Parliamentary Standing Committee on Public Works

REPORT

relating to the construction of

NEW AIR TRAFFIC SERVICES CENTRE AND CONTROL TOWER, PERTH AIRPORT

Western Australia

(Twelfth Report of 1981)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA 1981

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

(Twenty-sixth Committee)

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Senator Harold William Young [2]	

1 Retired 30 June 1981

2 Ceased to be member on election as President of the Senate on 18 August 1981

3 Appointed 25 August 1981

4 Appointed 25 August 1981

5 Appointed Vice-Chairman 27 August 1981

EXTRACT FROM
THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES,
NO. 48 DATED 27 AUGUST 1981

13 PUBLIC WORKS COMMITTEE - REFERENCE OF WORK - CONSTRUCTION OF NEW AIR TRAFFIC SERVICES CENTRE AND CONTROL TOWER, PERTH AIRPORT, W.A.: Mr. McVeigh (Minister for Housing and Construction), 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: Construction of new air traffic services centre and control tower at Perth Airport, W.A.

Mr. McVeigh presented plans in connection with the proposed work.

Question - put and passed.

WITNESSES

Beazley, K.C., Esq., M.P., Member for Swan, Unit 2A, 285 Great Eastern Highway, Rivervale, Western Australia

Bray, G.S., Esq., Town Clerk, City of Belmont, 215 Weight Street, Cloverdale, Western Australia

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Carr, Dr. D., Town Planning Commissioner, Metropolitan Region Planning Authority, 22 St. George's Terrace, Perth, Western Australia

Cartwright, E.H., Esq., Project Manager, Department of Housing and Construction, 207 Adelaide Terrace, Perth, Western Australia

Challinor, J.G., Esq., Airways Operations Superintendent, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Clark, E., Esq., Mayor, City of Canning, 1317 Albany Highway, Cannington, Western Australia

Cornish-Underwood, I.C., Esq., Senior Area Controller, Air Traffic Control, Department of Transport, Perth Airport, Western Australia

Dawkins, N.I., Esq., Town Clerk, City of Canning, 1317 Albany Highway, Cannington, Western Australia

Fletcher, R.R., Esq., Special Projects Engineer, City of Belmont, Lot 3, South-West Highway, Byford, Western Australia

Holland, Councillor R.D., City of Canning, 1317 Albany Highway, Cannington, Western Australia

Huggett, J.W.E., Esq., Senior Assistant Secretary, Airport Planning and Development, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

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McCaskill, D.M., Esq., Chairman, "Friends of the Railways", Box 760 P.O., Fremantle, Western Australia

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McLagan, D.S., Esq., Principal Architect (Aviation), ACT.TAB Building, 470 Northbourne Avenue, Dickson, Australian Capital Territory

O'Keefe, H.B., Esq., First Assistant Secretary (Airways Operations), Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Peake, R.C., Esq., Chief Engineer, Surveillance Section, Research and Development Branch, Department of Transport, P.O. Box 1839Q, G.P.O., Melbourne, Victoria

Rae, Councillor F.W., Mayor, City of Belmont, 215 Wright Street, Cloverdale, Western Australia

Sansom, J.E., Esq., Assistant Secretary, Airways Operations, Planning and Development, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Wicks, G.E., Esq., Treasurer, "Friends of the Railways", P.O. Box 760, Fremantle, Western Australia

Wiencke, G.E., Esq., Assistant Director (Airways Engineering), Department of Transport, Caga Centre, 256 Adelaide Terrace, Perth, Western Australia

C O N T E N T S

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

CONSTRUCTION OF NEW AIR TRAFFIC SERVICES CENTRE AND CONTROL TOWER, PERTH AIRPORT, WESTERN AUSTRALIA

REPORT

By resolution on 27 August 1981 the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament the proposal for the provision of buildings for operational units which provide air traffic control and in-flight information services to aviation. The new accommodation will allow improved operating and technical facilities needed at Perth Airport to maintain aviation safety standards at existing and forecast levels.

The Committee has the honour to report as follows:

REPORTS

1. This is the first report on this reference of work. A second report will be made to the Parliament on work relating to the construction of a Control Tower as soon as a Master Plan for Perth Airport is available. The Committee hopes to present the second report early in 1982

THE REFERENCE

2. The proposal is for the provision of five buildings, with associated pavements and services, required for the redevelopment of airways facilities at Perth Airport comprising:

- an Air Traffic Services Operations Building;
- a services building associated with the Operations Building;
- a Technical Maintenance Centre;
- a Control Tower;
- a radio equipment and plant and equipment building linked to the Control Tower.

3. The estimated cost of the work when referred to the Committee was $3.6 million at July 1981 prices.

THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and drawings from the Department of Transport and the Department of Housing and Construction and took evidence from their representatives at a public hearing in Perth on 29 and 30 September 1981. The Committee also received written submissions and took evidence from Mr. K.C. Beazley, M.P., Member for Swan, Mr. F.E. McKenzie, M.L.C., Member for the East Metropolitan Province, Belmont City Council, Canning City Council, the Metropolitan Region Planning Authority, The Friends of the Railways and the Civil Air Operations Officers' Association. Written submissions were received from the Australian Federation of Air Pilots and various individuals.

5. Prior to the hearing the Committee inspected the existing air traffic control facilities at Perth Airport and the Kalamunda Radar Unit. On 15 September 1981 the Committee inspected the air traffic control system at Sydney Airport to provide background information for the hearing.

6. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

7. Airways Operations Services At present there are four operational units at Perth providing airways operations services to aviation:

- the Control Tower providing an aerodrome/approach control service for Perth Airport;
- the Area Control Centre located in the Perth Airport terminal building, providing non-radar terminal and en-route control services in controlled airspace;
- the radar unit located at Kalamunda, 13 km east of Perth Airport, providing radar assistance to the area and approach control services;
- the Flight Service Centre located in the Perth Airport terminal building, providing traffic information, search and rescue alerting, and in-flight operational information services to aircraft operating outside controlled airspace.

8. The Control Tower and Flight Service Centre were commissioned in 1962, the radar unit in 1969 and the Area Control Centre in 1972.

9. Control Tower The function of a Control Tower within a major control centre environment is to provide safe separation between aircraft in flight within visual range of the airport at which it is situated and between aircraft and vehicles on the airport manoeuvring area. This is achieved by the transmission of control instructions based largely on visual surveillance, which necessitates uninterrupted vision from the control tower cabin and the need for some controller movement to better 'vantage' positions to observe and resolve possible traffic conflicts.

10. The present Control Tower at Perth was initially a two-man console and provided for aerodrome/approach and area control/co-ordination functions. The accommodation and facilities were adequate for the level of traffic handled to the end of the 1960s.

11. In 1970, it was necessary to provide a console with four operating stations:

- aerodrome/approach control;
- area control/tower co-ordination;
- surface movement control; and
- tower flight data.

Operating space in the tower cabin was reduced considerably due to the extra staff. It was not possible to provide the tower with a radar display because of insufficient space in the tower cab and console and technical remoting difficulties.

12. The dual purpose en-route and terminal radar was intended to provide additional traffic handling capacity within a radius of 160 nautical miles (n.m.) of Kalamunda. Raw radar data displays were housed in a converted store room at the radar site in a "dark room" environment for effective viewing of displayed data. When the area control was activated in 1972, it was not possible to co-locate the radar and procedural elements due to insufficient space in the area control room and technical remoting difficulties.

13. Area Approach Control Centre The function of an area approach control centre is to provide an aircraft separation service to ensure the safe, orderly and expeditious flow of air traffic within controlled airspace. The area control service elements handle traffic during the climb, en-route and initial descent phases of flight; the approach control service element handles traffic during the more critical final approach and initial departure stages where the degree of potential conflict is higher. In areas of high traffic density the predominant means of control is normally radar-based because it is more efficient in the use of airspace since the actual position of aircraft can be more accurately determined than by non-radar means. Area control functions at Perth were carried out from the Control Tower until 1972.

14. In 1972, the Perth Air Traffic Control (ATC) traffic commitment required establishment of a separate area control centre in the terminal building. To minimise costs, area control consoles designed and built in the early 1950s were refurbished for this purpose.

15. Flight Service Centre The functions of a flight service centre are to provide traffic information in circumstances of possible flight path conflict, flight following (including search and rescue alerting) and operational information services, to aircraft operating outside controlled airspace. The Perth Centre also has the responsibility for communicating with aircraft in transcontinental and oceanic control areas which are beyond the coverage of air traffic control communication facilities.

16. All controlled air traffic within the Perth Flight Information Area (FIA) is handled by the Perth Flight Service Centre. This Centre covers Western Australian airspace within 200 miles of Perth domestically. Internationally, the coverage is from 75°E to 129°E longitudinally and from 12°S to Antarctica latitudinally.

THE NEED

17. The need for improved airways operations facilities has resulted from a mixture of factors which render the existing

accommodation arrangements and operational facilities inadequate. At present they are unable to cope with both prevailing and projected air traffic demands, while maintaining required safety standards and acceptable workloads. The interaction of these factors is clearly demonstrated if they are considered in terms of the three aspects of the proposed works.

18. Control Tower The Control Tower staff are responsible for providing an aerodrome control service at Perth Airport, a control service for aircraft in controlled airspace within 30 n.m. of Perth and an approach control service for both Perth and Jandakot Airports.

19. A marked increased in the diversity of aircraft types and performance, a consequential increase in air traffic complexity and controller workloads have pointed up the inadequate nature of working conditions in the Control Tower. Moreover, the number of movements at Perth Airport has increased from 46 631 in 1972 to 81 682 in 1980. Present air traffic growth forecasts for 1985 indicate a potential 104 102 movements. The numbers of transit flights in Perth controlled airspace have also increased from 8349 in 1972 to 17 564 in 1980.

20. Air traffic density and complexity has reached a level where it is beyond the capabilities of a single approach controller, despite the assistance of radar, for significant periods of time. An assessment of peak hour air traffic demand shows air traffic is achieving movement rates in excess of 25 movements an hour. This is beyond the assessed safe capacity of the existing control system and to meet forecast traffic demands further increments in control capacity are required.

21. As mentioned earlier, the radar assistance for air traffic control, located at Kalamunda, provides coverage within a 160 n.m. radius and the radar consoles require a "dark-room" environment for effective use. These factors, combined with the inability to locate any radar consoles in the Control Tower as a result of space limitations, makes the location of the radar at Kalamunda essential until the facilities at the airport are upgraded and more space is provided in the Control Tower.

22. The Committee readily accepts that a new Control Tower is necessary at Perth Airport, and that it should be built by July 1983, and operational by December 1984, along with the other works proposed in this reference.

23. The Committee is concerned that the Master Plan for Perth Airport will not be completed until the end of 1981. Submissions by the Belmont City Council, Canning City Council, Federal and State Members of Parliament and the Metropolitan Region Planning Authority emphasised that the location and design of the control tower could only be satisfactorily determined after completion of the Master Plan. The Committee agrees with these views and feels that the design and siting of the Control Tower should be compatible with future development options for the airport, especially any proposal for early provision of a parallel runway, or for a new international terminal building.

24. Advice from the Department of Housing and Construction indicates that the construction of the Control Tower could be separated from the other works in this proposal and delayed for three months without affecting the completion date. Such delay would permit the Department of Transport to finalise the Master Plan for Perth Airport.

25. Area Control Centre The centre is responsible for approach provision of terminal and en-route control services (including non-radar) within controlled airspace outside of 30 n.m. from Perth. In 1972, the centre was responsible for providing control services on two major air routes and for limited control of the area within 150 n.m. from Perth. Third party communications were used for those portions of the control area beyond VHF coverage range of Perth.

26. Over the period from 1972, the area control centre has assumed responsibility for eight major air routes including those from Australia to Indonesia, Singapore, Malaysia and London (the "Kangaroo" route). Concurrent with this, the traffic processed has increased from 47 056 in 1972

to 85 385 in 1980 including air traffic originating from and proceeding to other airports than Perth within controlled airspace. Present forecasts of air traffic growth indicate increases to a 1985 movement rate of 118 605. In conjunction with this projected traffic increase, the maximum hourly sector handling rate will be exceeded with greater frequency unless extra control capacity is provided. At present, movement levels on each sector control position occasionally reach hourly rates in excess of the safe sustained handling rate.

27. Flight Service Centre The main problem faced by the centre is one of congestion which generates a higher workload than would occur with a more efficient layout. Congestion may be summarised as follows:

- lack of available space which hampers the efficient movement of support staff;
- difficulty in positioning staff at working positions for dual training;
- the sharing of some communication facilities by positions; and
- the co-ordination required between positions.

28. A 31% increase in total FIA movements occurred from 1974 to 1979 with continued annual growth rates of 3.1% to 1985 and 2.5% to 1990 being forecast.

29. Significant staff increases have been sought by the Department of Transport to provide immediate relief for the overloading problems but optimal employment of these additional persons cannot be achieved until new accommodation and facilities are available.

30. The existing control equipment is almost at the limit of its life span and maintainability. Due to their obsolete design and additions made over the years, several consoles have reached the limit of their expansion capability.

For some years certain components have been available only through dismantling equipment of the same vintage and transferring it from other locations. This also places a restriction on the expansion of existing facilities as the availability of obsolete components is uncertain.

31. Technical Maintenance Centre At present, radio maintenance staff are accommodated at two locations: radio communications maintenance staff are located at the main equipment room in the existing passenger terminal building, while navigational aid maintenance staff are located in the airport compound some distance away. This situation creates supervisory difficulties for the radio maintenance supervisor.

32. The new Air Traffic Services Centre complex is a major maintenance responsibility of the radio communications group and combined with continuing installation activities within the area provides a justification for locating the responsible staff within the new complex. Moreover, it is in the best interests of efficiency and supervison that radio communications maintenance staff and navigational aids maintenance staff be collocated.

33. Radio installation staff are inadequately housed at the Western Australian Regional Workshop at Mt. Lawley, approximately 10 km from the airport. Recent expansion in the general workshop areas at Mt. Lawley has aggravated the situation to a point where new accommodation is essential. Consolidation of all these maintenance staff into an adequately equipped and well planned technical maintenance centre is a reasonable solution to the problems of space and supervision encountered at present.

34. General In order to accommodate forecast traffic demands in the terminal area, the airways and uncontrolled airspace extra service capacity must be provided. This capacity is in the main attainable by the provision of new

equipment as the existing facilities are of a design superseded around 1964 and cannot accommodate required increases. The problems of obsolescent equipment, excess workloads and restricted space cannot be alleviated beyond 1984 within the limits of present accommodation.

35. Committee's Conclusion There is an urgent need for permanent improvements to the buildings and equipment used in the air traffic control systems situated at Perth Airport. The proposed Control Tower should be delayed until the Master Plan for Perth Airport is available. The Committee will further report on works relating to a Control Tower as soon as the Master Plan is available.

THE PROPOSED WORK

Planning and Design

36. Control Tower The Control Tower shaft, floors and roof will be reinforced concrete load bearing wall construction with an off-form finish. Cabin glazing is to provide for 360° surveillance of the airspace and movement area and will consist of eight equal float glass panels sealed at the joints and installed at a slope of 20° from the vertical. Sound transmission will be reduced to a level satisfactory for operational purposes. The roof will accommodate aerials, a rotating beacon and air conditioning equipment with provision for a possible future surface movement radar (SMR) to be installed. Access to the roof will be by retractable ladder from within the cabin. A passenger/goods lift will also be provided within the tower.

37. The office, radio equipment room, battery room and emergency power are located in a separate building linked to the base of the tower. At the service level below the cabin, the following functions will be accommodated:

- equipment room housing radar and console interface equipment;
- air conditioning plant room; and
- locker room and toilet facilities.

38. The Control Tower will include provision for a five position console, including adequate space for training staff. Due to technical limitations some equipment must be located directly below the control cabin therefore an equipment room has been provided on an intermediate level to house the surveillance radar and part of the audio and control equipment. The major part of the technical equipment can be located in the plant and equipment room at the base of the tower for a more economical cost.

39. The radio equipment room will house duplicated battery banks, remote control equipment for the duplicated audio systems, transmitters, receivers and airport lighting as well as meterological equipment and a number of other facilities required for operational purposes. As the tower is in a relatively remote location, it is more economical and reliable to provide its own emergency power plant in the plant and equipment room.

40. Air Traffic Services Centre Complex This complex will be composed of the Air Traffic Services Centre, the Technical Maintenance Centre and a plant building to provide required services. Buildings within the complex will be aligned on an east-west axis to take advantage of the most favourable orientation, provide controlled natural lighting and minimise air conditioning costs. The design chosen provides a group of long low profile buildings, with clearly defined lines. For security reasons, access to the complex will be limited to one entrance.

41. Air Traffic Services Centre This building will be a single storey structure with provision for future expansion of the major operations facilities. The building structure will have a braced steel column and beam frame system with reinforced concrete pad footings, strip footings and ground slabs. Raised floors within the main equipment areas will provide a wiring space and ducts accessible by hatches.

42. Provision will be made for this building to house the Area Approach Control Centre (AACC), Flight Service Centre (FSC) and operational training facilities. The AACC will comprise 17 control positions each fitted with remote control, intercommunication and monitoring facilities. Six of these positions will be fitted with current technology computer-based surveillance radar display units.

43. The FSC will provide 16 operating positions, again with remote control, intercommunication and monitoring facilities on each. The consoles and support facilities such as aeronautical map display will be arranged within the room to provide the most efficient functional layout. The operational training facilities will provide realistic training for both AACC and FSC operations. Realistic simulation of AACC operational situations can only be achieved using equipment similar to the on-line system, although FSC operational situations can be achieved using simpler techniques.

44. Technical Maintenance Centre This building will provide approximately 1080 square metres of space incorporating workship facilities for the manufacture, assembly and testing of all communications and navigational equipment for installation throughout the W.A. Region. It will be a single storey structure with two separate functional areas for assembly and installation projects and ongoing maintenance of radio and navigational equipment. It will have a steel portal frame system with reinforced concrete pad footings, strip footings and ground floor slab. Provision will be made for future expansion and overall construction will be similar to the Air Traffic Services Centre.

45. Plant Building The building will house standby and no-break power generator plant for emergency supply and the chilled water air conditioning equipment which is essential for environmental control. A special environment is essential to enable the staff to perform their duties efficiently and to maintain reliability of operational facilities and associated equipment.

46. The building structure will have a braced steel column and beam frame system with reinforced concrete pad footings, strip footings and ground floor slabs designed to accommodate power generating and air conditioning equipment. Construction will again be similar to the Air Traffic Services Centre.

47. Committee's Conclusions The design of the proposed work, with the exception of the Control Tower, is satisfactory. The Control Tower may need to be redesigned after production of the Perth Airport Master Plan to ensure it is suitable, without major rebuilding, for whatever the final development options may be. The Committee recommends that detailed planning of all the works in this reference should proceed to minimise potential delays should no changes to the Control Tower be required.

THE SITE

48. Control Tower The proposed site is located south-east of the existing terminal, on recently acquired land, adjacent to gazetted Clover Road. It is outside the present perimeter security fence in a wooded area with undergrowth. The area is generally flat, well drained and will require selective clearing.

49. Several important factors were taken into account when the site for the Control Tower was chosen but all these factors related to the present or the short term future. The Committee, for reasons already outlined, cannot endorse the site chosen as it has not been considered in terms of the Master Plan which covers long term development. The situation is clearly exemplified at page 23 of the Department of Transport's evidence where it is stated: "... the area selected is the only one which adequately meets all operational requirements". Consequently the site may need to be re-examined when the Master Plan becomes available.

50. Air Traffic Services Centre Complex The site of approximately 2.6 hectares is located on Commonwealth property at Perth Airport, approximately 10 km north-east of the City of Perth. It is bounded on the south-east by Henderson Avenue and is located to the east of the proposed future international terminal access road. Adjacent buildings are the Midland Technical College Aeronautical Annex and an Ansett Transport Industries building.

51. The site is relatively flat, requiring minimal filling with existing vegetation comprising low grass and a few small groups of eucalypt trees. Buildings on the site will be visible from the approach to the proposed future international terminal and also from the eastern approach on Fauntleroy Avenue.

52. Committee's Recommendations The sites selected are suitable. The site proposed for the Control Tower may need to be re-examined when the Master Plan becomes available.

OTHER OBSERVATIONS

53. Commonwealth-State Advisory Committee Prior to 1972 the planning of the Perth Region airport needs and the planning of adjacent land use was carried out with only the minimum real mutual involvement by those responsible. As a result, problems were encountered on both sides and it was decided to set up a Commonwealth-State Advisory Committee to enable definition of the issues to be considered and to recommend action on the appropriate solutions. The advisory Committee membership was drawn from the three levels of government and many other bodies and companies with interests in aviation or land use had observer status.

54. The Advisory Committee reported to the Commonwealth and Western Australian Governments in December 1979 and recommended, inter alia, "that the Perth Airport Master Plan be published as soon as practicable". It also recommended the establishment of a Western Australian Airfields Committee to exchange information on airport developments and to recommend

land use planning near airports to minimise restrictions on airport operations. Neither of these recommendations has been implemented despite the two-year interval since presentation of the report.

55. The Committee is unable to accept any part of the present reference which may determine the contents of the Master Plan and recommends delaying any work (except detailed planning) on the Control Tower until such time as the Master Plan is produced. Discussions with the Western Australian Government should be re-opened with a view to setting up the Western Australian Airfields Committee within six months.

56. Future Airport Development With the exception of the Department of Transport and the Department of Housing and Construction, most witnesses expressed concern with the implications of this reference for future airport development. Their concern was with the need to continue to upgrade the airport as the sole primary one for the region while integrating it into the surrounding community with minimal physical and aesthetic disturbance. This would, they argued, be achieved by deferral of this reference until publication of the Master Plan for public discussion and early construction of the widely-spaced parallel runway.

57. In evidence the Department of Transport stated that the forecast usage of Perth Airport cannot justify construction of a parallel runway before the year 2010. Moreover, the ensuing reduction in noise levels would not justify the expenditure of some $17 million at 1981 prices on construction of the parallel runway.

58. The question of long term airport development at Perth should be examined by public deliberation on the Master Plan possibly through a Western Australian Airfields Committee.

59. Parking At peak periods there is a short term requirement for extensive parking. The problem is further compounded by the lack of adequate public transport links to Perth and this leads to greater use of private vehicles than might otherwise be the case.

60. The present proposal provides for reasonable staff parking but makes no provision for expansion of the public area. In spite of the likelihood of a reference to the Committee on a new international terminal building in 1982, there will be a continuing requirement for additional parking at the present terminal until at least 1985. The Department of Transport should re-examine the public parking at the airport to ensure it is compatible with peak loads, particularly with the introduction of wide body jet aircarft.

61. Committee's Recommendations Discussions with the Western Australian Government should be re-opened with a view to setting up the Western Australian Airfields Committee within six months. The Department of Transport should re-examine the public parking at the airport to ensure it is compatible with peak loads.

LIMIT OF COST

62. The limit of cost for the recommended work is $2.7 million at July 1981 prices.

PROGRAM

63. The proposed works are scheduled for completion by July 1983, with the commissioning of all facilities due by the end of December 1984.

64. Committee's Recommendation The Committee recommends the construction of the work in this reference with the exception of the Control Tower.

RECOMMENDATIONS AND CONCLUSIONS

65. The recommendations and conclusions of the Committee are set out below. Alongside each is the paragraph to which it refers.

		Paragraph
1.	THERE IS AN URGENT NEED FOR PERMANENT IMPROVEMENTS TO THE BUILDINGS AND EQUIPMENT USED IN THE AIR TRAFFIC CONTROL SYSTEMS SITUATED AT PERTH AIRPORT.	35

		Paragraph
2.	THE PROPOSED CONTROL TOWER SHOULD BE DELAYED UNTIL THE MASTER PLAN FOR PERTH AIRPORT IS AVAILABLE. THE COMMITTEE WILL FURTHER REPORT ON WORKS RELATING TO A CONTROL TOWER AS SOON AS THE MASTER PLAN IS AVAILABLE.	35
3.	THE DESIGN OF THE PROPOSED WORK, WITH THE EXCEPTION OF THE CONTROL TOWER, IS SATISFACTORY. THE CONTROL TOWER MAY NEED TO BE REDESIGNED AFTER PRODUCTION OF THE PERTH AIRPORT MASTER PLAN TO ENSURE IT IS SUITABLE, WITHOUT MAJOR REBUILDING, FOR WHATEVER THE FINAL DEVELOPMENT OPTIONS MAY BE.	47
4.	THE COMMITTEE RECOMMENDS THAT DETAILED PLANNING OF ALL THE WORKS IN THIS REFERENCE SHOULD PROCEED TO MINIMISE POTENTIAL DELAYS SHOULD NO CHANGES TO THE CONTROL TOWER BE REQUIRED.	47
5.	THE SITES SELECTED ARE SUITABLE. THE SITE PROPOSED FOR THE CONTROL TOWER MAY NEED TO BE RE-EXAMINED WHEN THE MASTER PLAN BECOMES AVAILABLE.	52
6.	DISCUSSIONS WITH THE WESTERN AUSTRALIAN GOVERNMENT SHOULD BE RE-OPENED WITH A VIEW TO SETTING UP THE WESTERN AUSTRALIAN AIR-FIELDS COMMITTEE WITHIN SIX MONTHS.	61
7.	THE DEPARTMENT OF TRANSPORT SHOULD RE-EXAMINE THE PUBLIC PARKING AT THE AIRPORT TO ENSURE IT IS COMPATIBLE WITH PEAK LOADS.	61
8.	THE LIMIT OF COST FOR THE RECOMMENDED WORK IS $2.7 MILLION AT JULY 1981 PRICES.	62

		Paragraph
9.	THE COMMITTEE RECOMMENDS THE CONSTRUCTION OF THE WORK IN THIS REFERENCE WITH THE EXCEPTION OF THE CONTROL TOWER.	64

(M.H. DUNGEY)
Chairman

Parliamentary Standing Committee on Public Works,
Parliament House,
CANBERRA, A.C.T.

22 October 1981.

CONSTRUCTION

66. Control Tower Most of the construction details are listed in the report under "Planning and Design". Construction of the service building will consist of concrete blockwork, concrete floor slab, steel framed portals and steel roof sheeting. The location and orientation of the tower is related to the threshold visibility of the main 02/20 runway. The airport perimeter security fence is to be extended to incorporate the site. Access to the tower for operational staff and visitors will be from Clover Road.

67. Air Traffic Services Centre The external walls will be cavity brickwork with fascia panels of flat compressed asbestos sheeting on steel framework. The roof will be metal deck with appropriate acoustic and thermal insulation. Internal walls will be plasterboard on stud steel frame, except fire walls and wet areas which will be rendered and painted brickwork. Floor coverings will be carpet in the Administration and Operations Areas, ceramic tiles in wet areas and welded sheet vinyl elsewhere. Suspended acoustic plaster tiles and plasterboard ceilings will be provided except to the plant rooms which will be unlined. Access will be provided for disabled persons.

68. Technical Maintenance Centre Construction will be similar to the Air Traffic Services Centre. Floor coverings will be welded sheet vinyl throughout with the exception of wet areas where ceramic tiles will be used. Suspended plasterboard ceilings will be provided throughout except to the plant room which will be unlined. Access will be provided for disabled persons.

69. Plant Building Construction will be similar to the Air Traffic Services Centre. Internal walls will be rendered concrete block and floors will be welded sheet vinyl throughout.

70. Post-Disaster Rating All buildings will be designed for both wind (45 m/sec) and earthquake (zone A) loads to post-disaster category 'B' standard. This requires buildings to be immediately functional after a natural disaster.

71. Air Conditioning The cabin and equipment rooms of the Control Tower and the Radio Equipment Room in the Services Building will be conditioned using packaged equipment.

72. Manually controlled exhaust fans and motorised fresh air/exhaust air dampers will provide smoke and fume exhaust.

73. A central chilled water plant located in the Plant Building will provide cooling for the Air Traffic Services Centre and Technical Maintenance Centre. The Training Area and Offices, in the Air Traffic Services Centre, will be served by a single zone conditioner. The critical areas of the Air Traffic Services Centre, housing equipment and operational personnel, will be served by a multi-zone conditioner operating 24 hours per day. The Technical Maintenance Centre will also be served by a multi-zone conditioner.

74. Electrical Services - Control Tower A 22 kv underground supply will be taken from the existing Terminal Site through ducts under the runway to the Control Tower site. A diesel driven, emergency generating plant and automatic switching will provide for essential and no-break requirements. No-break power will be provided for essential operational equipment and facilities.

75. An automatic fire detection will be installed combining early warning detectors in equipment rooms and thermal detectors elsewhere.

76. Electrical Services - Air Traffic Services Centre Complex Some adjustment of the current airport power supply arrangements will result from the location of the Air Traffic Services Centre aerials. Internal lighting generally will be flourescent. The power supply will be classified as non essential, essential and no-break.

77. A diesel driven, emergency generating plant and automatic switching will provide for essential and no-break requirements. No-break power will be provided for essential operational equipment and facilities.

78. An automatic fire detection system will be installed combining early warning detectors in the Electronic Equipment Rooms and thermal detectors elsewhere.

79. Hydraulic Services - Control Tower Water supply will be reticulated from an extension of an existing water main in Grogan Road. Sewerage disposal will incorporate an on-site septic tank and absorption drain due to the isolated locality.

80. External fire hydrant and internal fire hose reel protection will be provided.

81. Hydraulic Services - Air Traffic Services Centre Complex Water supply will be reticulated from an existing water main in Henderson Avenue. Stormwater disposal will be to the north-west and away from the site through the existing drainage system.

82. External fire hydrants and internal fire hose reels will be provided.

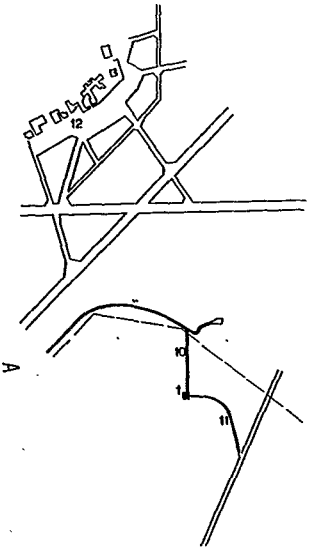
83. Site Works - Control Tower Staff access will be along Zante Road and a new road gazetted for Clover Road. Airside access will be off the existing Airport eastern perimeter road and Clover Road.

84. A carpark for 15 vehicles is to be provided.

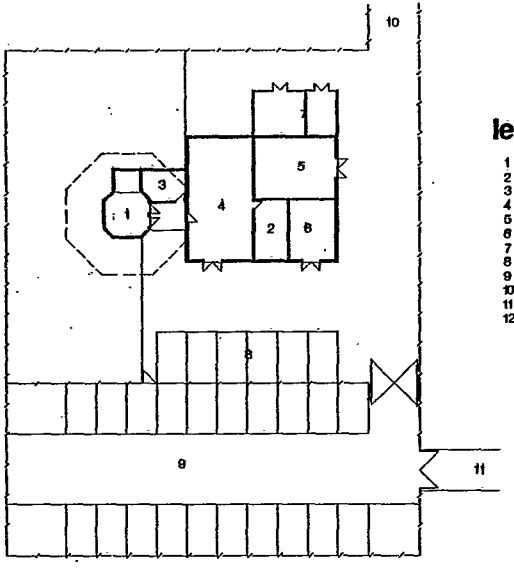
85. Site Works - Air Traffic Services Centre Complex A new access road off Henderson Avenue will be provided and all pavements sealed. Carparking will be provided for 150 cars and the area will be capable of future extension if required.

86. Landscaping, in the form of low-medium height planting, ground covers and earth mounding will be used to screen carparking, provide protection from the prevailing wind and integrate the buildings into the landscape.

87. Environmental Impact The Department of Transport has cleared this proposal with the Department of Home Affairs and the Environment. An environmental Impact Statement is not required.



locality plan (n.t.s.)



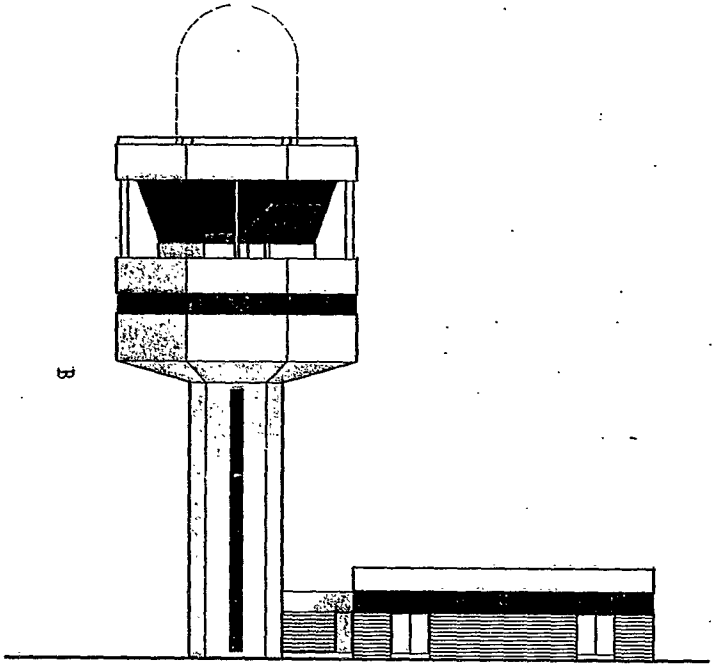
site plan

legend

1 control tower
2 batteries
3 office
4 equipment room
5 power
6 *no break*
7 transformer
8 DOT parking
9 staff parking
10 airside access road
11 clover road access
12 terminal buildings

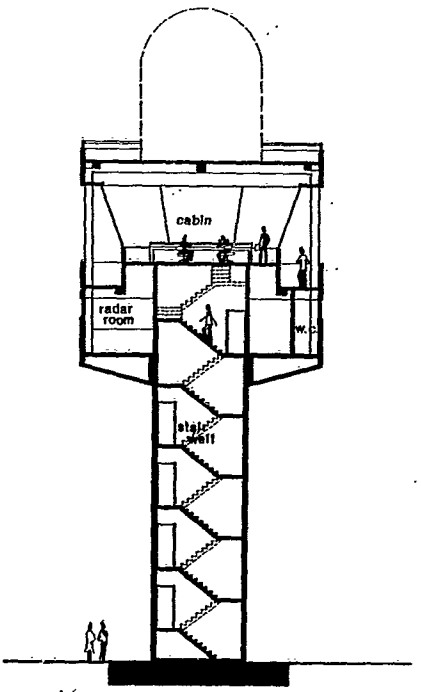
control tower

site plans
0 1 2 4 8 12



elevation

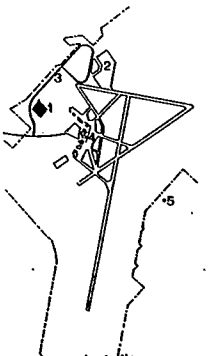
CONTROL TOWER



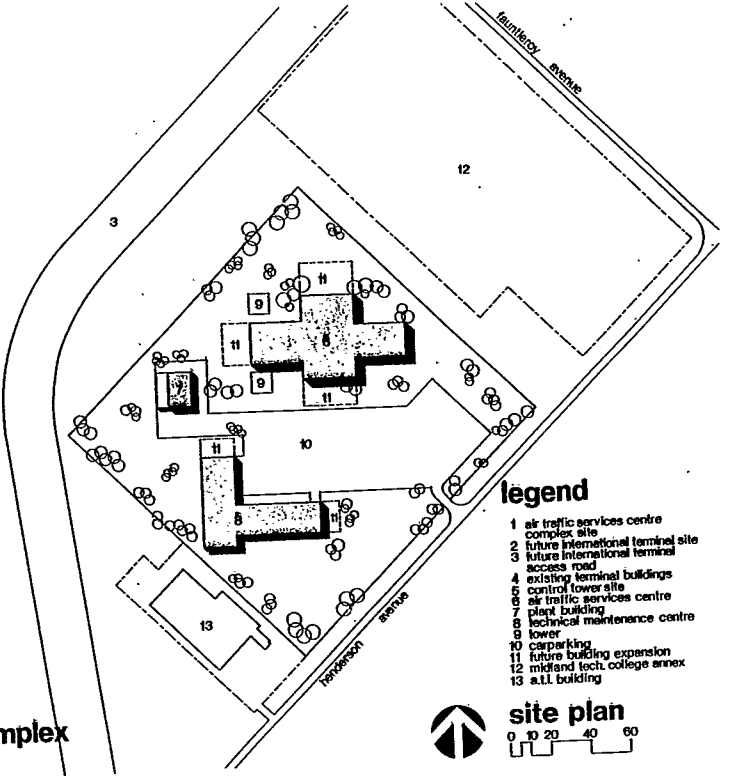
section

elevation/ section

0 1 2 4 6



Perth Airport, Western Australia
location plan (n.t.s.)

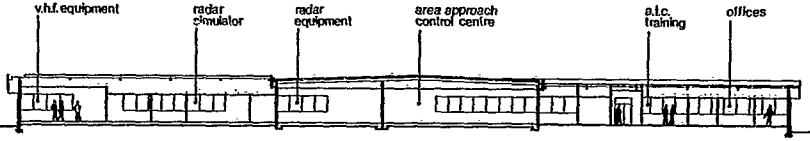


legend

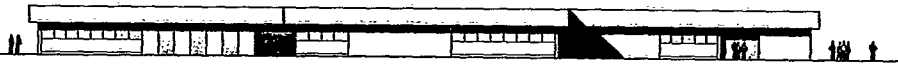
1 air traffic services centre complex site
2 future international terminal site
3 future international terminal access road
4 existing terminal buildings
5 control tower site
6 air traffic services centre
7 plant building
8 technical maintenance centre
9 tower
10 carparking
11 future building expansion
12 midland tech. college annex
13 a.t.i. building

site plan
0 10 20 40 60

air traffic services centre complex



section



south elevation

AIR TRAFFIC SERVICES CENTRE

elevation/ section

0 1 2 4 8 12