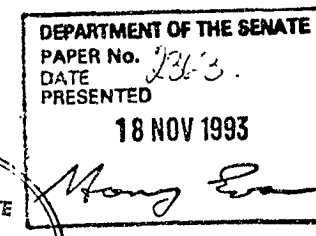

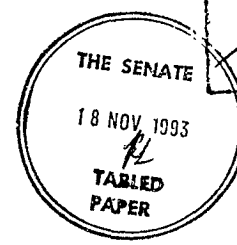

Parliamentary Standing Committee on Public Works

REPORT

relating to the

CONSTRUCTION OF AIR TRAFFIC CONTROL CENTRES AT BRISBANE AND MELBOURNE

(Seventh Report of 1993)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA
1993

The Parliament of the Commonwealth of Australia

Parliamentary Standing Committee on Public Works

Report Relating

to the

Construction of Air Traffic Control Centres at Brisbane and Melbourne

(Seventh Report of 1993)

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

(Thirtieth Committee)

Mr Colin Hollis MP (Chairman)
Mr William Leonard Taylor MP (Vice-Chairman)

Senate	House of Representatives
Senator Bryant Robert Burns	Mr Ewen Colin Cameron MP
Senator Paul Henry Calvert*	Mr Lloyd Reginald O'Neil MP
Senator John Robert Devereux	Mr Russell Neville Gorman MP
	Mr Bruce Craig Scott MP

* Appointed on 24.8.90 following the retirement of Senator Dr Glenister Sheil

Committee Secretary:	Peter Roberts
Inquiry Secretary:	Michael Fetter
Secretarial Assistance:	Sophia Konti

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

(Thirty-First Committee)

Mr Colin Hollis MP (Chairman)
Senator Paul Henry Calvert (Vice-Chairman)

Senate	House of Representatives
Senator Bryant Robert Burns	Mr John Neil Andrew MP
Senator John Robert Devereux	Mr Raymond Allen Braithwaite MP
	Mr Russell Neville Gorman MP
	Mr Robert George Halverson OBE MP
	Hon. Benjamin Charles Humphreys MP

Committee Secretary:	Peter Roberts
Inquiry Secretary:	Michael Fetter
Secretarial Assistance:	Annabel Lamb

EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES

No. 108 dated 26 February 1992

12 **PUBLIC WORKS–PARLIAMENTARY STANDING COMMITTEE–REFERENCE OF WORK–AIR TRAFFIC SERVICES CENTRES, BRISBANE AND MELBOURNE:**

Mr Beddall (Minister representing the Minister for Administrative Services), pursuant to notice, moved–That, in accordance with the provisions of the Public Works Committee Act 1969, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Air traffic services centres at Brisbane and Melbourne.

Mr Beddall presented plans in connection with the proposed work.

Debate ensued.

Question–put and passed.

COMMONWEALTH OF AUSTRALIA

Public Works Committee Act 1969

Order under subsection 18(4)

I, WILLIAM GEORGE HAYDEN, Governor-General of the Commonwealth of Australia, acting with the advice of the Federal Executive Council and under subsection 18(4) of the *Public Works Committee Act 1969*, hereby declare that the public work described in the Schedule be referred to the Parliamentary Standing Committee on Public Works for consideration and report.

SCHEDULE

AIR TRAFFIC CONTROL CENTRES AT BRISBANE AND MELBOURNE

Signed and sealed with
the Great Seal of Australia on
27 July 1993

L.S.

BILL HAYDEN

Governor-General

By His Excellency's Command

R.J. McMullan

Minister for the Arts and Administrative Services

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

AIR TRAFFIC CONTROL CENTRES AT BRISBANE AND MELBOURNE

By resolution on 26 February 1992 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for consideration and report the proposed construction of Air Traffic Services Centres at Brisbane and Melbourne. The Committee was unable to report to the Parliament before the House of Representatives was dissolved on 8 February 1993. The reference therefore lapsed.

On 27 July 1993 the project was re-referred to the 31st Committee by His Excellency the Governor-General in Council for consideration and report to Parliament. Empowered by section 24 of the *Public Works Committee Act 1969* the Committee agreed to consider the evidence placed before the previous Committee. The report which follows is based on the investigations conducted by the previous and the present Committee and the evidence considered by them.

THE REFERENCE

Components

1. The works in this reference involve the construction of facilities associated with The Australian Advanced Air Traffic System (TAAATS) for the Civil Aviation Authority (CAA) comprising:

- new air traffic control centres of about 7 500m^2 each in Brisbane and Melbourne
- associated road works, car parks, engineering services and landscaping
- minor modifications to the Cairns air traffic centre
- modifications and refurbishment of the existing Area Approach Control Centre (AACC) in Sydney, including the upgrading of the power supply and airconditioning

- modifications to the AACCs in Adelaide and Perth.

Method of Delivery

2. The acquisition of TAAATS is to be on a turnkey basis with the prime contractor being responsible for delivery of an integrated, nationwide, air traffic control system including building works.

Estimated Cost

3. The order of cost of the building works is estimated at $50m.

THE COMMITTEE'S INVESTIGATION

30th Committee

4. This reference has been one of the most difficult and protracted inquiries conducted in recent years by the Committee. The reasons for this are explained later in this report. At the first public hearing, held in Brisbane in April 1992, the Chairman stated:

> Whilst not wishing to limit the focus of the inquiry, the Committee's role is to examine proposed building works. Nevertheless, the Committee must satisfy itself that the TAAATS concept is sound. The Committee will, however, not involve itself in issues relating to equipment contracts. (Transcript, Public Hearing, 8 April 1992, p.2)

5. This desire on the part of the Committee to limit the focus of the inquiry into the building components of the project could not be sustained. Controversy concerning the awarding of the TAAATS contract to Thomson Radar Australia Corporation Pty Limited continued throughout the inquiry.

6. The 30th Committee held public and private hearings as follows:

- Brisbane – 8 April 1992
- Canberra – 27 April and 25-26 May 1992
- Perth – 11 May 1992

7. Inspections of existing air traffic services facilities were carried out in Melbourne and Brisbane on 7 April and Perth on 11 May.

Brisbane Public Hearing

8. At the first public hearing, held in Brisbane on 8 April, the Committee received a written submission and plans from the CAA and took evidence from its representatives. Representatives of the following organisations also presented submissions and appeared before the Committee at the public hearing:

- Department of Manufacturing and Industry Development, Victorian State Government
- Federal Airports Corporation (FAC)
- Civil Air Operations Officers' Association of Australia (Civil Air)
- Association of Professional Engineers and Scientists, Australia
- Metals and Engineering Workers Union
- Bassett Consulting Engineers
- Royal Australian Institute of Architects

9. Submissions and letters were also received from the following:

- Australian Heritage Commission
- Brisbane City Council
- QANTAS Airways Limited
- Childcare at Work
- FAC - Melbourne
- Lord Mayor of Brisbane

- Department of Industry, Trade and Technology, South Australian State Government
- National Trust
- Commonwealth Fire Board
- Commonwealth Department of Arts, Sport, the Environment and Territories
- Shire of Bulla
- Australian Airlines Limited
- Ansett Australia.

Canberra Public Hearing

10. The second public hearing was held in Canberra in on 27 April. The Committee received written submissions from the following companies and took evidence from their representatives:

- Hughes Aircraft Company
- Bassett Consulting Engineers
- Nicoll-Cooke Associates Pty Ltd
- Thomson Radar Australia Corporation Pty Limited
- Beca Simons Pty Ltd
- Peddle Thorp - Architects.

11. Further written submissions and letters were received by the Committee from the following:

- CAA

- Department of the Premier, Economic and Trade Development, Queensland State Government
- Civil Air.

Perth Public Hearing

12. On 11 May the Committee conducted a public hearing in Perth and the following organisations and individuals presented submissions and gave evidence:

- Civil Air
- Mr Wayne Ayliffe
- Mr Gregory Wilson
- Department of Transport, Western Australian State Government
- CAA.

13. Further submissions and letters were received by the Committee from the following:

- Association of Professional Engineers and Scientists, Australia
- Thomson Radar Australia Corporation Pty Limited
- Ansett Australia
- Bassett Consulting Engineers
- Hughes Aircraft Company.

14. The hearing in Perth was adjourned following a refusal by a representative of the CAA to answer certain questions from the Committee. Although in accordance with the provisions of the *Public Works Committee Act 1969* the Committee has the power to compel witnesses to answer questions, it was felt that the CAA should be given the opportunity of obtaining formal legal advice on these powers.

Further Canberra Hearings

15. On 25 May a public and private hearing was held in Canberra at which representatives of the CAA gave evidence. The private hearing continued on 26 May. At the public hearing further written submissions from the following organisations and individuals were also received as evidence:

- Mr Ted Butcher, Chairman, CAA
- Hughes Aircraft Company
- Thomson Radar Australia Corporation Pty Limited
- Civil Air
- Association of Professional Engineers and Scientists, Australia
- Mr David Maclean
- Mr Gregory Wilson.

Statement by Chairman

16. The CAA announced the selection of a preferred and alternate contractor shortly after the proposal was first referred to the Committee on 26 February. The preferred contractor was Thomson Radar Australia Corporation and the alternate contractor was Hughes Aircraft Company. On 3 June 1992, following the public and private hearings held in Canberra, the Chairman made a statement in the House of Representatives concerning the Committee's inquiry and the evidence presented to it. The Chairman's statement acknowledged that the principal role of the Committee is to satisfy itself of the need for public works. Nevertheless, by virtue of Section 17(1)(b) of the Act the Committee may report to the Parliament concerning any other matters related to a work which the Committee thinks should be reported to the Parliament. Accordingly, the Chairman stated:

> The Committee was also frustrated in the exercise of its duty by the unwillingness or inability of key CAA witnesses to answer relevant questions. Reluctantly the Committee conducted two *in camera* hearings, but even with this protection the CAA witnesses were still unwilling or unable to answer key questions.

By their refusing to answer these questions even in the general terms sought by the Committee, the Committee finds itself in the position of being unable to fulfil its duty to this Parliament. The Committee believes it would be failing in its duty if it did not bring to the attention of the House the concerns which have been expressed during the inquiry process regarding the CAA's decision to award the equipment contract to Thomson. These concerns include the following:

- whether the Thomson equipment is the best available
- whether the selection process conducted by the CAA was doctored to favour the Thomson bid
- why the preference of the technical and operational evaluation teams for Hughes was overturned.

In these circumstances, the Committee decided to take the unprecedented step of recommending the Minister for Shipping and Aviation Support (Senator Cook) set up an independent panel to carry out a thorough review of all aspects of the awarding of this contract to Thomson. The review should be completed as a matter of urgency so that the CAA can appoint a final contractor with a minimum of delay. The Public Works Committee stresses that this issue is too important for it not to be settled as soon as possible. The Committee feels that, because of the serious concerns it has regarding the TAAATS project, it cannot report to the Parliament until this review is completed. (Hansard, House of Representatives, 3 June 1992, p. 3411)

Independent Review

17. The independent review of the project was undertaken by Hon. Ian Macphee AO whose report was tabled in Parliament on 16 December 1992 – *Independent Review of the Civil Aviation Authority's Tender Evaluation Process for The Australian Advanced Air Traffic System – Parliamentary Paper 452/1992.*

18. In essence the review found:

- the original selection process was soundly based
- the original selection process was departed from in a manner which was both unsound and unfair
- the CAA Board was not properly and adequately informed of the results of the evaluation
- responsibility for this lay squarely with the Chief Executive Officer and with the officer principally responsible for TAAATS.

Review Recommendations

19. Mr Macphee's report made a number of detailed recommendations; the main ones for the purposes of the Committee's report and new initiatives which will be followed by the CAA were:

- the CAA revert to the original Registration of Interest (ROI) process and Thomson and Hughes be invited to enter specification development and pre-contract negotiations
- the proposed solutions of the finalists should include interim radar data processing systems for both Sydney and Brisbane and should take account of Australian industry participation opportunities.

20. The CAA Board accepted these recommendations and the project was subsequently restarted.

Reference Lapsed and Re-referral

21. The reference lapsed with the dissolution of the House of Representatives on 8 February 1993. The proposal was re-referred to the Committee on 17 July. The Committee advertised the recommencement of its inquiry and letters were sent to organisations and individuals who gave evidence to the previous inquiry.

31st Committee – Brisbane Inspections, Public and Private Hearings

22. The Committee inspected existing air traffic control facilities at Melbourne and Brisbane airports on 13 October 1993. On the following day public and private hearings were held at Parliament House, Brisbane. Representatives of the following organisations appeared before the Committee at the hearings:

- CAA
- Government of Victoria
- Civil Air
- FAC, Brisbane
- ACROD
- Thomson Radar Australia Corporation
- Hughes Aircraft Systems International.

23. At the request of Thomson and Hughes part of their evidence was heard in private.

24. The Committee also received submissions from the following organisations and individuals:

- Ansett Australia
- QANTAS Airways Limited
- Institution of Engineers, Australia
- Association of Professional Engineers and Scientists, Australia
- Australian Federation of Air Pilots
- Automotive, Metals and Engineering Union
- Brisbane City Council

- FAC, Melbourne
- Commonwealth Environment Protection Agency
- Mr Ron Brons
- Mr Tony Tsipouras.

Witnesses

25. A list of witnesses who appeared before the Committee at public and private hearings is at Appendix A.

Proceedings

26. With the exception of the evidence taken in private, the Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

27. The TAAATS project has had a long and tortuous development. This report, and the awarding of contracts for the provision of the equipment, software and buildings, scheduled for December 1993, will mark the end of a painful process and, hopefully, the beginning of a new chapter in Australian aviation.

Australian Airspace

28. Australia is responsible for providing Air Traffic Services (ATS) to more than 10% of the world's surface. This area includes vast areas of ocean, and vast areas of sparsely populated land areas. Areas along the eastern and southeast coasts have radar coverage for en route and terminal ATS. Perth and Darwin also have radar coverage. The remainder of the continent and oceanic areas are controlled by procedural methods.

Current ATS System

29. The current ATS system is based on five centres which control en route traffic. These centres, located at Melbourne, Sydney, Brisbane, Adelaide and Perth, also include terminal control sectors. Separate terminal control centres are also located at Canberra, Cairns and Coolangatta.

Re-equipment Projects

30. Over the past decade there have been several radar equipment enhancements, at various locations.

- the Air Traffic Control Automated Radar Display System (ATCARDS) was installed at Adelaide, Perth and Melbourne during the 1980s

- the ATCARDS Enhancement Project was enhanced by the Australian Civil Air Traffic System (AUSCATS) which has been installed at Cairns and Coolangatta

- the Radar Sensor Procurement Project (RASPP) provides a line of radar stations extending from Cairns along the eastern seaboard to Melbourne, across to Adelaide and in the south-west corner of Western Australia. The new sensors, provided by Thomson Radar Australia Corporation (Thomson), will expand radar coverage and improve the quality of radar data.

Cancelled Projects

31. The report of the independent review summarises other re-equipment decisions as follows:

> The CAA's history of pre-TAAATS re-equipment initiatives is one of piecemeal, 'band aid' solutions aimed at remedying the most urgent equipment deficiencies and automating the most awkward and labour intensive manual processes. The CAA was constantly in a situation where lack of strategic planning, lack of funds and lack of bold initiatives forced it to repair leaks in the hull rather than to design and build a new ship.
>
> The 1988 Flight Data Processing System (the FDP project) and the Radar Display Enhancement Program (RADREP) were good examples of this CAA approach. Having suffered from constant changes in objectives and time schedules, both programs were cancelled, along with some minor projects when, at the beginning of 1991, the CAA embarked upon the

completely different TAAATS strategy initiated at the beginning of 1991. (Report, p. 26)

32. Mr Macphee, who drew upon the expertise of two independent technical advisers, concluded that:

> The Review considers that the AUSCAT systems in Melbourne, Adelaide, Perth, Cairns and Coolangatta, which are supported by the strip printing facilities, are fully adequate for the next few years. The Review sees no reason for any particular haste to replace these systems with TAAATS. The Review is, however, concerned about the systems in Sydney and Brisbane. (Report, p. 22)

> The conclusion drawn by the Review is that the displays at Sydney and Brisbane must be replaced as a matter of urgency. (Report, p. 23)

33. Having inspected the Brisbane ATC centre, the Committee agrees with this assessment. The radar displays are antiquated, resulting in a need for greater separation between aircraft movements than is required by the more modern equipment in Melbourne.

Cancellation of Building Projects

34. The Public Works Committee was also caught up in this change of direction; two instances are worth highlighting. The first instance involved the cancellation of the construction of the Department of Aviation Central Training College, ACT. The object of the proposal was to consolidate ATC, flight service, flight standards, search and rescue, administration and ADP training in the one college. This project has been the subject of a project audit undertaken by the Auditor-General *(Audit Report No 8 1993-94 - Project Audit - Civil Aviation Authority - Centre for Air Traffic Services - 26 October 1993 - Parliamentary Paper 193/1993).*

35. The project was examined by the Committee in 1987. It was originally intended that the College be constructed on a site at Pialligo, near Canberra airport at an estimated cost of $11.2m. After the proposal had been referred to the Committee, the Minister for Aviation requested the Committee to examine the practicalities of the college being housed in Watson High School. The school required some conversion, estimated to cost $9.115m,

and a new building was required to house the ATC and flight service simulator being acquired by the department.

36. The Committee's report recommended the college be located at the former high school and not in purpose-designed buildings at Pialligo. It should be mentioned that considerable expenditure had been incurred in designing the Pialligo complex. The Watson High School project did not proceed. Cabinet decided in February 1988 on a joint program for the training of ATS staff to be established at the Tasmanian State Institute of Technology, Launceston.

37. The building project was completed for occupation in February 1989 and the simulator was available for use in August 1989. The College was called 'Centre for Air Traffic Services' (CATS). The centre accepted its first students in February 1989 and conducted five courses, each of two years study until the end of 1992. The establishment cost of CATS was $17.6m. The Auditor-General's report mentions that this cost was incurred by the CAA and recovered from the aviation industry through charges levied for operational costs.

38. A training review was undertaken between August 1991 and March 1992 at a time when the CAA was proceeding with the development of the TAAATS concept and the simplification of airspace management. The review recommended the ATC training be collocated at one of the operational centres. At the public hearing held in Brisbane on 14 October 1993, the CAA advised the Committee that a decision was taken to move training to the major TAAATS facilities and to close the Launceston facility. The Committee is extremely critical of the former Department of Aviation and the CAA in relation to this debacle. Had the original recommendations of the Committee been adopted, this debacle would not have occurred, and considerable sums of public funds would not have been wasted.

39. The second instance commenced in late 1990 when the Committee inquired into and reported on the proposed Brisbane Air Traffic Services Centre *(Parliamentary Paper 379/1990)*. This facility was never constructed. Construction of the proposed centre was contingent on the retention of the current five major ATC centres and their staged modernisation. The CAA advised the Committee at the public hearing held in October 1993 that whilst this approach had the benefit of spreading capital investment over many years, it had a number of disadvantages:

- the systems at various locations were of different vintages with varying capabilities – this precluded the establishment of a nationwide standard integrated system and would make the introduction of nationwide automation very difficult

- loss of economies of scale in procurement available from a more comprehensive approach.

40. Furthermore, the CAA acknowledged that the difficulties experienced in implementing system enhancements over recent years have proven that this type of approach is high risk, if not impractical, particularly as higher levels of automation are attempted.

41. In response to this situation the CAA Board, in March 1991, adopted a modernisation strategy for its core business activity – the provision of air traffic and navigational services. The Board endorsed the concept of consolidating ATS facilities and services as far as practical into two major Air Traffic Control Centres as the basis of planning for TAAATS.

Total System Approach

42. A total system approach was therefore adopted by the CAA. The system will comprise the following components:

- the consolidation of the present five ATS centres will be consolidated into two centres – in Brisbane and Melbourne. The two centres will handle all en route ATC for the entire country as well as the surrounding Flight Information Region (FIR)

- terminal area control, which covers a radius of approximately 80 km from airports, will be provided by Terminal Control Units (TCUs) to be established at Cairns, Sydney, Adelaide and Perth. Terminal area control for Brisbane and Coolangatta will be provided from the Brisbane centre and Melbourne and Canberra terminal area control will be provided from the Melbourne Centre.

- aerodrome control will be provided from control towers at each of about 30 qualifying airports.

Turnkey Method of Delivery

43. Delivery of TAAATS will be by a turnkey contract entered into between the CAA and the successful tenderer. This contract will include the supply and integration of a fully integrated computer based air traffic management and communication system. The contract will also include all building works associated with the project as well as some minor work associated with the TCUs.

44. The CAA advised the Committee that by adopting a turnkey approach it would be seeking proven systems and seeking interest to supply the entire system from organisations which have demonstrated success in the implementation, integration and commissioning of complete air traffic systems. The CAA believes that this approach will dramatically reduce risks and the potential for large cost and schedule overruns.

45. The Committee is aware of the benefits of the turnkey method of delivery. In 1991 the Committee examined the facilities required for the Jindalee Over-The-Horizon-Radar *(Committee's Twelfth Report of 1990 – Parliamentary Paper 380/1990)*. In this case the approach adopted was that all works were to be provided by the prime equipment contractor. The functional design requirements and certain specific design needs for the works were specified by the sponsoring department, along with performance specifications for the remainder of the system to be provided by the prime contractor. The TAAATS project is similar.

Implications of the *Public Works Committee Act 1969*

46. Section 18 of the Public Works Committee Act provides that:

> (5) A public work that has been referred to the Committee in accordance with this section shall not be commenced before a report of the Committee concerning the work has been presented to both Houses of the Parliament.
>
> ...
>
> (6) A public work that has been referred to the Committee shall not be commenced unless, after the report of the Committee (or, if there has been a further reference under the last preceding subsection, the report of the Committee on the

further reference) has been presented to both Houses of the Parliament, the House of Representatives has resolved that it is expedient to carry out the work.

...

(8) A public work the estimated cost of which exceeds six million dollars shall not be commenced unless –

(a) the work has been referred to the Committee in accordance with this section;

47. These provisions of the Public Works Committee Act stipulate that before the work can commence, the Committee is required to present its report and the House of Representatives to resolve that work may proceed. For the purposes of this report it should be noted that commencement of a work is taken to include the signing of contracts. For this reason a turnkey contract for the total TAAATS project may not be entered into before the Committee has reported to both Houses of the Parliament and House of Representatives has resolved that it is expedient to carry out the building work.

Project Re-started

48. Following Mr Macphee's report Hughes and Thomson entered a final competitive specification development phase for the TAAATS turnkey contract with the CAA. This phase commenced with a statement of the CAA's requirements which the two tenderers had the opportunity to examine and respond to in considerable detail, in writing and in a series of discussions. As a result of these responses and discussions, the CAA re-examined its requirements baseline and made a number of adjustments to them. The refined requirements baseline was the basis for the detailed specifications which the two tenderers brought forward.

49. The best and final offers of both tenderers were submitted to the CAA on 5 October. The tenders are being evaluated in accordance with a process endorsed by both tenderers in March 1993. The Committee was advised that the tender evaluation committee would meet to consider the tenders during the first half of November and present its conclusions for consideration by the CAA Board in early December. The CAA indicated a firm expectation that a contract would be signed before Christmas.

Selection Criteria

50. The CAA's *Request for Tender for the provision of the ATS centres, TCUs and associated systems* states that the best and final offers will be evaluated with reference to the following major and minor criteria:

Major Criteria

- operational and technical performance, logistics support and schedule
- price and other financial issues
- risk
- Australian industry involvement.

Minor Criteria

- acceptability of technical/operational specification of the interim radar display system
- cost, delivery schedule of the interim radar display system
- company and contractor credentials and claims as to ability to undertake projects of this magnitude
- proposed project management procedures
- reliability, maintainability and availability of failure modes and backup modes including disaster recovery capabilities
- potential for enhancement of the offered system
- proposed installation, training, testing and transition programs
- performance in the demonstration of the interim radar display system.

Local Content

51. There was considerable criticism of the lack of Australian industry participation in the project in evidence presented to the Committee during 1992. Accordingly, the Committee questioned the CAA about the level of Australian involvement in the project and about local content. The CAA advised the Committee that the Department of Industry, Technology and Regional Development has placed very heavy requirements on both bidders to maximise Australian involvement in not just the buildings but in the whole technical solution to TAAATS. Guidance passed to the bidders about Australian involvement focuses on six criteria:

- local content
- in-country support - reflecting a CAA requirement that for key elements of the system support from within Australia would be assured; this would obviate a continued dependence on overseas sources for repairs and development activities
- transfer of capabilities and skills to Australian industry
- potential for export generation
- the extent to which the prime contractors are prepared to enter into collaborative research and development work with Australian companies - not only in transferring the technology, but also enhancing it
- a long term strategic commitment - where the companies would indicate if they were prepared to enter into long-term strategic commitments to base some of their future development work in Australia.

Supervision of Contractor Performance

52. The Committee questioned the CAA about the manner in which it is proposed to maintain supervision of the project. The CAA advised the Committee that during discussions with both tenderers there had been very detailed examinations of the specifications which they had developed. These specifications, which were submitted to the CAA as part of the tenderers' best and final offers, will be integrated into the turnkey contract and will

become the basis on which the contract will be executed. There are provisions within the contract for a very strict regime of project management reviews at various levels. The CAA advised the Committee that:

> The CAA's role and prerogative in those reviews will be to demand that everything that has been specified in the contract is in fact implemented at the level of functionality, quality and performance that the contract calls for. We [the CAA] will have every right to require the contractor to take a particular course or to deviate from a course if there is any indication that the course they are pursuing would not produce the result that the contract requires them to produce. In the final analysis there will be a program of site acceptance testing, defined initially, the day the contract is signed. There will be site acceptance testing requirements imposed through the contract. If they do not meet those requirements then they do not get their money. (Transcript, Public Hearing, 14 October 1993, p. 90)

Reimbursement of Unsuccessful Tenderer

53. Arrangements entered into between the CAA and the tenderers call for the cost of the specification development of the unsuccessful tenderer to be paid for by the CAA. The CAA advised that $4m had been set aside for this purpose.

Appointment of Independent Auditor

54. When the project was restarted, the CAA Board appointed an independent auditor to assure the Board that all processes involved in the selection of the successful tenderer for the TAAATS project are conducted with the utmost probity and fairness. The auditor reports directly to the Board. The auditor's role is:

- to monitor the TAAATS evaluation and selection process
- to ensure that the selection process is appropriate
- to ensure that the selection process is conducted in as fair and unbiased a manner as is practicable.

55. The auditor has the responsibility to:

- satisfy himself that the principal contractual documents provided to the companies by the CAA are framed in a neutral and unbiased manner
- ensure that the companies are given equal opportunity to meet the CAA's requirements for TAAATS
- monitor the contracts, documentation and procedures of the Department of Industry, Technology and Regional Development and the evaluation of Australian industry involvement for the project
- participate in the meetings of the tender evaluation committee
- keep the CAA Board regularly informed
- meet with each of the contending companies on a regular basis to be assured that, from their point of view, they are satisfied that the specification development phase is conducted in an even-handed way and their interests in the evaluation process are being addressed fairly and are given due consideration
- consider and report to the tender evaluation committee and to the CAA board on the relevance, integrity, probity and fairness of the evaluation of tenders in respect of technical and operational aspects, financial aspects, risk and Australian industry involvement.

56. At the public hearing the independent auditor advised the Committee:

> I have been assured by the companies that they believe the processes to date have been fair and that they have been given every opportunity to interact with the CAA in the preparation of their best and final offers. Both companies acknowledge they have been able to establish with the project office an excellent working relationship and understanding during the specification development phase. I believe this is important, for whichever company is finally chosen, that company and the CAA must have the confidence that they can work together effectively to

> bring about a successful project outcome. I believe that the processes that have been followed to date have given both companies every opportunity to fully understand the CAA's requirements and for both companies to be in an equal position to submit a winning bid. (Transcript, Public Hearing, 14 October 1993, p. 99)

Safety and Changes in Airspace

57. The Committee went to considerable lengths to assure itself that the TAAATS concept is sound. It believes it is. A number of questions concerning safety were pursued with the CAA at the public hearing. It may be argued that some of these issues are outside the Committee's purview. Nevertheless the Committee believes it should report on them.

58. The first issue concerns the implications on the TAAATS project of the deferral of the introduction of changes to Australian airspace which were due to be implemented on 1 November this year. Mr Roser, the Chief Executive Officer of the CAA advised the Committee as follows:

> These changes [to Australian airspace] were planned to have been implemented in November but the Board has decided to further address one component of the new design, particularly related to Instrument Flight Rules (IFR) operations in Class G airspace.
>
> The Board acknowledged and appreciated that the Authority had widespread support in the aviation industry for its proposal to commence the new International Civil Aviation Organisation (ICAO) - based model in November. However, it was not prepared to proceed unless the industry had confidence in the entire change, particularly with regard to IFR activity in designated Class G airspace. This further consideration is to include advice from the Civil Aviation Administrations from the USA and Canada and further consultation with industry on the airspace changes, costs and safety aspects of our proposal.
>
> As far as I am concerned, safety in the aviation industry is of paramount importance and changes will not be implemented until the issue is resolved. These deliberations will not affect the timing of TAAATS, and whatever model is finally adopted for

Australian airspace can be incorporated in TAAATS. (Transcript, Public Hearing, 14 October 1993, pp.47-8)

59. The second safety-related matter about which the Committee questioned the CAA concerned the former requirement for pilots using uncontrolled airspace above 5000 feet, travelling more than 50 miles, to lodge flight plans. (For the past 30 years there has not been a requirement for flight planning for aircraft in uncontrolled airspace operating below 5000 feet.) Mr Brooksbank, General Manager, Air Traffic Services advised the Committee as follows:

> Outside controlled airspace, in uncontrolled airspace, we did have, up to December 1991, the flight plan requirement with full flight following, which was what the Flight Service function was doing. It was in fact running strips of the progress of all aircraft above 5000 feet. The cost at that time of running the Flight Service was of the order of $120m per annum. Under the proposals in December 1991 for the termination of flight service, these costs, of course, were to be reduced.
>
> We have, in progressing towards the 11 November decision for Flight Service not continuing, reduced those costs quite dramatically as we have come down in size and we have consolidated from around the country through the satellites into our main capital cities to operate the service. There are two things here. One is lodging of flight plan details. That of itself is not that expensive, clearly, but if you then have a flight following then that is quite manpower intensive and communications technology intensive across the continent. If you do not have the flight following, the problem emerges that if the pilot lodges a flight notification and then changes his mind, if he does not tell somebody, we will be looking in the wrong position if the person becomes lost. (Transcript, Public Hearing, 14 October 1993, p.66)

60. The third safety-related matter concerns making it compulsory for all aircraft to be fitted with emergency locater beacons. The Committee was advised that the CAA did propose to the aviation industry about 1-2 years ago that ELBs be made compulsory for all aircraft. The industry was not supportive. Nevertheless, the CAA very strongly encourages all aircraft to

have ELBs fitted; it is a requirement in certain remote areas. At the time of the public hearing a regulatory proposal was under review by the CAA.

THE NEED

61. The need for the two major centres and the TCUs is based on the proposed introduction of TAAATS. The Committee examined a number of facets of the need for the works. First, the need for the two major centres to be located in Brisbane and Melbourne and secondly, why new buildings to house the centres are required. The Committee also focussed attention on the justification of the size of the proposed buildings.

Why Brisbane and Melbourne

62. Most of the air traffic in Australia is concentrated along the eastern seaboard. CAA indicated that the TAAATS concept would make it possible to consolidate all en route control into one centre. This would offer lower costs but would involve unacceptable risks in the event of a major catastrophe. The CAA advised the Committee that consolidation of control into two centres, either of which would have the capability to absorb the workload from the other in an emergency, would be acceptable. The question remains, however, why these centres should be in Brisbane and Melbourne. The CAA justified the location of the centres at Brisbane and Melbourne on the following grounds:

- much of the CAA's communications infrastructure terminates around the Brisbane and Melbourne hubs

- either en route centre would have the capacity to back up the Sydney Terminal Control Unit

- the CAA has had a history of being short staffed in Sydney because higher living costs made staff reluctant to move there. To attempt to increase the number of staff in Sydney by locating one of the consolidated centres there would have exacerbated this problem

- it would be possible to locate one of the centres at either Adelaide or Perth, but there are advantages in locating the centres towards the busiest traffic areas to minimise communication loads and costs; in other words, it is more cost

effective to carry across to Melbourne the smaller volume of communications traffic needed to serve the Perth and Adelaide airspace than it would be to carry across to Perth or Adelaide the high volumes of Communications traffic needed to serve the busy Melbourne - Canberra - Sydney routes

Location of Brisbane Centre

63. The present air traffic services centre at Brisbane, and its facilities, were commissioned in 1967. The centre was originally responsible for providing ATS in the southern half of Queensland. Recent consolidations have extended the area of responsibility to all of Queensland. Mr Macphee recommended that until the TAAATS facilities are available, interim radar display systems should be provided by the successful TAAATS contractor. It is proposed to install them in 1994 to replace existing unsatisfactory radar displays.

64. After inspecting the existing centre, the Committee is convinced that because of its age, size and the mechanical and engineering services available, it would not be suitable for converting into a new centre to support TAAATS.

65. Under the TAAATS proposal the new Brisbane centre will be responsible for about half of Australia's airspace – covering half of NSW, all of Queensland and the Northern Territory, some of the northern part of Western Australia and the oceanic airspace to the north-east. The area under surveillance will therefore be substantially increased and may be served by 16 radar sensors. The new Brisbane centre will also provide terminal area ATS for Brisbane and Coolangatta airports.

66. A number of sites were considered for the new Brisbane Centre. The two most favoured were:

- adjacent to the CAA administration building and control tower at Brisbane Airport

- the former Australian Airlines terminal site at the old Brisbane Airport (Eagle Farm) which was proposed previously for the Brisbane Air Traffic Services Centre.

67. The administration building and control tower house various CAA activities, including sections of ATS, administration and communications equipment. CAA management and staff all favoured consolidation of all ATS to a common location which strongly identifies with the aviation industry.

68. The CAA advised the Committee of negotiations with the Federal Airports Corporation on a long term lease for the site. The CAA believes these negotiations suggest commercial advantage in selling the former Australian Airlines terminal site and locating the Brisbane centre on land leased from the FAC.

69. The CAA now believes that the former Australian Airlines Terminal site is too large for the requirements formerly contemplated. Other disadvantages of the site include its proximity to a fuel storage depot, its requirement for the provision of additional communications links which already exist at the control tower complex, and problems of security.

Melbourne Centre

70. The present Melbourne air traffic control centre was built in the early 1980s to serve airspace over a major part of south-eastern Australia. The Committee was given access to a CAA report, dated 18 March 1992, which examined the possible re-use of the existing buildings comprising the Melbourne ATC centre to provide accommodation for the Melbourne Centre. The report concluded that based on the TAAATS tenders' identified requirements at the time - 5770m^2 -

> The reuse of the existing buildings to fulfil the total needs of the TAAATS Project in Melbourne, whilst maintaining existing operational functions during the transition, is possible. However, this approach is not without risk.

71. The risks mentioned in the report concerned mainly uncertainties about the work required interfering with the schedule for the provision of the equipment, and risks associated with current operations being maintained during reconstruction or refurbishment. The report also mentioned that no analysis was undertaken to the extent of work which the buildings required to ensure compliance with the Building Code of Australia nor had a structural analysis been carried out to confirm that it would be possible for the roof covering the operations area to be lifted and that walls

identified for removal were not structural. The report concluded that a strategy of re-use would cost about $20m

72. The new centre will have a vastly expanded area of responsibility. It will be responsible for all en route air traffic services for most of Western Australia, South Australia, Victoria, Tasmania and half of NSW plus airspace over the Indian Ocean, Tasman Sea and southern Pacific Ocean.

73. The new centre will also be responsible for the provision of terminal ATS for Melbourne and Canberra

74. The Victorian Government indicated strong support for the location of the centre in Melbourne. A written submission from the Premier of Victoria made the following points:

- Melbourne is acknowledged as the aviation capital of Australia
- Melbourne is strong in systems research and development - a number of local organisations have strong links with the CAA
- Melbourne airspace is the most heavily trafficked in the proposed South West Region
- Melbourne Airport has significant existing air traffic control infrastructure
- the proposed site at Melbourne Airport is free from radio interference, is in accord with Melbourne airport strategy and will continue to have good security
- the majority of staff in the South West Region are located in Melbourne
- for those staff required to relocate - there is a choice of quality urban, semi urban or rural property close to the airport.
- the Victorian Government is offering $900 000 towards building infrastructure costs and $100 000 towards relocation costs for air traffic controllers.

75. The Committee was advised that the South Australian Government offered the CAA an assistance package to locate the centre in Adelaide. This was valued at about $6m which included the provision of land. The cost advantage of this offer was eroded due to the considerable costs associated with the relocation of the CAA's communications hubs from Melbourne to Adelaide.

Number of Staff at Centres

76. The Committee also questioned the CAA on the numbers of air traffic controllers and technical staff in the existing control centres at Brisbane and Melbourne and in the new centres. The table below shows current and post TAAATS staffing levels:

Air Traffic Control Staff

	Total Staff	Staff/ Shift
Brisbane existing AACC	135	50
Brisbane - new centre	320-350	150-160
Melbourne existing AACC	155	60
Melbourne - new centre	320-350	150-160

Technical Staff

Brisbane existing AACC	30	18
Brisbane - new centre	20-25	15
Melbourne existing AACC	38	18
Melbourne - new centre	20-25	15

Committee's Conclusions:

77. To ensure the integrity of TAAATS, there must be two Air Traffic Control centres to provide the en route air traffic control envisaged.

78. Location of the centres at Melbourne and Brisbane airports will enable the CAA to utilise existing communications infrastructure which terminates there.

79. Existing air traffic control facilities at Brisbane and Melbourne would be inadequate to house and support equipment and systems envisaged by the CAA.

THE PROPOSAL

Scope

80. The scope of the proposed works comprises the construction of air traffic control centres at Brisbane and Melbourne. TCUs in Cairns, Sydney, Adelaide and Perth will be located in existing buildings which will be refurbished prior to the installation of new radar control consoles.

81. The Committee questioned the CAA about the advantages of the turnkey approach in relation to the proposed building works. In terms of the buildings the turnkey approach will enable the CAA to take advantage of a competitive situation. The CAA provided the tenderers details of the functions which the buildings must be able to perform - operational capacities and technical support and the competitive pressure has been used to stimulate the production of the most cost-effective means of providing for the functions and capabilities required.

Design Philosophy

82. The tenderers for the TAAATS contract are able to employ innovation in building styles and techniques. Their designs are nevertheless required to maintain critical functional requirements and interrelationships between functional zones defined by the CAA. During the *in camera* hearings the Committee was able to see designs being proposed by each tenderer. The functional layouts are essentially the same and both tenderers are proposing two-level buildings. The Committee is unable to comment further on specific designs submitted by the tenderers, but they are required to comply with the CAA's Requirements Baseline Document as well as Room Data Sheets.

83. Specific design requirements are:

- a secure environment for staff and facilities
- highly reliable systems and services
- energy efficiency and low life-cycle costs
- a satisfactory working environment
- provision for future expansion in appropriate areas
- buildings which are capable of rapid recovery after a natural disaster (storm, earthquake, flood)
- the avoidance and minimum disruption and inconvenience to CAA operations during the construction phase
- the use of sophisticated technology in the centres
- compatibility with the appearance of existing facilities.

Access for Disabled

84. A submission from the Access sub-committee of the Australian Council for Rehabilitation of the Disabled indicated that the right of equal access to the buildings should be reflected in the detailed design of the two centres. The CAA advised the Committee that:

> The Air Traffic Services centre buildings and any additions to TCUs must be permanent structures meeting the demands of the Building Code of Australia, Australian standards, and all other relevant statutory authority regulations, including equal employment opportunities and ACROD, occupational health and safety, and special access requirements. So we have made it quite clear through that [baseline requirements] document to both companies that all requirements of all codes and equal employment, and especially access for disabled, must be incorporated into the building. If necessary, we can go further and have some discussions. (Transcript, Public Hearing, 14 October 1993, pp.227-8)

Committee's Recommendation

85. ACROD should be consulted during the development of detailed designs to ensure right of equal access is achieved.

Functional Zones

86. Each building will be divided into four functional zones. The estimated total floor area required to accommodate these zones is about 7000m^2. The CAA has prepared indicative estimates of floor areas and staff numbers for the zones. The CAA considers these estimates as being representative of the facilities and functions which need to be accommodated in the centres. The CAA advised the Committee that the responsibility for ensuring that appropriate facilities are provided for various functions rests with the tenderers. The CAA has specific requirements for certain room areas within each functional zone. The functions of each zone are:

- Operations - Zone 1 - functional area (approx) 2500m^2 - provides the ATS operations centre, training and disaster recovery, supervision and support facilities.

- Equipment - Zone 2 - functional area (approx) 1800m^2 - provides equipment for radar data processing, flight data processing, data and voice communications and audio equipment, maintenance, supervision and support centre facilities.

- Services - Zone 3 - functional area (approx) 1300m^2 - provides standby and no-break power systems, airconditioning equipment and electrical and mechanical support facilities. The Zone will be vibration and noise isolated from all other zones to reduce the likelihood of interference. It will also be fire isolated from the rest of the building.

- Administration - Zone 4 - functional area (approx) 800m^2 - provides management and administrative support and includes general amenities. This area will be the focal point for public access.

Basis of Cost

87. The Committee questioned the CAA about the basis for the costing of the entire building element of the project. The buildings are not office blocks but more in the nature of sophisticated computer centres. On this basis the unit costs which the CAA used and which were received from the two tenderers were very much in the order of what could be expected.

Interior

88. Internal fittings and finishes will be of a standard suitable for the intended use of the buildings and will provide or consist of the following:

- access flooring in operations, software support, simulator, data processing and communications areas
- suspended acoustic panel ceilings
- painted plasterboard and glazed internal partitions
- carpet or carpet tiles throughout, apart from data processing, communications, wet areas and service areas
- ceramic tiling to floors and walls in wet areas.

Exterior

89. External wall finishes will be:

- insulated wall panels which are durable and require minimal maintenance
- tinted, heat-absorbing glass, double glazed where necessary
- metal roof decking.

Capacity for Expansion

90. The Committee questioned the CAA if it would be possible to enlarge some parts of the buildings in the future. The CAA indicated that the two

tenderers have approached their designs to provide for relatively easy expansion with minimum disruption to the operations room

Child Care Facilities

91. The proposed buildings do not make provision for work-based child care facilities. The CAA advised that during school holiday time an area used as a gymnasium or meeting area in the Canberra office is made available as a child care facility. Similar arrangements could be made in Brisbane or Melbourne should there be interest and demand from staff at the new centres.

Structural

92. Foundations will be designed to suite conditions unique to each site. The structures of both centres will be a combination of reinforced concrete and steel.

Services

93. A very high level of reliability is required of the building services to be provided. The philosophy adopted for building services therefore includes the provision of:

- highly reliable and standby plant to ensure a high level of availability and maintainability
- energy efficient plant with low life cycle costs
- plant which has fully integrated systems that are relatively simple to operate and maintain
- essential services which are capable of rapid recovery after a natural disaster
- maintenance facilities to allow a rapid response to any problems
- provision for future expansion in appropriate areas.

Electrical

94. Operational facilities in the buildings will be supplied with continuous, conditioned power supported by standby generating plant and no-break systems with appropriate redundancy to ensure a high degree of reliability and maintainability. Special lightning protection, earthing, telephone, data and security systems will be provided.

95. A services control and monitoring system will be provided at each centre. These systems will provide accurate and remote control of mechanical systems, monitoring of critical operations, plant alarms and optimisation of energy management systems.

Mechanical

96. Operational areas will be airconditioned with highly reliable systems with appropriate redundant plant. Stringent environmental parameters for these areas are essential to maintain equipment and personnel performance. The remainder of the centres will be airconditioned with conventional central plant airconditioning systems.

Fire Services

97. All necessary fire detection, protection and emergency communications systems will be installed to comply with relevant Australian Standards.

Site Services

98. High voltage power will be provided to each of the centres. At Brisbane, existing underground water, fire, stormwater and sewerage services are adjacent to the proposed site and will be used for the project. At Melbourne the water supply to the site will be upgraded to meet relevant Australian Standards. All other existing services will be utilised.

Security

99. Both buildings will be secured with electronic access control and surveillance systems.

Car Parking

100. The car parks will be of sufficient size to accommodate staff and visitor car parking.

Committee's Conclusions

101. The dimensions and the functional layout of the proposed centres appear to be adequate and provide for future expansion if necessary.

102. The extent of services to be provided reflects a need for high levels of reliability to be maintained.

Committee's Recommendation

103. The CAA should brief the Committee on the detailed design of each centre following the awarding of the contract for TAAATS.

Terminal Control Units

104. The TAAATS project provides for the establishment of TCUs at four airports - Cairns, Sydney, Adelaide and Perth. The proposed work at all locations will involve the installation of new equipment and facilities within the existing CAA buildings. This will optimise the use of the facilities and will result in cost savings.

Cairns

105. This is a relatively new CAA facility and will require only minor modification to accommodate the new equipment. There will be no requirement for mechanical work and only minor improvements to the existing electrical system will be provided.

Sydney

106. The facility at Sydney (Kingsford-Smith) Airport is an older building. It is proposed to refurbish an area on the first floor to provide a suitable space for the new equipment and staff. Complete new electrical and mechanical services will be provided along with an upgrade of the security system and the fitout. The CAA believes this will ensure a pleasant and attractive working environment for the staff at the facility.

Adelaide

107. It is proposed to redevelop space within the existing operations building to provide an arrangement to suit existing floor plans and doorways to minimise disruption to on-going operations. Minor upgrades of mechanical, electrical, security and fire protection services will be provided.

Perth

108. In Perth, a similar arrangement to that proposed for Adelaide will be provided. Some minor upgrading of the fire protection system and mechanical services will be needed.

Committee's Conclusion

109. The extent of the work required to accommodate the Terminal Control Units at Adelaide, Sydney, Cairns and Perth is justified and makes good use of existing buildings.

ENVIRONMENTAL MATTERS

110. The Brisbane and Melbourne centres will be located in areas zoned for the intended purposes. The CAA considers that there will be no adverse environmental impact as a result of the project.

111. The CAA advised the Committee that due regard has been given to the effects that the centres will have on the environment. Features of the design include:

- visual compatibility with surroundings
- fully landscaped areas around the centres and car parks
- energy efficient designs resulting in less electrical generation plant emissions
- compliance with authority and agency emission requirements

- waste flows (sewerage and stormwater) will not be great and will be adequately handled by existing infrastructure with minor modifications where required.

- any increased vehicular traffic can be easily accommodated by the existing road systems.

CONSULTATION

112. One feature strikingly evident at the 1993 public hearing was the good-will which had been established between the CAA and professional staff associations, particularly in regard to consultative processes. The Committee received written submissions from three staff associations whose broad thrust was in marked contrast to submissions received by the Committee at public hearings held in 1992.

Automotive, Metals and Engineering Union

113. The Automotive, Metals and Engineering Union indicated support for the project. The union is satisfied with the outcome of the independent review into the TAAATS project and is pleased that it is now finally proceeding in accordance with the recommendations of the review.

Association of Professional Engineers and Scientists, Australia

114. This association advised the Committee that the majority of the issues raised at previous public hearings are no longer considered to be major issues. The two exceptions were:

- the loss of a large number of experienced engineers and the high workload imposed by the TAAATS and other projects, means the CAA is understaffed - the association supports initiatives to improve the situation

- the CAA's technical support role to Australian industry lacks adequate definition.

Civil Air Operations Officers' Association

115. Following the tabling of the report of the Independent Review the CAA and Civil Air signed a memorandum of understanding setting out the

nature and extent of the Association's involvement in the project. Civil Air advised the Committee that the TAAATS project management has made comprehensive use and input from experienced air traffic controllers in the refinement of the baseline specifications and the evaluation process. Civil Air will remain involved in processes leading to the final submission to the CAA Board. Furthermore, the appointment of independent process auditors and external software development risk assessment consultants lead Civil Air to be confident that, within the guidelines recommended by the Independent Review, the final contract will be let to the organisation best able to deliver the required system. However, the question of the responsibilities of the TCUs remains unresolved.

116. Civil Air maintained that TCUs should be able to control airspace within 80-90 miles of Sydney and Adelaide and to the limit of radar coverage (250 miles) in the case of Perth. The Committee was advised that as recently as July 1993 the CAA had rejected this concept and has adopted a control radius of 30-45 miles for Adelaide, Perth and Sydney. Civil Air pointed out that whilst these matters may not be of direct concern to the Committee, they will impact on the facilities required for TCUs at Adelaide, Perth and Sydney. For example, by increasing the number of radar positions at the TCUs, the number of positions required in the proposed new centres would be reduced. Civil Air believe that there would be considerable potential for significant savings and infrastructure costs if use is made of existing buildings in Adelaide, Sydney and Perth.

117. The CAA advised the Committee that continued discussions with Civil Air have not led to agreement on the extent of airspace to be controlled from some of the TCUs. It is not appropriate for the Committee to become involved in this issue. Nevertheless the Committee believes that the CAA and Civil Air should resolve the issue as quickly as possible.

Institution of Engineers

118. The Institution of Engineers made a number of comments to the Committee in a written submission. These relate in the main to the turnkey concept and associated costing, the size of the proposed centres, alternatives considered and budget control arrangements. The CAA advised the Committee that information contained in the requirements baseline document and the specifications received as part of the tender answer most of the concerns of the Institution. This includes project management, systems engineering and integration and risk analysis.

FINANCING THE PROPOSAL

119. The TAAATS project will be funded through a combination of internally generated funds and external borrowing and the buildings and associated engineering services have been estimated by the CAA to be about $50m. The anticipated spread of expenditure is envisaged to be as follows:

93/94	94/95	95/96
$10m	$35m	$5m

Committee's Recommendation

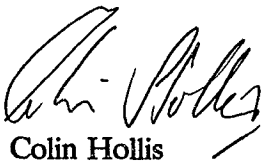
120. The Committee recommends the construction of Air Traffic Control Centres at Brisbane and Melbourne and refurbishment works at Adelaide, Sydney, Cairns and Perth for the Terminal Control Units at an estimated cost of $50m.

CONCLUSIONS AND RECOMMENDATIONS

121. The conclusions and recommendations of the Committee and the paragraph in the report to which each refers are set out below:

		Paragraph
1.	To ensure the integrity of TAAATS, there must be two Air Traffic Control centres to provide the en route air traffic control envisaged.	77
2.	Location of the centres at Melbourne and Brisbane airports will enable the CAA to utilise existing communications infrastructure which terminates there.	78
3.	Existing air traffic control facilities at Brisbane and Melbourne would be inadequate to house and support equipment and systems envisaged by the CAA.	79
4.	ACROD should be consulted during the development of detailed designs to ensure right of equal access is achieved.	85
5.	The dimensions and the functional layout of the proposed centres appear to be adequate and provide for future expansion if necessary.	101
6.	The extent of services to be provided reflects a need for high levels of reliability to be maintained.	102
7.	The CAA should brief the Committee on the detailed design of each centre following the awarding of the contract for TAAATS.	103
8.	The extent of the work required to accommodate the Terminal Control Units at Adelaide, Sydney, Cairns and Perth is justified and makes good use of existing buildings.	109

9. **The Committee recommends the construction of Air Traffic Control Centres at Brisbane and Melbourne and refurbishment works at Adelaide, Sydney, Cairns and Perth for the Terminal Control Units at an estimated cost of $50m.** 120



Colin Hollis
Chairman

16 November 1993

APPENDIX A

WITNESSES

ADAMS, Mr Grantley David, Vice-President Technical, Civil Air Operations Officers' Association of Australia, 202 Berkley Street, Carlton, VIC, 3053

AYLIFFE, Mr Anthony Wayne, Air Traffic Controller, 10 Bronte Court, Munster, WA, 6166

BAILEY, Mr Graham John, Association of Professional Engineers and Scientists, Australia Nominee on Civil Engineering/Building Matters, C/- Civil Aviation Authority, PO Box 367, Canberra City, ACT, 2600

BELFORD, Mr Robin William, Marketing Manager, Thomson Radar Australia Corporation Pty Limited, Unit 1, 151 Newcastle Street, Fyshwick, ACT, 2609

BROOKSBANK, Mr Buckhurst Alan, General Manager, Air Traffic Services, Civil Aviation Authority, 25 Constitution Avenue, Canberra, ACT, 2601

BROWN, Mr Donald Graeme, Assistant General Manager, Air Traffic Services, Queensland, Civil Aviation Authority, 363 Adelaide Street, Brisbane, QLD, 4000

COFFEY, Mr John Innes, Director, Hughes-Bassett Consulting Engineers, 616 St Kilda Road, Melbourne, VIC, 3004

COLLIER, Mr Paul Harton, Director, Beca Simons Pty Ltd, 615 St Kilda Road, Melbourne, VIC, 3000

CURTIS, Mr Peter James, President, Civil Air Operations Officers' Association of Australia, 202 Berkley Street, Carlton, VIC, 3053

DWORJANYN, Mr Peter Eugene, Design Associate, Peddle Thorp: Architects, 7th Floor, 394 Collins Street, Melbourne, VIC, 3000

ECKHARDT, Mr William Roland, Building Coordinator, TAAATS Acquisition, Civil Aviation Authority, 363 Adelaide Street, Brisbane, QLD, 4000

EDWARDS, Dr Robert John Gillies, General Manager, Projects Division, Civil Aviation Authority, Alan Woods Building, 25 Constitution Avenue, Canberra City, ACT, 2600

EVANS, Mr Peter Kenneth, Assistant General Manager, Air Traffic Services, Victoria-Tasmania, Civil Aviation Authority, P O Box 1093, Tullamarine, VIC, 3043

FUNGE, Mr Peter Arthur, Project Manager, TAAATS, Hughes Aircraft Co., 103-105 Northbourne Avenue, Turner, ACT, 2601

GALE, Mr David James, Acting General Manager, Technical Services Division, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

GALLAGHER, Mr Francis Damien, Executive Consultant, Western Australia Department of Transport, 136 Stirling Highway, Nedlands, WA, 6009

GRAHAM, Mr Robin Elton, Operations Coordinator, TAAATS, Civil Aviation Authority, Alan Woods Building, 25 Constitution Avenue, Canberra City, ACT, 2600

GREENWOOD, Mr Peter Keith, Buildings and Civil Works Manager TAAATS, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

HERRON, Mr Sydney Bruce, Project Director Aviation in Department of Business and Employment, Victorian Government, 228 Victoria Parade, East Melbourne, VIC, 3002

HIDER, Mr Peter William, Project Manager TAAATS, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

JONES, Mr Kimball Peter, Assistant General Manager, Air Traffic Services (Western Australia), Civil Aviation Authority, CAA Administration Building, Fauntleroy Avenue, Redcliffe, WA, 6104

JONES, Mr Robert Edward, Design Consultant, ACROD (Queensland) Access Subcommittee, K-Tower Building, Cnr Wickham and Ballow Streets, Fortitude Valley, Qld, 4006

KENDAL, Mr Brian Fleming, Assistant General Manager, Airspace Management and Procedures, Air Traffic Services Division, Civil Aviation Authority, PO Box 367, Canberra City, ACT, 2601

KOLETSIS, Mr Nicholas, Acting National Industrial Officer, Metals and Engineering Workers' Union, 174 Victoria Parade, East Melbourne, VIC, 3002

Le MESURIER, Mr Timothy John, Canberra Office - Association of Professional Engineers and Scientists Australia delegate, Mechanical Engineering Section, C/- Civil Aviation Authority, Canberra City, ACT, 2600

LOVETT, Mr Des, Managing Director, Nicoll-Cook Associates Pty Limited, Australian consultant to, and representative of, the Hughes Aircraft Co, 175 Collins Street, Melbourne, VIC, 3000

MacLEAN, Mr David Alistair, Western Australian Divisional Councillor, Civil Air Operations Officers' Association of Australia, 70 Temby Avenue, Kalamunda, WA, 6076

McALEER, Mr John Gerard, Manager Air Traffic Control (Western Australia), Civil Aviation Authority, CAA Administration Building, Fauntleroy Avenue, Redcliffe, WA, 6104

McMILLAN, Mr James Albert, Manager, Business Development, Federal Airports Corporation, Banksia Place, Brisbane Airport, Brisbane, Qld, 4007

MALTBY, Mr George, Chairman, Thomson-CSF Pacific Holdings Pty Limited, 16 National Circuit, Barton, ACT, 2600

MELEN, Mr Lawrence Sidney, Engineering Manager, TAAATS, Hughes Aircraft Co., 1901 West Malvern, Fullerton, California, United States of America 92634

MOTEN, Mr John Michael, Independent Auditor, Civil Aviation Authority, Alan Woods Building, Level 1, 25 Constitution Avenue, Canberra, ACT, 2601

MORSE, Mr Colin Marshall, Chief Property Officer, Coporate and Employee Relations Division, Civil Aviation Authority, PO Box 367, Canberra City, ACT, 2601

NADENBOUSCH, Mr Bruce, Director Industrial Relations, National Office, Association of Professional Engineers and Scientists, 360 King Street, West Melbourne, VIC, 3003

ORKNEY, Mr Keith Raymond, District Manager Perth, Technical Services Division, Civil Aviation Authority, CAA Administration Building, Fauntleroy Avenue, Redcliffe, WA, 6104

PEAKE, Mr Robert Clive, Technical Manager TAAATS, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

PECK, Mr Michael Laurence, National Director, Practice, Royal Australian Institute of Architects, 49 Exhibition Street, Melbourne, VIC, 3000

PINNEY, Mr Brian (Barney), Vice-President Technical, Civil Air Operations Officers Association of Australia, 202 Berkeley Street, Carlton, VIC, 3053

PITCHFORD, Mr Andrew Richard, Project Manager, John Holland, 492 St Kilda Road, Melbourne, VIC

ROGERS, Mr Robert, Project Officer TAAATS, Civil Air Operations Officers' Association of Australia, 202 Berkeley Street, Carlton, VIC, 3053

ROSER, Mr Douglas John, Chief Executive Officer, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

SMITH, Mr Timothy Steven, Vice-President, Administrative, Western Australian Division, Civil Air Operations Officers' Association of Australia, 70 Temby Avenue, Kalamunda, WA, 6076

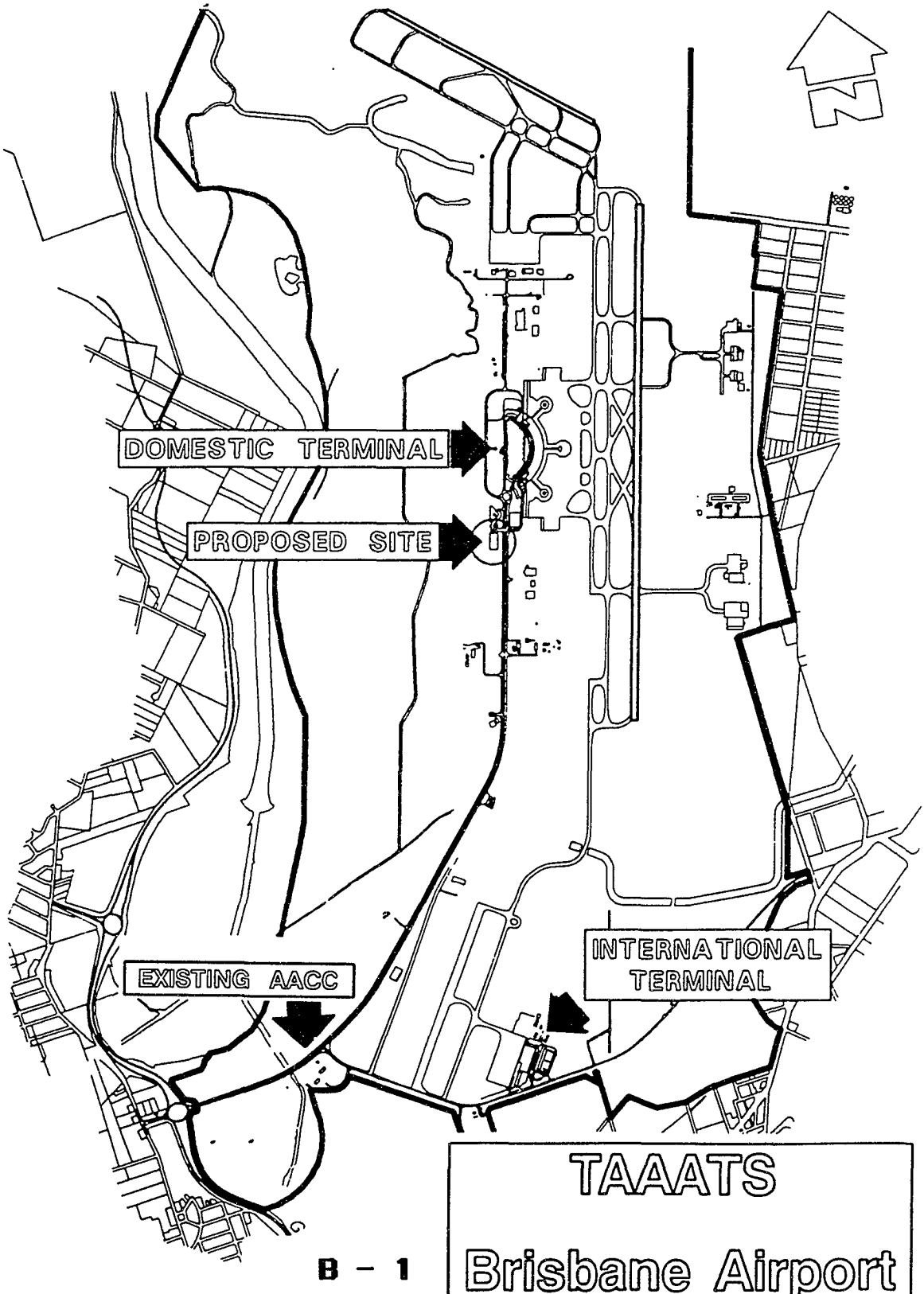
SNYDER, Mr David M, Senior Vice President, Marketing and International, Hughes Aircraft Co, and Vice Chairman, Board of Directors, Hughes Aircraft Co of Canada, 7200 Hughes Terrace, Los Angeles, California, 90080-0028, United States of America

TRAILL, Mr Paul Gerard, Legal Adviser (Solicitor), Civil Aviation Authority, Gadens Ridgeway, 77 Castlereagh Street, Sydney, NSW, 2000

WILLIAMSON, Ms Suzanne Maree, Acting General Manager, Corporate Employee Relations, Civil Aviation Authority, 25 Constitution Avenue, Canberra City, ACT, 2601

WILSON, Mr Gregory Forrest, CAA Air Traffic Controller, GPO Box X2212, Perth, WA, 6001

WONNEBERGER, Mr Lionnel, Managing Director (Joint), Thomson Radar Australia Corporation Pty Limited, Unit 1, 151 Newcastle Street, Fyshwick, ACT, 2609



TAAATS

Brisbane Airport

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Civil Aviation Authority
AUSTRALIA

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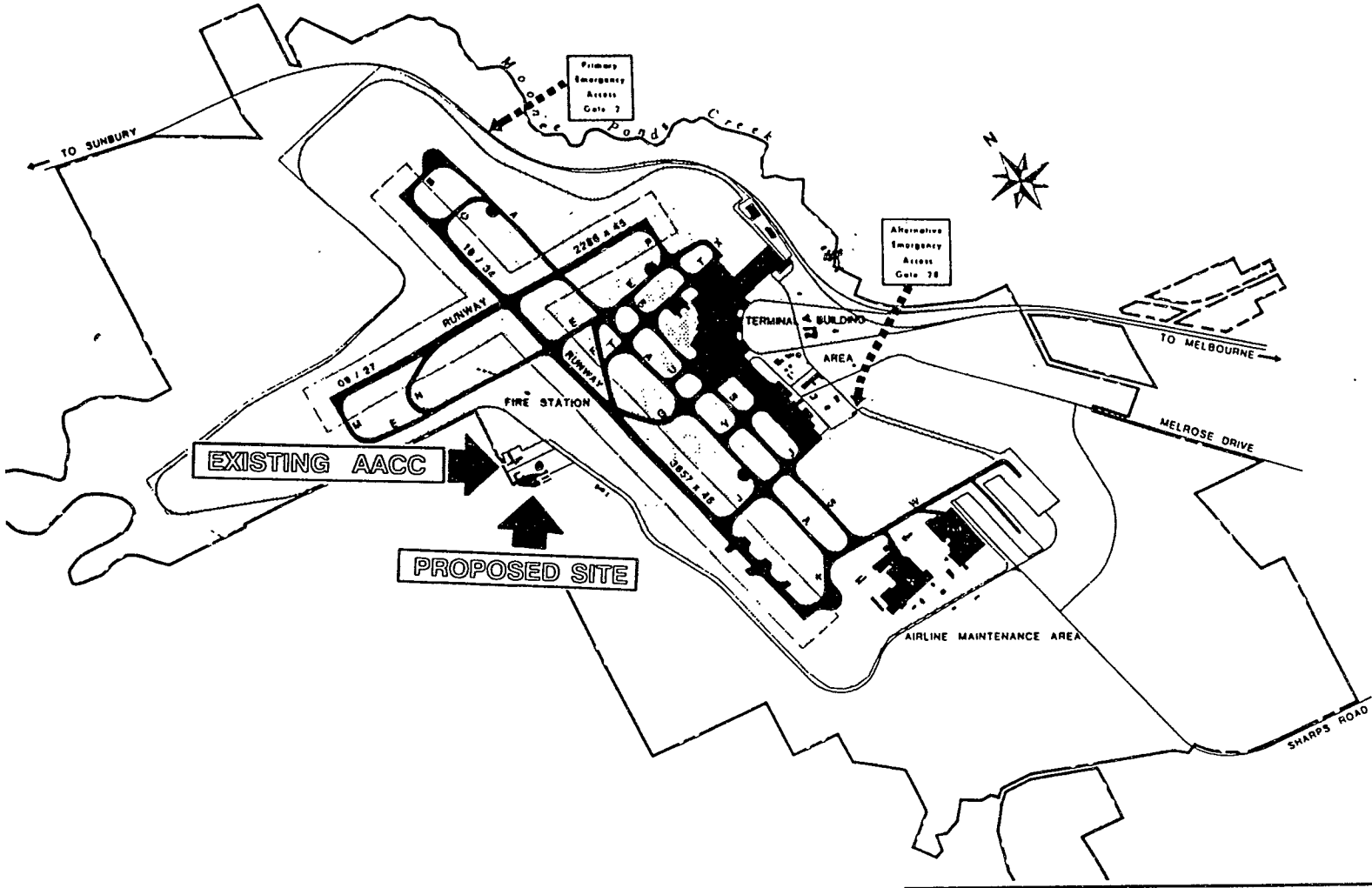
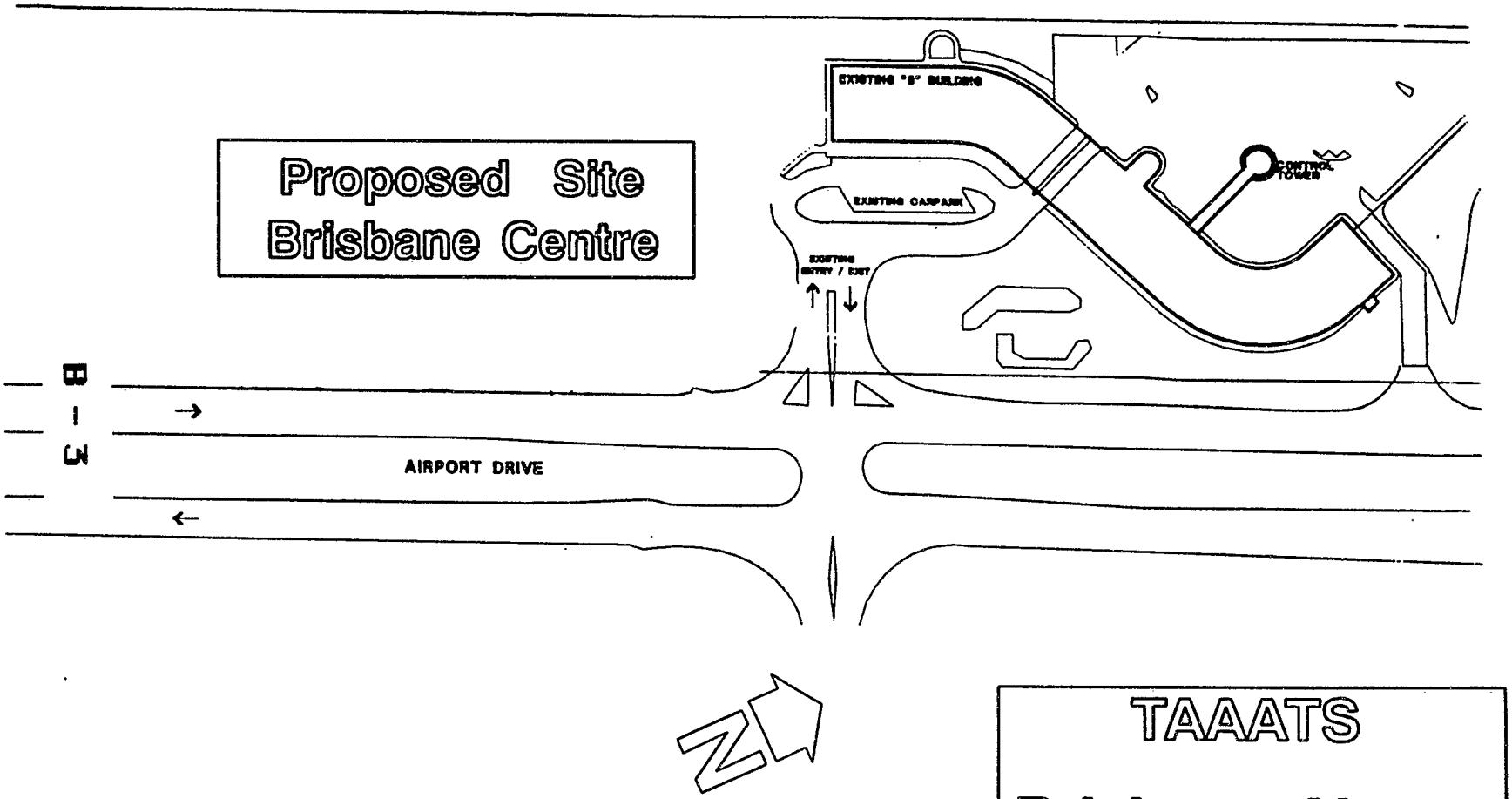


Civil Aviation Authority
AUSTRALIA

TAAATS

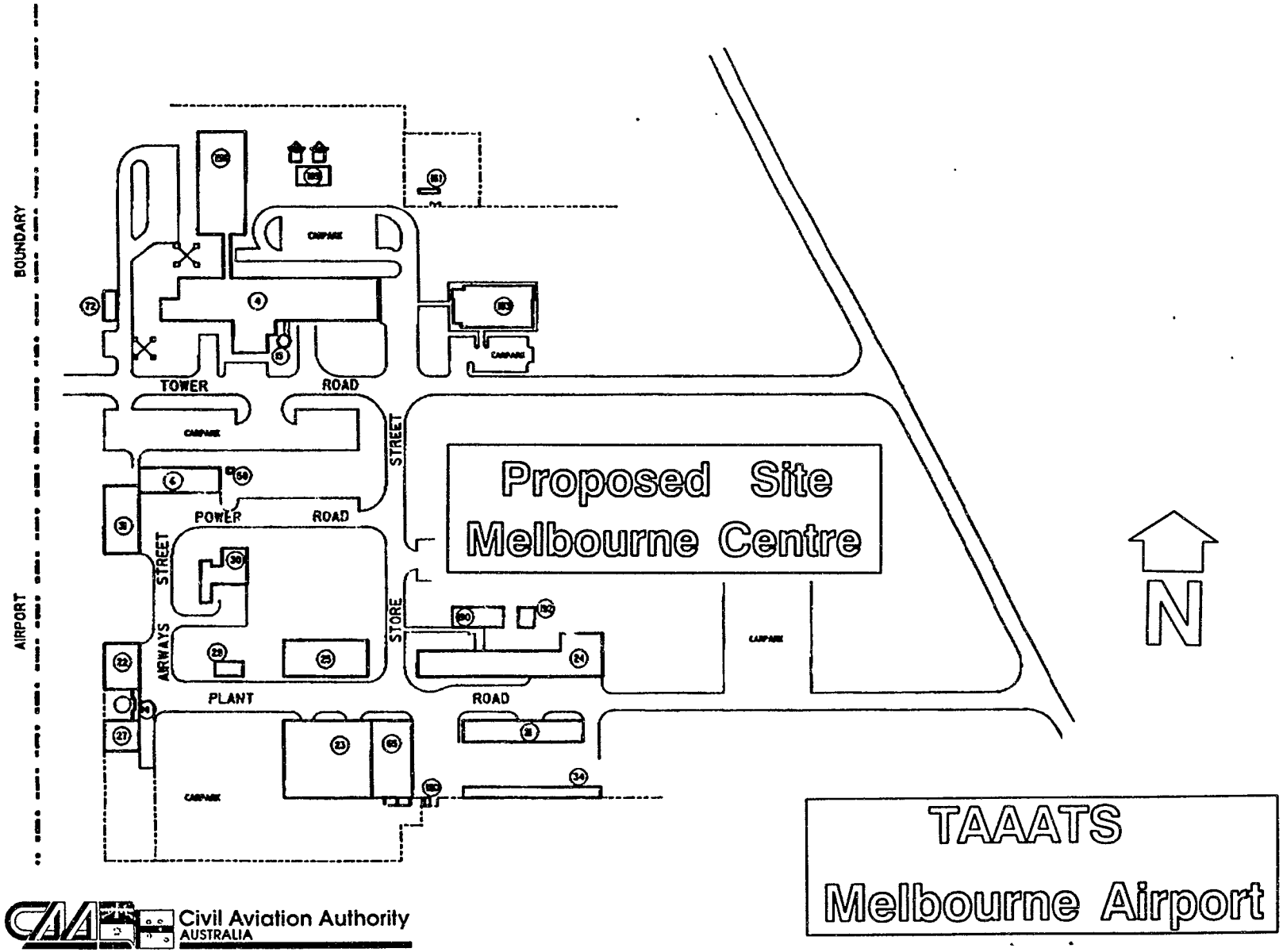
Melbourne Airport



TAAATS

Brisbane Airport

Civil Aviation Authority
AUSTRALIA


BOUNDARY
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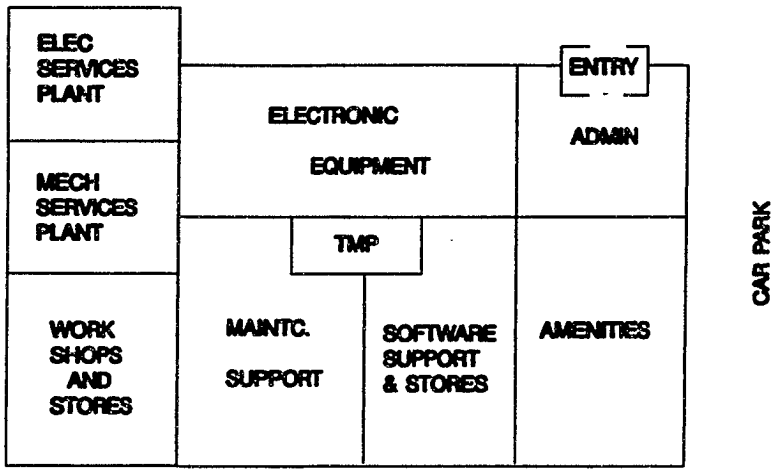
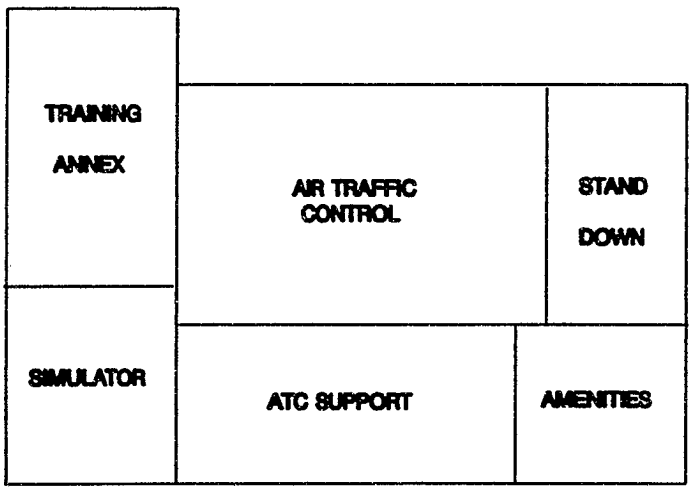
Civil Aviation Authority
AUSTRALIA



LEVEL 1 - GROUND FLOOR



LEVEL 2

Not to Scale

AIR TRAFFIC CONTROL CENTRE

SCHEMATIC FUNCTIONAL LAYOUT