA. (3.10.7)
- Table 23: Approximate Distance of Suburbs from Sydney's Major Airports (direction from airport in parentheses). (4.2.1)
- Table 24: Noise Impact of Old and New Generation Aircraft. (4.2.4)
- Table 25: Maximum Projected Aircraft Movements at SWA. (4.2.5)
- Table 26: SWA: Maximum Number of Potentially Noise-Affected Residents.(4.2.5)
- Table 27: New Release Areas in Wollondilly Shire. (4.2.13)
- Table 28: Method of Travel to Work for Western Sydney Residents. (4.4.7)
- Table 29: Drainage Basins on the SWA Site. (4.5.9)
- Table 30: Earth Works at the SWA Site. (4.5.9.1)
- Table 31: Possible Run-off Contaminants from the SWA Site. (4.5.9.2)
- Table 32: Airport Drainage Systems. (4.5.10.1)
- Table 33: Infrastructure Requirements. (5.1)





Legislative Assembly

**STANDING COMMITTEE ON PUBLIC WORKS**

**Minutes of Meeting No. 1 - Tuesday 30 May 1995 at 6.00 p.m.**

**1. Members Present**

Mrs Beamer, Mr Crittenden, Mr Humpherson, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris, Mr Stewart and Mr Sullivan.

**2. Opening of Meeting**

The Clerk of the Legislative Assembly opened the meeting and called the attention of Members to a copy of the Committee's terms of reference which read -

As an on going task, the Committee is to examine and report on such existing and proposed capital works projects, or matters relating to capital works projects, in the public sector, including the environmental impacts of such works, and whether alternative management practices offer lower incremental costs, as are referred to it by the Minister for Public Works and Services, or any Minister, or by the resolution of the Legislative Assembly, or by motion of the Committee.

**3. Election of Chairman/Vice Chairman**

The Clerk asked for nominations for Chairman.

*Resolved*, on motion of Mr Price, seconded by Mrs Beamer, That Mr Crittenden be Chairman of the Committee.

*Resolved*, on motion of Ms Nori, seconded by Mrs Beamer, That Mr Stewart be Vice Chairman of the Committee.

**4. Staff of the Committee**

The Clerk informed the Committee that Ms Catherine Watson and Mr Bill Dunbar had been temporarily appointed to assist the Committee and that Mr Mark Swinson had been appointed Clerk to the Committee.

Mr Crittenden took the Chair.

**5. Procedural Motions**

*Resolved*, on motion of Mr Price, seconded by Mr Rixon:

1. That arrangements for the calling of witnesses and visits of inspection be left in the hands of the Chairman and the Clerk to the Committee.
2. That, unless otherwise ordered, parties appearing before the Committee shall not be

represented by any member of the legal profession.

3. That, unless otherwise ordered, when the Committee is examining witnesses, the press and public (including witnesses after examination) be admitted to the sitting of the Committee.
4. That persons having special knowledge of the matters under consideration by the Committee may be invited to assist the Committee.
5. That press statements on behalf of the Committee be made only by the Chairman after approval in principle by the Committee or after consultation with Committee members.
6. That, unless otherwise ordered, access to transcripts of evidence taken by the Committee be determined by the Chairman and not otherwise made available to any person, body or organisation: provided that witnesses previously examined shall be given a copy of their evidence; and that any evidence taken *in camera* or treated as confidential shall be checked by the witness in the presence of the Clerk to the Committee or an Officer of the Committee.
7. That the Chairman and the Clerk to the Committee be empowered to negotiate with the Speaker through the Clerk of the Legislative Assembly for the provision of funds to meet expenses in connection with advertising, operating and approved incidental expenses of the Committee.
8. That the Chairman be empowered to advertise and/or write to interested parties requesting written submissions.
9. That upon the calling of a division or quorum in either House during a meeting of the Committee, the proceedings of the Committee shall be suspended until the Committee again has a quorum.
10. That the Chairman and the Clerk make arrangements for visits of inspection by the Committee as a whole and that individual members wishing to depart from these arrangements be required to make their own arrangements.
11. That, pursuant to Standing Order 338, evidence taken by the Committee and documents presented to the Committee which have not been reported to the House not be disclosed or published by any Member of the Committee or by any other person.

## **6. General Business**

The Committee discussed the initial direction that the Committee should pursue.

*Resolved*, on motion of Ms Nori, seconded by Mr Sullivan, That the Committee delay a decision on its immediate focus until the proposed Badgerys Creek reference has been received and discussed by the Committee at its next meeting.

## **7. Staff Resources**

*Resolved*, on motion of Ms Nori, seconded by Mr Souris, That a recommendation be made to the Speaker for the creation of a position of Committee Director; that the position be advertised as soon as possible and that a draft of the advertisement be circulated to Members for comment.

The Committee adjourned at 6.40 p.m.

## **8. Next Meeting**

Tuesday 6 June 1995 at 5.30 p.m.

---

### **Minutes of Meeting No. 2 - Tuesday 6 June 1995 at 5.30 p.m.**

#### **1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Ms Nori, Mr Price, Mr Souris, Mr Sullivan and Mr Stewart.

#### **2. Apologies**

Mr Humpherson, Dr Macdonald and Mr Rixon.

#### **3. Previous Minutes**

*Resolved*, on motion of Mrs Beamer, seconded by Mr Price, That the Minutes of Meeting No. 1 held on 30 May 1995 be confirmed.

#### **4. Correspondence**

- (a) *Sydney West Airport Reference* - the Chairman reported receipt of a letter dated 6 June 1995 from the Minister for Public Works and Services referring the Committee terms of reference on the State infrastructure requirements for the development of Sydney West Airport.

Received.

- (b) From Dr P. Macdonald dated 6 June 1995 on the Sydney West Airport Reference
- (c) From Dr P. Macdonald dated 6 June 1995 on the benefits of the Committee taking a whole of government approach.

Discussion ensued on the correspondence received from Dr Macdonald.

*Resolved*, on motion of Ms Nori, seconded by Mr Stewart, That the correspondence be noted.

#### **5. Sydney West Airport Reference**

The Committee discussed the approach it should take to complete the reference.

---

*Resolved*, on motion of Ms Nori, seconded by Mr Price, That, in view of the Committee's current staffing situation and possible unforeseen circumstances, the Sydney West Airport reference be the Committee's priority and that the Committee not take on an internally generated reference until Sydney West Airport is concluded.

The Committee agreed that the Project Officer and Ms Nori should develop a project plan for the Sydney West Airport reference for presentation to the Committee at its next meeting to be held on 22 or 23 June 1995 or earlier.

The Committee adjourned at 6.15 p.m.

**6. Next Meeting**

To be advised.

---

**Minutes of Meeting No. 3 - Friday 30 June 1995 at 12 noon**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Dr Macdonald, Ms Nori and Mr Stewart.

**2. Apologies**

Mr Price, Mr Rixon, Mr Souris and Mr Sullivan.

**3. Research Assistance**

The Committee discussed the merits of two candidates nominated by Members to assist the Committee in the South West Airport Reference.

*Resolved*, on motion of Mr Stewart, seconded by Mrs Beamer, That the Committee recommend to the Speaker that Ms Joan Simpson be appointed to assist it on the terms as set out in her tender document dated 29 June 1995.

Dr Macdonald asked that the Minutes of the meeting record his disagreement with the proposal and his preference for the appointment of Glazebrook and Associates to undertake the task.

The Chairman introduced Ms Tania Sweeney, Senior Policy Officer, Office on the Cost of Government, who he had asked be seconded to the Committee for the duration of the South West Airport Reference.

*Resolved*, on motion of Dr Macdonald, seconded by Mr Stewart, That the Chairman's action be ratified and that the Speaker be requested to approve the secondment for a three month period commencing on 26 June 1995.

**4. Committee Director**

The Chairman outlined the progress that had been made to date towards the appointment of a Director to the Committee.

The Committee agreed that the Chairman should pursue the matter further informally with Members, discuss the situation with the Speaker and report back to the Committee.

The Committee adjourned at 12.20 p.m.

**5. Next Meeting**

To be advised.

---

**Minutes of Meeting No. 4 - Monday 7 August 1995 at 11.30 a.m.**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Ms Nori, Mr Price, Mr Stewart, and Mr Souris.

**2. Apologies**

Dr Macdonald and Mr Sullivan

**3. Committee Briefings and Hearing**

The Committee was briefed by Dr Hugh Milloy, Commonwealth Department of Transport and Jane Weder, Coalition of Councils.

At 3.00 p.m.

The press and public were admitted.

*Resolved*, on motion of Mr Stewart, seconded by Mr Souris, That the submission received from the Western Regional Organisation of Councils be published.

Alexander Reuben Sanchez, Chairman and Alexander Steven Gooding, Acting Executive Director, Western Sydney Regional Organisation of Councils both affirmed and examined.

Evidence concluded, the witnesses withdrew.

At 4.00 p.m.

The Committee was briefed by Sean O'Toole, Chairman, SWA Taskforce.

The Committee adjourned at 5.15 p.m.

**4. Next Meeting**

Wednesday, 9 August, 1995, at 10.00 a.m.

---

**Minutes of Meeting No. 5 - Wednesday, 9 August 1995 at 10.20 a.m.**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Mr Rixon, Mr Souris, Mr Stewart and Mr Sullivan.

**2. Apologies**

Dr Macdonald, Ms Nori and Mr Price.

### **3. Public Hearings**

The press and public were admitted.

Richard Thomas McManus, River keeper, Research Centre for Waste Management, sworn and examined.

Evidence concluded, the witness withdrew.

*Resolved*, on motion of Mr Rixon, seconded by Mr Stewart, That the submission received from the Hawkesbury/Nepean Catchment Trust be published.

Malcolm Ian Hughes, Director, Hawkesbury/Nepean Catchment Trust, sworn and examined.

During his evidence Mr Hughes presented the following report "The Role of Cumulative Impact Assessment in Catchment Management for the Hawkesbury - Nepean Catchment Area" by J.D. Court and Associates Pty Limited, 7 March 1995.

Evidence concluded, the witness withdrew.

*Resolved*, on motion of Mr Crittenden, seconded by Mr Stewart, That the submissions received from Fairfield Council be published.

Klaus Kerzinger, Manager - Projects and Support Systems; Councillor Antonio Campolongo, Mayor; Terrence Stanley Barnes, General Manager, all of Fairfield City Council, sworn and examined.

Evidence concluded the witnesses withdrew.

Gordon Bruce McDonald, Director of Economic and Strategic Planning, Penrith City Council, sworn and examined.

*Resolved*, on motion of Mr Stewart, seconded by Mr Rixon, That the submission received from Penrith City Council be published.

Ian William Sinclair, Manager Strategic Planning; Christine Mary Towndrow, Mayor and John Sproule, Manager-Environment, all of Wollondilly Shire Council, sworn and examined.

Evidence concluded, the witnesses withdrew.

*Resolved*, on motion of Mr Rixon, seconded by Mr Humpherson, That the submission received from Wollondilly Shire Council be published.

The Committee adjourned at 4.30 p.m.

### **4. Next Meeting**

Wednesday, 16 August, 1995, at 10.30 a.m.

---

### **Minutes of Meeting No. 6 - Wednesday 16 August 1995 at 10.20 a.m.**

#### **1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Mr Rixon, Mr Souris and Mr Stewart.

## **2. Apologies**

Dr Macdonald, Ms Nori, Mr Price and Mr Sullivan.

## **3. Publication of Submissions**

*Resolved*, on motion of Mr Stewart, seconded by Mr Rixon, That the submissions received from the Roads and Traffic Authority (45), Tim Robertson (1), the Greater Western Sydney Chamber of Commerce (21), Blacktown Council (33), Liverpool Council (3) and Holyroyd Council (34) be published.

## **4. Public Hearings**

The press and public were admitted.

Brian John Watters, General Manager, Network Development and John Dennis Brewer, Special Projects Manager, Roads and Traffic Authority, both sworn and examined.

Evidence concluded, the witnesses withdrew.

Timothy Frank Robertson, Barrister, affirmed and examined.

Evidence concluded, the witness withdrew.

*Resolved*, on motion of Mr Rixon, seconded by Mr Stewart, That the Committee write to the Commonwealth Government to obtain a copy of the cost/benefit analysis undertaken of the third runway referred to by Mr Robertson in his evidence.

1.00 p.m.

Robert William Lundie-Jenkins, Regional Development Management, Greater Western Sydney Chamber of Commerce and Industry, sworn and examined.

Evidence concluded, the witness withdrew.

Thomas Lloyd Gellibrand, Manager-Strategic Development; Ian Kings North Reynolds, Director-Strategic Development and Development and Stephen Clement Driscoll, Town Planner, all of Blacktown City Council, sworn and examined.

Evidence concluded the witnesses withdrew.

Russell Willoughby Winlaw, Manager-Strategic Planning, Liverpool City Council, sworn and examined.

Evidence concluded the witness withdrew.

The Committee adjourned at 5.00 p.m.

## **5. Next Meeting**

Tuesday, 12 September 1995 at 11.00 a.m.

---

**Minutes of Meeting No. 7 - Tuesday 12 September 1995 at 11.00 a.m.**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Dr Macdonald, Mr Rixon, Ms Nori and Mr Stewart.

**2. Apologies**

Mr Humpherson, Mr Price, Mr Souris and Mr Sullivan.

**3. Public Hearings**

The press and public were admitted.

Peter Jeremy Hicks, Network Development Manager, RailNet, State Rail Authority, sworn and examined.

**In camera evidence**

Mr Hicks having requested that part of his evidence be heard *in camera*, the press and public withdrew.

The public hearing of Mr Hicks' evidence resumed after the *in camera* evidence.

Evidence concluded, the witness withdrew.

William Patrick McNamara, Chairman and Slavko James Joseph Bosnjak, Chairman, Transport Subcommittee, of the Greater Western Sydney Economic Development Board both sworn and examined.

*Resolved*, on motion of Ms Nori, seconded by Mr Rixon, That the submission received from the Greater Western Sydney Economic Development Board (No. 56) be published.

Evidence concluded, the witnesses withdrew.

**At 2.00 p.m.**

Stuart Graham, Mayor, Mervyn Winston Ismay, Director of Corporate and Financial Services and Dennis Trezise, General Manager of Holyroyd City Council all sworn and examined.

Evidence concluded, the witnesses withdrew.

Stephen Bruce Oliver, Chairman of the Sydney West Airport Residents Panel, sworn and examined.

Mr Oliver presented a submission to the committee.

*Resolved*, on motion of Mr Rixon, seconded by Mr Crittenden, That the submission be published.

Evidence concluded the witness withdrew.



The Committee adjourned at 5.00 p.m.

4. **Next Meeting**

To be determined.

---

**Minutes of Meeting No. 8 - Thursday 12 October 1995 at 9.00 a.m.**

1. **Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris, Mr Stewart and Mr Sullivan.

2. **Draft Report**

The Chairman brought up his Draft Report (excluding a proposed Chapter on Options for Infrastructure Financing).

Consideration of the Draft Report was postponed until next meeting.

After discussion the Committee agreed with the Chairman's proposal that Sydney Electricity be requested to make the services of Mr Daniel Goon available to assist in the Infrastructure Financing Chapter of the Report.

3. **Minutes of Meetings**

*Resolved*, on motion of Mr Rixon, seconded by Mr Stewart, That Minutes of Meetings Nos 2 to 7 be confirmed.

4. **Committee Director**

*Resolved*, on motion of Mr Stewart, seconded by Mr Souris, That the Speaker be requested to approve the re-advertising of the position of Director of the Public Works Committee and for the Chairman to be a member of the Selection Panel.

5. **Next Meeting**

Wednesday 18 October 1995 at 9.00 a.m.

---

**Minutes of Meeting No. 9 - Monday 16 October 1995 at 9.00 a.m.**

1. **Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris, Mr Stewart and Mr Sullivan.

2. **Consideration of Draft Report**

The Committee agreed to consider the Recommendations first and then the supporting text of the

Report.

## **CHAPTER 2 THE SYDNEY WEST AIRPORT AND DEVELOPMENT CORPORATION**

### Recommendation

#### No.

1 to 3 -	agreed to.
4 -	agreed to, as amended.
5 and 6 -	agreed to.
7 -	agreed to, as amended.
8 to 10 -	deferred.
11 -	agreed to, as amended.
12 to 16 -	agreed to.
17 -	deferred (to be added to)
18 -	agreed to.

## **CHAPTER 3 INFRASTRUCTURE REQUIREMENTS FOR THE ACCELERATED DEVELOPMENT OF SYDNEY WEST AIRPORT**

### **Rail**

New 19 -	agreed to.
19 -	as amended.
20 to 22 -	agreed to.
23 -	agreed to, as amended.
24 and 25 -	agreed to.
26 and 27 -	deferred (to be rewritten).
28 to 30 -	agreed to.
New 31 -	deferred (to be rewritten)

### **Roads**

31 to 35 -	agreed to.
36 -	agreed to, as amended.
37 to 40 -	agreed to.
41 -	deferred (to be rewritten)
42 to 44 -	agreed to.
45 and 46 -	to be consolidated and rewritten.

**Aviation Fuel Supply - deferred.**

The Committee adjourned at 10.00 a.m.

### **3. Next Meeting**

Thursday 19 October 1995 at 3.00 p.m.

---

**Minutes of Meeting No. 10 - Thursday 19 October 1995 at 3.00 p.m.**

1. **Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris and Mr Sullivan.

2. **Apology**

Mr Stewart

3. **Consideration of Draft Report**

The Committee continued to consider the Draft Report.

**CHAPTER 3  
INFRASTRUCTURE REQUIREMENTS FOR THE ACCELERATED DEVELOPMENT  
OF SYDNEY WEST AIRPORT (Continued)**

**Recommendation**

**No.**

**Energy**

47 and 48 -	deferred (to be rewritten).
49 and 50 -	agreed to.
51 -	deferred (to be rewritten).
52 to 57 -	agreed to.
58 -	deleted.
59 -	agreed to.
60 -	deferred (to be rewritten)
61 and 62 -	agreed to.
63 -	deferred (to be rewritten).
64 to 68 -	agreed to.
69 -	deferred (to be rewritten)
70 -	agreed to, as amended.
71 -	agreed to.
72 -	agreed to, as amended.
73 to 76 -	agreed to.
77 -	deferred
78 to 83 -	agreed to.
84 -	agreed to, as amended.
85 and 86 -	agreed to.

The Committee adjourned at 12 noon

4. **Next Meeting**

Wednesday 25 October 1995 at 9.00 a.m.

---

**Minutes of Meeting No. 10 - Thursday 19 October 1995 at 3.00 p.m.**

1. **Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris and Mr Sullivan.

## 2. Apology

Mr Stewart

## 3. Consideration of Draft Report

The Committee continued to consider the Draft Report.

### **CHAPTER 3 INFRASTRUCTURE REQUIREMENTS FOR THE ACCELERATED DEVELOPMENT OF SYDNEY WEST AIRPORT (Continued)**

#### Recommendation

#### No.

#### **Energy**

47 and 48 - deferred (to be rewritten).  
49 - agreed to.

#### **Water Supply**

50 - agreed to.

#### **Health**

51 - deferred (to be rewritten).  
52 - agreed to.

#### **Relocation**

53 - agreed to.

#### **Residential Development**

54 to 56 - agreed to.

#### **Economic Development**

57 - agreed to.  
58 - deleted.  
59 - agreed to.  
60 - deferred (to be rewritten)  
61 and 62 - agreed to.  
63 - deferred (to be rewritten).  
64 and 65 - agreed to.

### **CHAPTER 4**

### **MINIMISING THE ENVIRONMENTAL IMPACT OF SYDNEY WEST AIRPORT**

## **Introduction**

66 to 68 - agreed to.

## **Noise**

69 - deferred (to be rewritten)  
70 - agreed to, as amended.  
71 - agreed to.  
72 - agreed to, as amended.  
73 to 76 - agreed to.  
77 - deferred  
78 to 83 - agreed to.  
84 - agreed to, as amended.  
85 and 86 - agreed to.

The Committee adjourned at 5.00 p.m.

## **4. Next Meeting**

Wednesday 25 October 1995 at 9.00 a.m.

---

## **Minutes of Meeting No. 11 - Wednesday 25 October 1995 at 9.00 a.m.**

### **1. Members Present**

Mr Crittenden (Chairman), Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr Souris and Mr Stewart.

### **2. Apologies**

Mrs Beamer, Mr Humpherson and Mr Sullivan.

### **3. Consideration of Draft Report**

The Committee continued to consider the Draft Report.

## **CHAPTER 4**

## **MINIMISING THE ENVIRONMENTAL IMPACT OF SYDNEY WEST AIRPORT (Continued)**

### **Recommendation**

#### **No.**

### **Acoustic Environment**

87 to 90 - agreed to.

### **Air Quality**

91 and 92 - agreed to.  
93 and 94 - deferred (to be rewritten).

- 95 to 98 - agreed to.  
99 - agreed to, as amended.  
100 to 103 - agreed to.  
104 and 105 - agreed to, as amended (Recommendation No. 18 amended  
consequentially on No. 105 being amended)

#### **Waste**

- 106 - agreed to.  
107 and 108 - agreed to, as amended.  
109 - agreed to.

#### **Issues Relating to Aboriginal Culture**

- 110 - agreed to.

#### **Flora**

- 111 - agreed to.

The Committee then proceeded to the consideration of the body of the Report.

### **CHAPTER 1 - TERM A. STATE RESPONSIBILITIES FOR INFRASTRUCTURE PROVISIONS AT SWA**

Deferred - material to be inserted.

### **CHAPTER 2 - TERM B. THE SYDNEY WEST AIRPORT DEVELOPMENT CORPORATION (SWADC)**

Sections 2.1 to 2.4 - agreed to.

### **CHAPTER 3 - TERM C. INFRASTRUCTURE REQUIREMENTS FOR THE ACCELERATED DEVELOPMENT OF SYDNEY WEST AIRPORT**

- Section 3.1 (3.1.1 to 3.1.8) - agreed to.  
Section 3.2 (3.2.1 to 3.2.15) - agreed to.  
Section 3.3 (3.3.1 to 3.3.6) - agreed to, as amended.  
Section 3.4 - deferred (to be rewritten).  
Section 3.5 (3.5.1 to 3.5.5) - agreed to, as amended.  
Section 3.6 (3.6.1 and 3.6.2) - agreed to.  
Section 3.7 - agreed to.  
Section 3.8 - agreed to.  
Section 3.9 - (3.9.2 to 3.9.4) - agreed to.  
Section 3.10 (3.10.1 to 3.10.11) - agreed to

The Committee adjourned at 11.00 a.m.

#### **4. Next Meeting**

Thursday 26 October 1995 at 9.00 a.m.

---

**Minutes of Meeting No. 12 - Thursday 26 October 1995 at 9.00 a.m.**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Dr Macdonald, Ms Nori, Mr Souris, Mr Stewart and Mr Sullivan.

**2. Apologies**

Mr Humpherson, Mr Price and Mr Rixon.

**3. Consideration of Draft Report**

The Committee continued to consider the Draft Report.

**CHAPTER 4**

**TERM D. MINIMISING THE ENVIRONMENTAL IMPACT OF SWA**

Section 4.1 (4.1.1 to 4.1.3) - agreed to.  
Section 4.2 (4.2.1 to 4.2.14) - agreed to.  
Section 4.3 (4.3.1 to 4.3.3) - agreed to.  
Section 4.4 (4.4.1 to 4.4.13) - agreed to.  
Section 4.5 (4.5.1 to 4.5.10) - agreed to.  
Section 4.6 (4.6.1 and 4.6.2) - agreed to.  
Section 4.7 - agreed to.  
Section 4.8 (4.8.1 and 4.8.2) - agreed to.

*Resolved*, on motion of Mr Crittenden, seconded by Mr Souris, That the Chairman be empowered to make minor clerical changes to the Draft Report as required before its tabling.

The Committee then considered further amendments made to the Draft Report as a result of previous deliberations.

Renumbered recommendations - 4, 7, 11, 17, 18, 19, 23, 28, 29, 31, 38, 43 (further amended), 47, 48, 49, 50, 53 (further amended), 56, 60, new 61, 65 (further amended), 71, 75, 76, 87, 97, 100, 101, 104, 109, 110, 113 - agreed to.

Section 3.4 - Aviation Fuel Supply - agreed to.  
Section 3.2 - Rail Links to SWA - agreed to.  
Section 3.10 - Economic Development - agreed to.

The Committee adjourned at 10.00 a.m.

**4. Next Meeting**

Thursday 26 October 1995 at 5.00 p.m.

---

**Minutes of Meeting No. 13 - Thursday 26 October 1995 at 5.00 p.m.**

**1. Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Dr Macdonald, Ms Nori, Mr Price, Mr Rixon, Mr

Souris, Mr Stewart and Mr Sullivan.

2. **Apology**

Mr Humpherson

3. **Draft Report**

The Committee continued to consider the Draft Report.

The Committee reconsidered recommendations 4, 8, 9 and 28 which were agreed to as further amended.

**CHAPTER 5**  
**TERM E. FUNDING SWA INFRASTRUCTURE PROGRAMS**

The Committee commenced consideration of this Chapter and deferred further consideration until the next meeting.

The Committee adjourned at 5.45 p.m.

4. **Next Meeting**

To be determined.

---

**Minutes of Meeting No. 14 - Friday 10 November 1995 at 11.00 a.m.**

1. **Members Present**

Mr Crittenden (Chairman), Mrs Beamer, Mr Humpherson, Ms Nori and Mr Sullivan.

2. **Apologies**

Dr Macdonald, Mr Price, Mr Rixon, Mr Souris and Mr Stewart.

3. **Draft Report**

The Committee continued to consider the Draft Report.

**CHAPTER 5**  
**TERM E. FUNDING SWA INFRASTRUCTURE PROGRAMS**

Section 5.1 to 5.4 (including renumbered recommendations 118 to 122 - agreed to, as amended. Tables - agreed to.

*Resolved*, on motion of Mrs Beamer, seconded by Mr Humpherson, That the Draft Report, as amended, be adopted by the Committee, signed by the Chairman and tabled with the Clerk together with the Evidence taken by the Committee and the submissions received.

4. **Previous Minutes**



*Resolved*, on motion of Mrs Beamer, seconded by Mr Sullivan, That the Minutes of Meetings Nos 8 to 13 be confirmed.

The Committee adjourned at 12.50 p.m.

**5. Next Meeting**

To be determined.

---

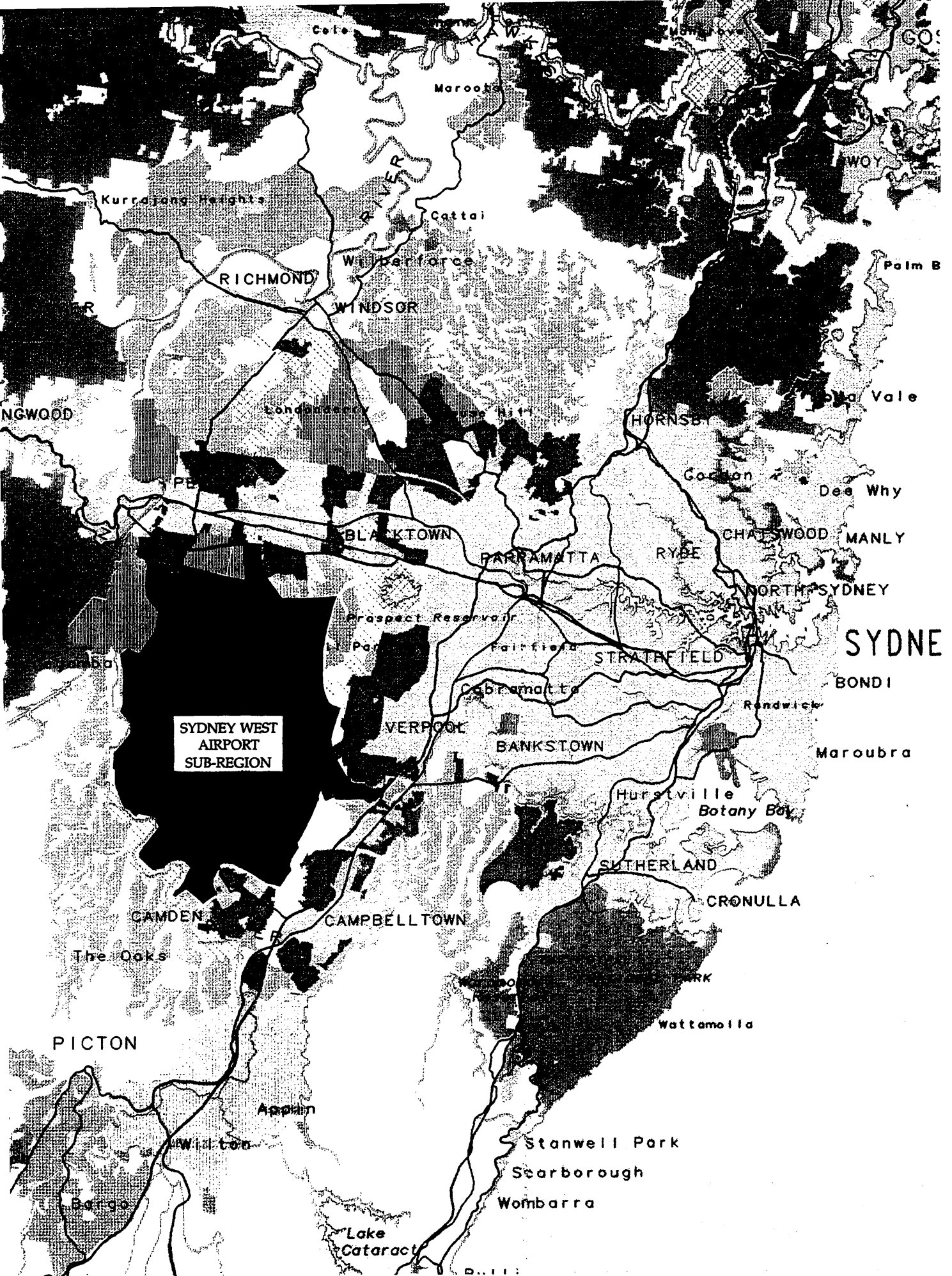
## **LIST OF ACRONYMS**

<b>ABS</b>	<b>Australian Bureau of Statistics</b>
<b>ACT</b>	<b>Australian Capital Territory</b>
<b>ADI</b>	<b>Australian Defence Industries</b>
<b>AGL</b>	<b>Australian Gas Company Ltd.</b>
<b>ANEF</b>	<b>Australian Noise Exposure Forecast</b>
<b>BCA</b>	<b>Badgerys Creek Airport</b>
<b>CAA</b>	<b>Civil Aviation Authority</b>
<b>CBD</b>	<b>Central Business District</b>
<b>DCP</b>	<b>Development Control Plan</b>
<b>DEET</b>	<b>Department of Employment, Education and Training</b>
<b>DoP</b>	<b>Department of Planning</b>
<b>DoT</b>	<b>NSW Department of Transport</b>
<b>DUAP</b>	<b>NSW Dept of Urban Affairs &amp; Planning</b>
<b>EIS</b>	<b>Environmental Impact Statement</b>
<b>EPA</b>	<b>Environment Protection Authority (NSW)</b>
<b>FAC</b>	<b>Federal Airports Corporation</b>
<b>FDoT</b>	<b>Federal Department of Transport</b>
<b>GWSCCI</b>	<b>Greater Western Sydney Chamber of Commerce and Industry</b>
<b>GWSEDB</b>	<b>Greater Western Sydney Economic Development Board</b>
<b>KSA</b>	<b>Kingsford Smith Airport</b>
<b>LEP</b>	<b>Local Environmental Plan</b>
<b>LGA</b>	<b>Local Government Area</b>
<b>MACROC</b>	<b>Macarthur Regional Organisation of Councils</b>
<b>NIEIR</b>	<b>National Institute Economics and Industry Research</b>

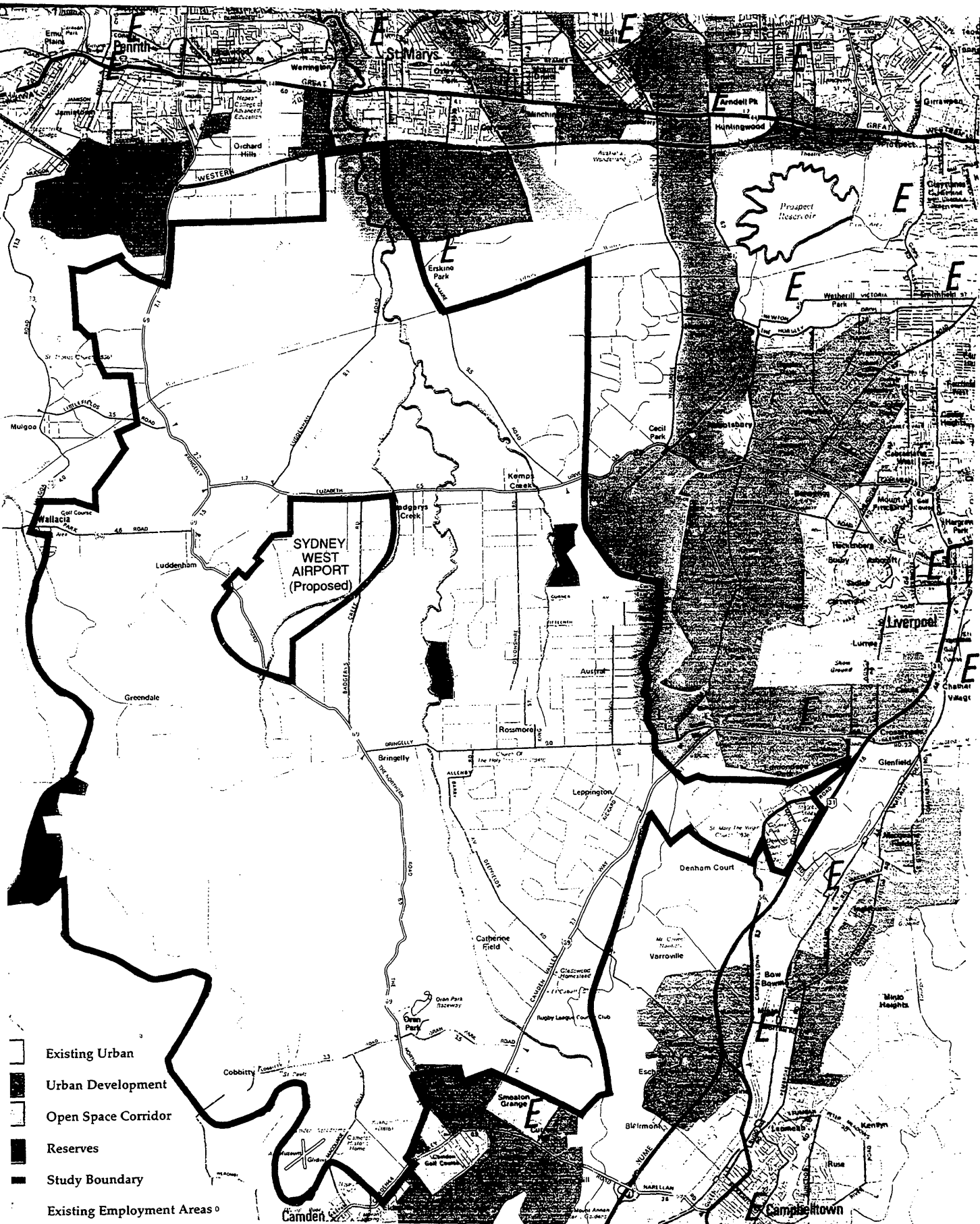
OH & S	Occupational Health and Safety
OLS	Obstacle Limitation Surface
OTC	Overseas Telecommunications Commission
REP	Regional Environmental Plan
RES	Regional Environmental Statement
RFFS	Rescue and Fire Fighting Services
STP	Sewage Treatment Plant
SCV	South Creek Valley
SCVS	South Creek Valley Sector
SKSA	Sydney Kingsford Smith Airport
SWA	Sydney West Airport
SWADC	Sydney West Airport Development Corporation
SWSI	South West Sydney Institute
TAFE	Technical and Further Education
UDP	Urban Development Program
UWS	University of Western Sydney
BVET	Board of Vocational Education & Training
WSROC	Western Sydney Regional Organisation of Councils

## **LIST OF MAPS**

- Map 1: Sydney West Airport Sub-Region Study Area. (DUAP, Sydney West Airport Sub-Region Strategic Plan)
- Map 2: Western Sydney Context. (DUAP, Sydney West Airport Sub-Region Strategic Plan)
- Map 3: Sydney West Airport 1999 Development for Domestic/International Operations.
- Map 4: Sydney Airports Road and Rail Links.
- Map 5. Long Term Rail Line Developments.
- Map 6. Erskine Park Employment Area's Proximity to SWA.
- Map 7. Economic Development Strategy (Liverpool Council).
- Map 8. Location of Industrial Estates in Blacktown (Blacktown Council).
- Map 9. ANEF Noise Exposure Contour for the Ultimate Airport Development. (Draft EIS for the Second Sydney Airport at Badgerys Creek , April 1985, by Kinhill for the FAC).
- Map 10. ANEF Contours at Warragamba/Silverdale and Bents Basin State Recreation Area.
- Map 11. Estimated Ozone Levels with Current Motor Vehicle Use and With 30 Per Cent Increase in Motor Vehicle Emissions.

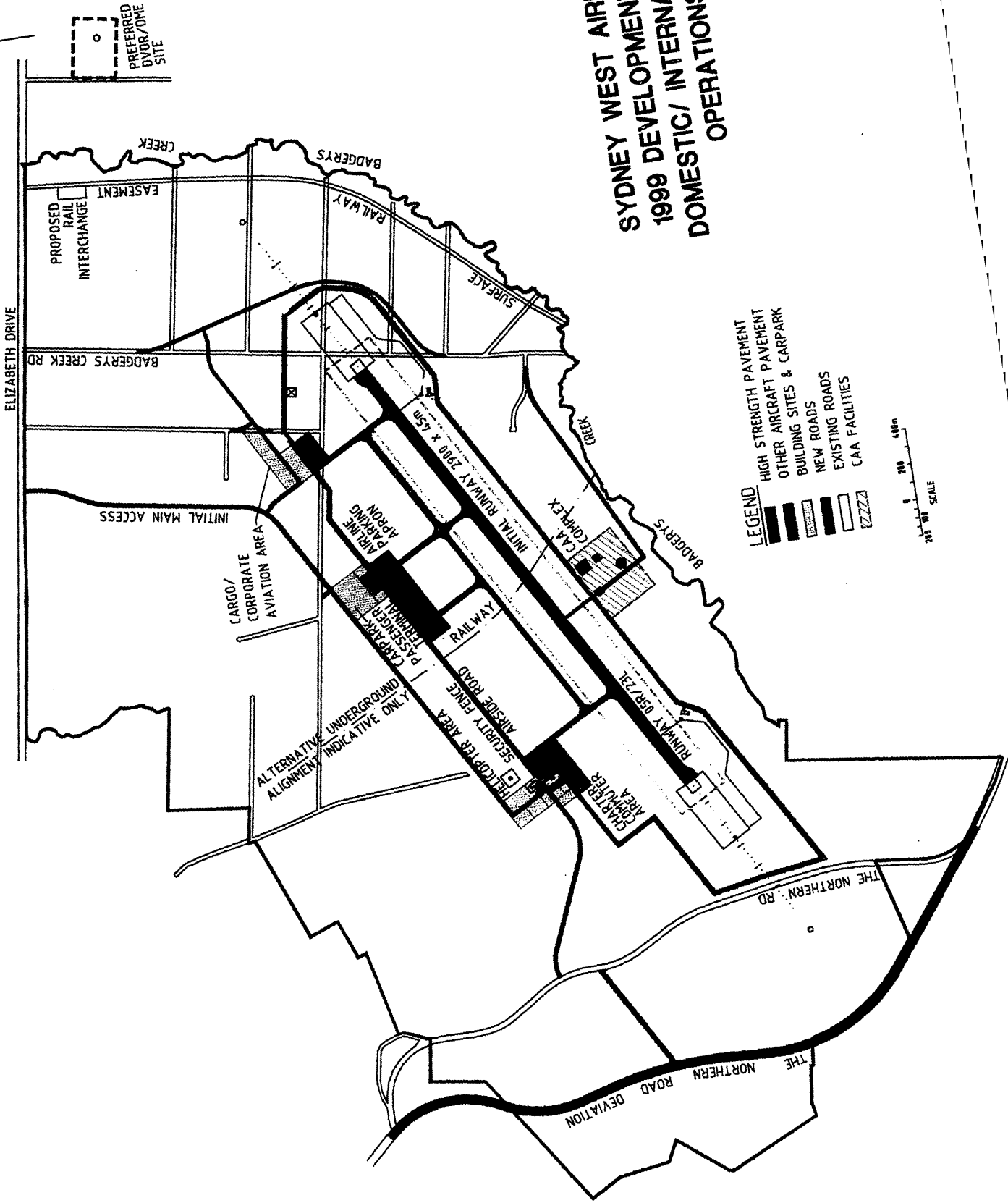


SYDNEY WEST AIRPORT SUB-REGION STUDY AREA



WESTERN SYDNEY CONTEXT

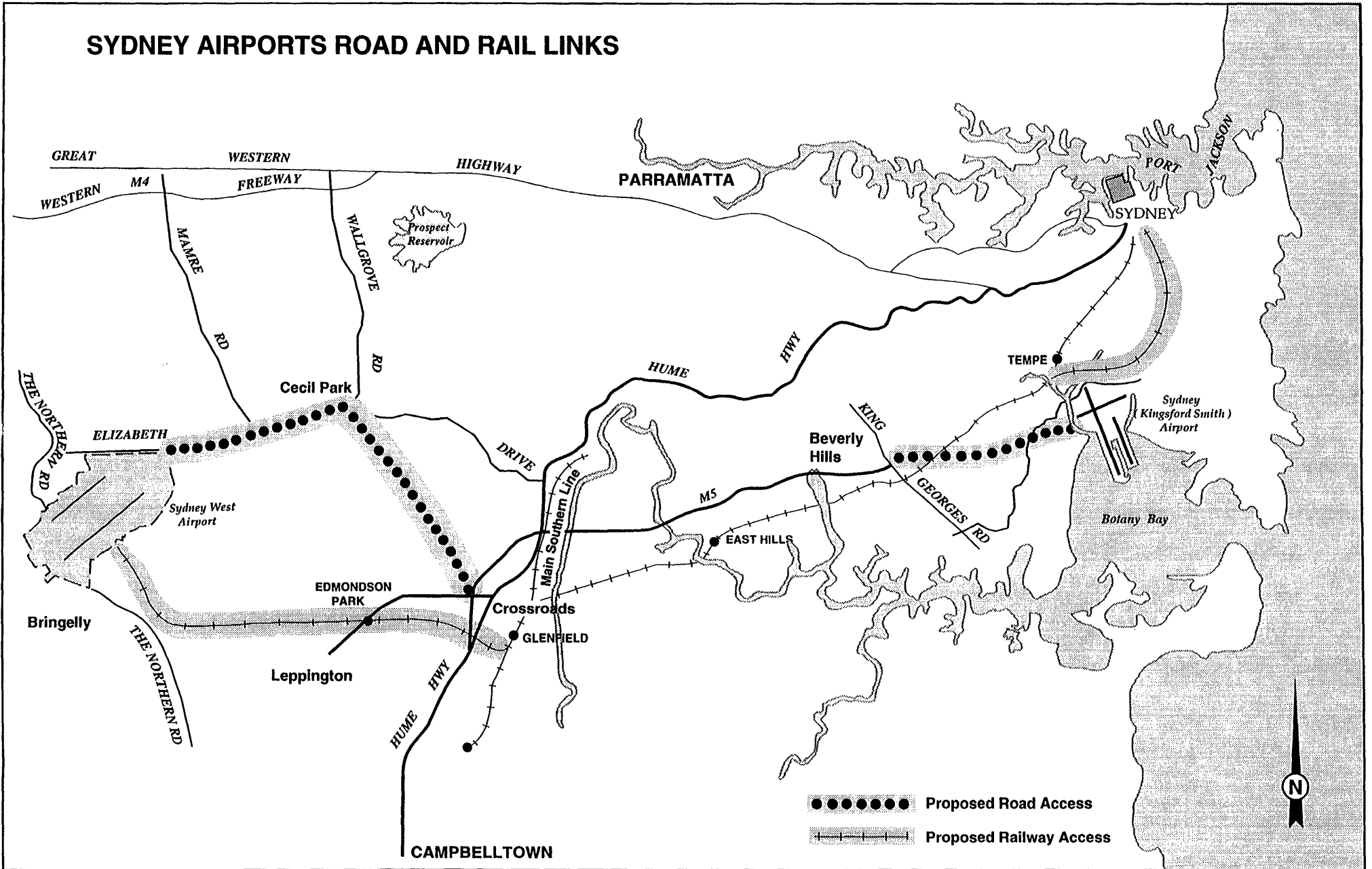
# SYDNEY WEST AIRPORT 1999 DEVELOPMENT FOR DOMESTIC/ INTERNATIONAL OPERATIONS



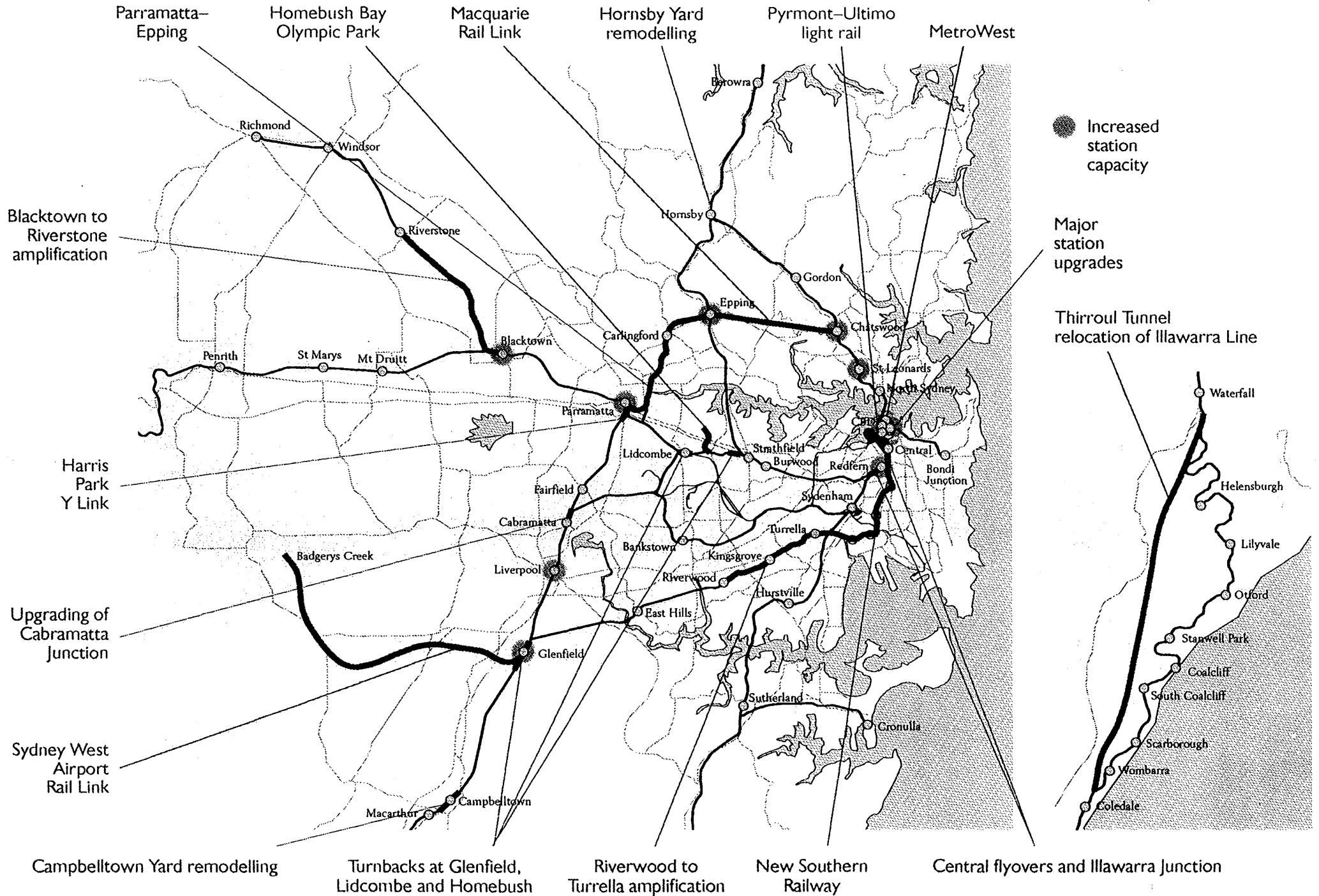
- LEGEND**
- [Thick solid line] HIGH STRENGTH PAVEMENT
  - [Thin solid line] OTHER AIRCRAFT PAVEMENT
  - [Hatched pattern] BUILDING SITES & CARPARK
  - [Dotted pattern] NEW ROADS
  - [Thin solid line] EXISTING ROADS
  - [Zzzzz pattern] CAA FACILITIES



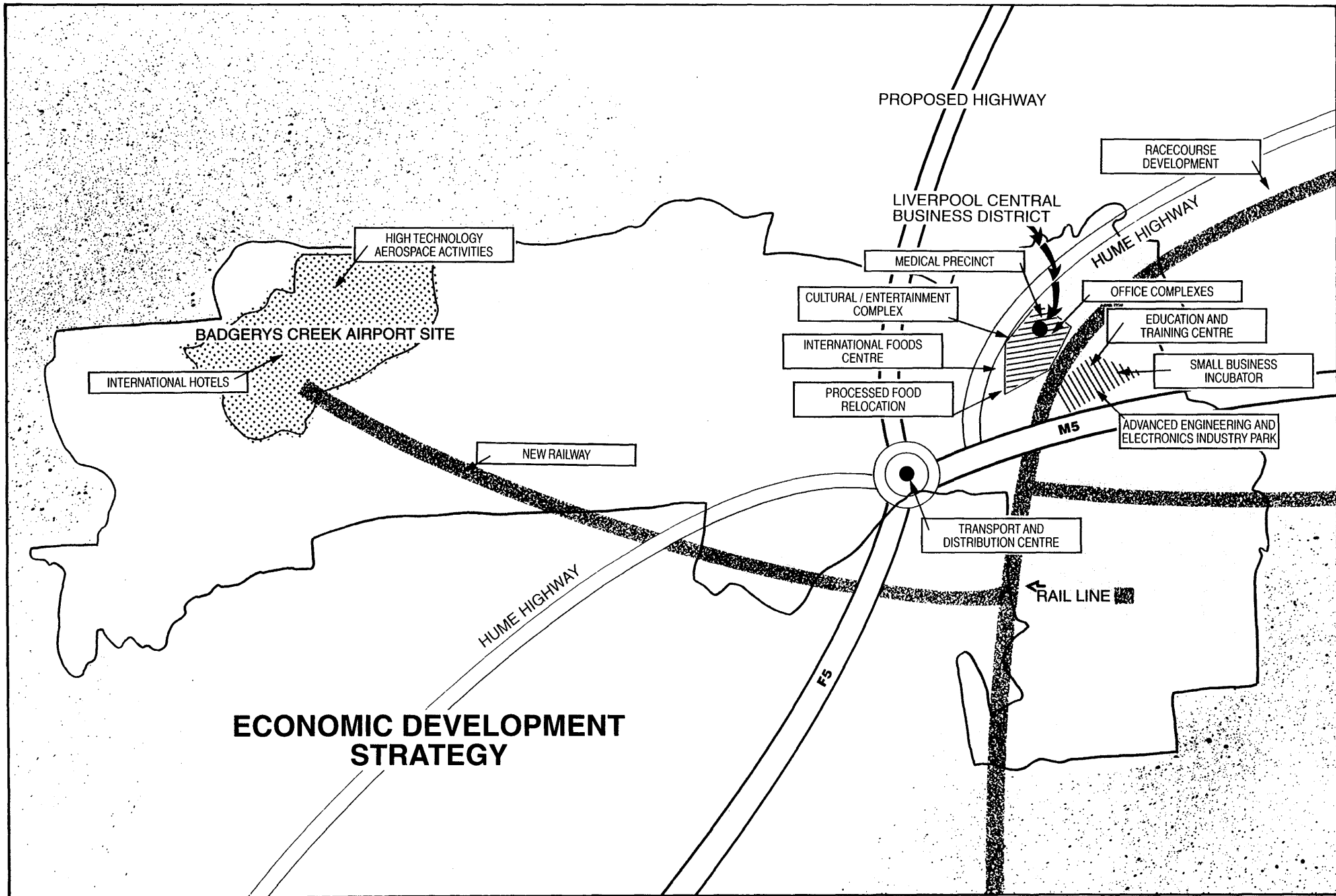
# SYDNEY AIRPORTS ROAD AND RAIL LINKS



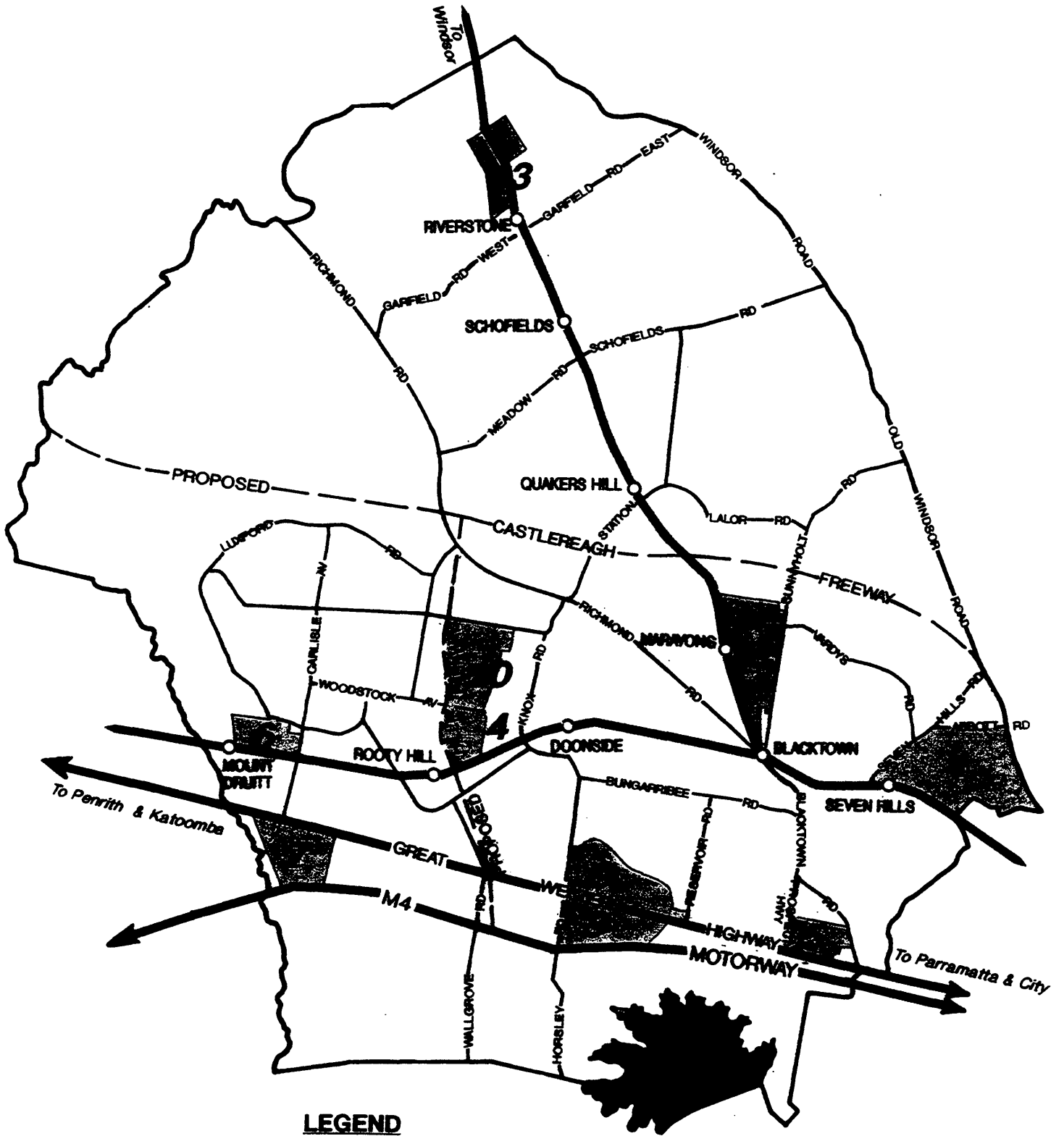


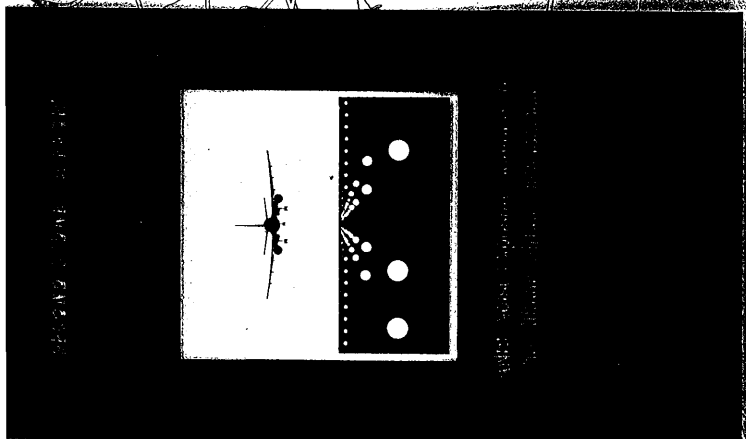
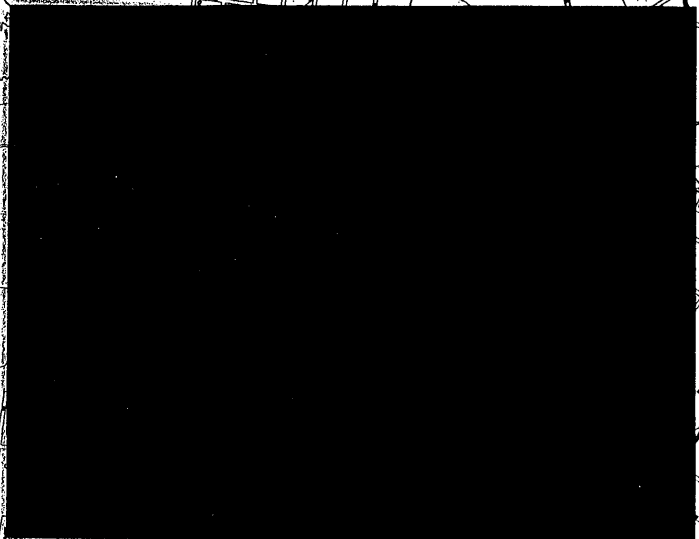






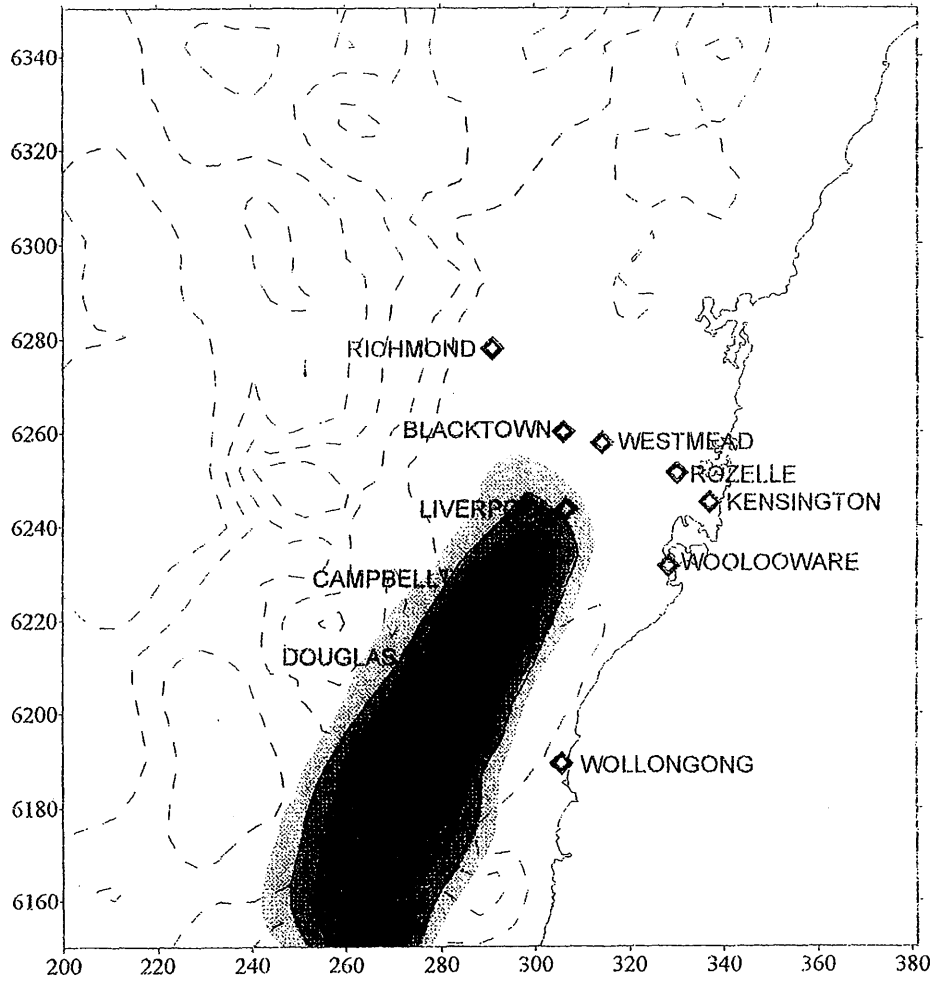
# LOCATION OF INDUSTRIAL ESTATES IN BLACKTOWN







# ESTIMATED OZONE LEVELS WITH CURRENT MOTOR VEHICLE USE



# ESTIMATED OZONE LEVELS WITH 30 PER CENT INCREASE IN MOTOR VEHICLE EMISSIONS

