1975

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

Parliamentary Standing Committee on Public Works

REPORT

relating to the proposed construction of a

TELEPHONE EXCHANGE BUILDING

at

Deakin
Australian Capital Territory

(SEVENTH REPORT OF 1975)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

TELEPHONE EXCHANGE BUILDING
DEAKIN, A.C.T.

R E P O R T

By resolution on 5 June 1975, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report the proposal to construct a telephone exchange building at Deakin, Australian Capital Territory.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the construction of a building comprising a basement, ground and two upper floors, designed to accommodate telecommunications equipment for the Australian Telecommunications Commission on a site fronting Kent Street, Deakin and in close proximity to the existing exchange.

2. The building is planned to house local and trunk network telecommunications facilities and provide other special services for Canberra until the year 2000.

3. The building will be constructed of reinforced concrete and will be air conditioned, with lifts, fire protection, emergency power and other engineering installations.

4. The estimated cost of the proposal at April 1975 prices was $12.75 million. The estimated cost of the proposal at the time of the Committee's hearing was $13.5 million.

THE COMMITTEE'S INVESTIGATION

5. The Committee received written submissions and drawings from the Australian Telecommunications Commission and the Department of Housing and Construction.

6. A Sectional Committee took evidence from their representatives at a public hearing in Canberra on 8 July 1975. Representatives of the National Capital Development Commission also gave evidence. Two nearby residents, one of whom gave evidence, submitted written submissions objecting to the proposal. Before the hearing, the Sectional Committee inspected existing facilities at the Civic and Deakin Exchanges and the site proposed for the new building.

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

THE NEED

8. Existing Building and Network Facilities The existing Deakin exchange building is a two storey concrete and brick structure located towards the north-west corner of the site with frontage to Kent Street. It was built in 1963.

9. The ground floor, which is a semi-basement, is almost exclusively occupied by the National Aeronautics and Space Administration (NASA) under an arrangement between Australia and the United States of America. Present indications are that this area is sufficient to meet future NASA requirements. The upper floor accommodates local subscribers exchange and tandem switching equipment and is sufficient to meet growth only until 1980.

10. This building is not capable of vertical extension and is therefore planned to be retained in its present form up to the turn of the century. Phasing out of the building will depend on the remaining life of the equipment installed at that time.

11. The existing accommodation for trunk switching and long line equipment serving Canberra is located at the Civic and East Block exchanges. This will not meet requirements beyond 1979.

12. The Canberra network and associated areas are served by Telex exchange equipment which is located at Civic exchange.

13. Basis for Future Accommodation Needs The planning of the communications network for Canberra is heavily influenced by the decisions of the National Capital Development Commission insofar as the scope, timing and nature of the development of the various neighbourhoods is concerned. The population estimate for the year 2000 has been adjusted a number of times over recent years. Nevertheless, the very high rate of growth that has been achieved reflects directly into the projected demand for communications facilities. It is therefore apparent to the Telecommunications Commission that a major building of the size now proposed will be required to ensure that the total demands of the network can be met economically and at the same time have sufficient flexibility to cater for any unexpected change in the pattern of development.

14. At present, the two major exchanges which serve the Canberra area in the context of the national trunk network, are located at Civic and East Block. East Block exchange houses some obsolescent trunk equipment and the Telecommunications Commission will be required to vacate this accommodation as a consequence of the construction of the new Parliament House. Accommodation on the existing Civic exchange site is limited primarily because of building height and site usage limits imposed by the NCDC.

15. To meet the expected demand for trunk facilities after space at Civic exchange has been exhausted, and to allow East Block to be

progressively vacated, it will be necessary to have the proposed Deakin exchange building completed by late 1978. This will permit equipment to be installed and commissioned by late 1979 or early 1980.

16. The Committee were provided with projections of subscriber growth and expected trends in telecommunications development up to the year 2000. The expected future development of the various equipment elements to be accommodated in the proposed building has been used as a basis for space requirements. The requirements for the various facilities are as follows.

17. Local Subscribers Switching Equipment The estimated growth in the demand for local subscribers services in the Deakin exchange area is governed mainly by the rapid development in Woden Town Centre and the surrounding residential suburbs which it serves. The present building will accommodate 15000 lines of local equipment. Space will be allocated in the new building for a further 10000 lines.

18. Trunk Switching Equipment The requirements for trunk switching equipment at Deakin have been based on the estimated total equipment needs for the Canberra area. As the maximum trunk accommodation at Civic exchange is sufficient for 4000 terminations only, space will be provided at Deakin for 27000 trunk terminations. By the year 2000, present planning envisages the establishment of a third trunk centre in the northern sector of the network, probably near Belconnen.

19. Automatic Telex Switching Equipment Following the introduction of automatic Telex switching facilities, there has been a continuing high demand for this service throughout Australia. Space will be provided in the new Deakin building to meet future development and to permit eventual replacement of the present Telex installation at Civic.

20. Automatic Data Switching Equipment Overseas trends suggest that a rapidly increasing demand for data switching services, both in number and complexity can be expected within the next few years.

21. Message Switching Equipment No equipment of this type is at present installed in Canberra. However, as this service is currently being introduced into the national network, a need is expected to arise for this facility within the life of the proposed building. As various types of equipment to provide this service are still under review, the area of 670 square metres allocated for this purpose has been based on the area provided at Haymarket Exchange, Sydney. The rate of future demand can only be estimated from trends and forecasts made in both the U.S.A. and the U.K.

22. Tandem Switching Equipment It is estimated that the Canberra network will grow from 53550 subscribers in December 1974 to a figure of between 355000 and 480000 by the year 2000. Network studies of the tandem terminations required for a network of this size indicate that tandem exchanges will be required in at least three locations, depending on the economics of network design in the future. Deakin is currently being established as the second location for a tandem exchange in Canberra, providing tandem switching facilities to exchanges mainly to the south of the Molonglo River.

23. Centralised Private Automatic Branch Exchange Equipment At present, PABX subscribers are being served by a large number of relatively small installations located in Government and commercial buildings. However, it is proposed that in future suitably located subscribers will be serviced by a single large PABX to be located in the new Deakin exchange building. This new concept will provide a greater range of facilities than those currently available.

24. Special Facilities for the New Parliament House The new Parliament House will be provided with a wide range of modern telecommunication facilities requiring special back-up equipment. It is proposed that this equipment will be located in Deakin exchange.

25. Long Line Equipment The long line equipment planned for progressive installation in the proposed building will provide the necessary trunk channels to supplement the network needs of the Canberra area.

26. Committee's Conclusion The existing facilities are approaching full utilisation. The proposals of the Australian Telecommunications Commission to provide for the long term needs of the expanding networks are soundly based and the construction of a new telephone exchange building at Deakin is appropriate to meet these needs.

THE SITE

27. The site is approximately 6.5 hectares in area with a frontage to Kent Street and is bounded on the north by a proposed loop road and on the south by the proposed Gowrie Drive. The land is owned by the Australian Government and has been reserved for telecommunications facilities by agreement with the National Capital Development Commission.

28. The Committee are of the opinion that the site allocated exceeds the needs of the Australian Telecommunications Commission and that consideration should be given to portion of the land being handed back to the National Capital Development Commission.

29. The location of this site is considered to be the optimum available for the development of a telecommunications complex. It is well placed to meet the expected growth pattern in relation to subscribers requirements in the Woden-Tuggeranong area and is sufficiently separated from existing major equipment installations to ensure adequate network security without incurring excessive cost penalties for interconnecting links.

30. The site will cater for building expansion to meet demands beyond the year 2000 and also provides adequate car parking space.

31. Committee's Conclusion The site selected is suitable, but consideration should be given to portion of the land being handed back to the National Capital Development Commission.

THE PROPOSAL

32. The proposal is to erect a major telecommunications building in close proximity to the existing Deakin Telephone Exchange.

33. The building will comprise a basement, ground and two upper floors with a part roof area, and will have a gross floor area of 22454 square metres to accommodate a wide range of telecommunications equipment. This is planned to meet the needs of the trunk network, the local subscribers area and the tandem switching requirements of the Southern Sector of the Canberra local network. It will also provide switching facilities to meet telex and data services, some PABX requirements and special services for Parliament House, predicted for Canberra until the year 2000.

34. Basement Two interlinked chambers will permit the entry of street cables to the building and, to some extent, the distribution of internal cables throughout the building. A parking area together with air handling plant, emergency power, electricity sub-station, workshop, office and stores are provided.

35. Ground Floor The main pedestrian entry and security control for the building are to be located at this level. The majority of the ground floor area will be occupied by local and tandem switching, PABX, telex/data switching equipment, M.D.F., air handling plant and associated ancillary areas.

36. First and Second Floors These floors will be progressively occupied by telex/data, long line equipment, trunk switching and special telecommunications facilities, together with associated ancillary services such as power and battery rooms, air handling plants, equipment maintenance areas, amenities, stores and offices for technical and clerical staff.

37. Roof Part of the roof area will be used to accommodate cooling towers, lift motor rooms and associated plant.

38. Security Because of the importance of this major telecommunications building to Canberra and the national network, special security features have been incorporated into the building design.

39. Amenities and Staffing The building has been designed to include amenities in accordance with the relevant ordinances of the Department of the Capital Territory, the Amenities Code and to the standard adopted by the Australian Telecommunications Commission as being commensurate with that necessary to provide suitable conditions for its staff.

40. The total staff to be employed in the ultimate Deakin Telephone Exchange complex is estimated at approximately 250 which includes 30 females. A maximum of about 120 staff will be on duty simultaneously.

41. Parking Parking space will be provided for 15 departmental vehicles in the basement of the proposed building as well as approximately 116 external surface parking positions for both staff and visitors vehicles.

CONSTRUCTION

42. Structure The building will be of reinforced concrete construction and has been designed to meet special functions and requirements including heavy floor loadings for equipment floors, building plant loads, provision of slots in floors for cable penetration and the need to position columns to suit the spacing of equipment racks.

43. The floor to floor height on all floors will be approximately 5.029 metres to allow for the height of equipment, structural clearances and the floor structure.

44. External Finish The facade treatment will consist of interlocking precast panels which will be subdivided by recessed horizontal and vertical joint planes. The roof will be coloured metal deck.

45. Internal Finishes Plain smooth internal surfaces which will not generate or harbour dust will be used throughout the building. All equipment areas will have a minimum maintenance coating to wall surfaces. Floors will be screeded level and finished with vinyl flooring to equipment and general areas. Computer equipment areas will have special raised metal framed modular floors. Toilets will have ceramic tiles on walls and floors. Equipment, building plant and basement areas will have painted off-form concrete ceilings. Corridors, lobbies, amenity and computer equipment areas will have suspended ceilings.

46. Mechanical Services Air conditioning will be provided to serve all equipment and normally occupied areas. Central plants will provide chilled and hot water to the individual air handling plants located throughout the building. The initial installation of air conditioning plant will be limited to serve the present known equipment requirements and provision made for the ultimate plant to be installed as required to meet the progressive installation of telecommunication equipment. Equipment areas where the control of temperature and relative humidity is to meet the high reliability requirements of telecommunication equipment will be served by air handling plant of high reliability. Conventional air handling plant will serve areas where there are no special technical requirements. Mechanical ventilation will be provided to the power rooms, all toilet areas, basement and tea preparation areas.

47. Emergency generating plant located at the basement will provide essential light and power should a failure occur in the mains supply. Miscellaneous equipment will include domestic hot water, refrigerated drinking water, hoists and lunch room equipment.

48. Electrical Services Power will be supplied from the A.C.T. Electricity Authority through a sub-station located at the basement level. To cater for the high reliability of the equipment, there will be duplication of critical electrical components within the building. Illumination will be provided by fluorescent light fittings located to suit the needs of the project and will be in accordance with the S.A.A. lighting code. A supervisory system will be provided to monitor mechanical and electrical services. The central control room for the system will be located in the basement. A master clock system will be provided with slave clocks suitably located on each floor. Security lighting is to be provided in accordance with the security requirements of the Australian Telecommunications Commission. The building will be provided with a lightning protection system.

49. Lifts Two passenger lifts of 15 persons capacity running at 100 metres per minute are to be provided, each serving the basement, ground, first and second floors. Goods service will be provided by one 2750 kg goods lift designed to transport equipment racks, rectifiers and other equipment.

50. Fire Protection The building structure and functional sub-divisions will be fire rated in accordance with the provisions of the A.C.T. building manual, which requires three fire isolated stairways serving each floor level. The normal provisions have been made for all floors, except the basement, to be protected with a combination of early warning

and thermal fire detection systems. Because of the size and importance of this facility, the Australian Telecommunications Commission has requested that alternative fire protection systems be investigated. A provisional sum has been included in the estimate based upon a pre-action dry pipe sprinkler system on all telecommunication equipment floors. The basement area will be protected with a wet sprinkler system. Manual break-glass alarm points will be installed on all floors and connected to the Fire Brigade. Hand fire extinguishers, small bore hose reels and fire hydrants will be installed in accordance with normal practice for telephone exchanges.

51. Hydraulic Services The building will be provided with normal water, sewerage and drainage services, connecting to existing street mains. Roof mounted tanks for domestic water will be provided. Water supply for fire fighting purposes will be supplied from two separate service reservoirs.

52. Environmental Considerations The environmental impact statement for this proposal has been cleared by the Department of the Environment.

53. Committee's Conclusion The Committee recommend the construction of the work in this reference.

ESTIMATE OF COST

54. The estimated cost of the work when referred to the Committee was $12.75 million. At the time of the Committee's hearing it was $13.5 million made up as follows:

	$
Building works	7,803,550
Mechanical services	3,494,120
Electrical services	1,376,470
Lift services	211,750
Hydraulics	84,700
Landscaping and site works	296,470
Provisional sum for fire protection	232,940
	13,500,000

PROGRAM

55. It is estimated that the contract documents for the construction of the project will be prepared for tenders to be invited early in 1976.

56. Construction of the building will require a minimum contract period of 30 months.

OTHER OBSERVATIONS

57. Car Parking The Committee are concerned that the provision of 116 vehicle spaces to cater for a maximum of 120 staff on simultaneous duty, plus official visitors, appears over generous and contrasts with the policy adopted by the Government of fostering the use of public transport.

58. However, we were assured that this provision is in accordance with the requirements of the National Capital Development Commission and that as the area is inadequately serviced by public transport a reasonable provision has been applied in this instance.

59. Other factors supporting this provision are that

- land is readily available;
- double loading would occur at shift changeover;
- hardstanding for each vehicle space can be provided at relatively low cost.

60. Nevertheless, the Committee recommend that the present car parking policy be re-examined with a view to establishing some consistency throughout Australia.

RECOMMENDATIONS AND CONCLUSIONS

61. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

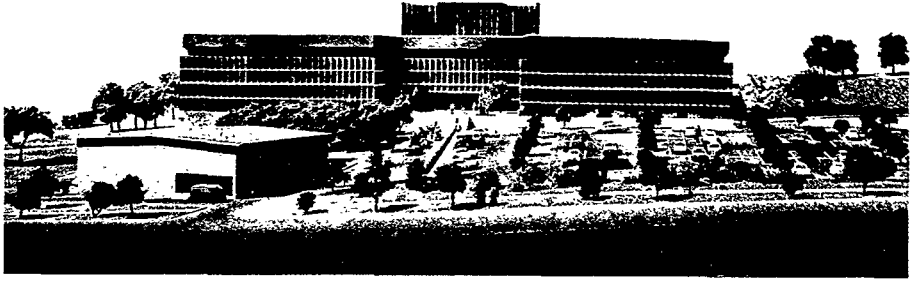
		Paragraph
1.	THE EXISTING FACILITIES ARE APPROACHING FULL UTILISATION.	26

		Paragraph
2.	THE PROPOSALS OF THE AUSTRALIAN TELECOMMUNICATIONS COMMISSION TO PROVIDE FOR THE LONG TERM NEEDS OF THE EXPANDING NETWORKS ARE SOUNDLY BASED	26
3.	THE CONSTRUCTION OF A NEW TELEPHONE EXCHANGE BUILDING AT DEAKIN IS APPROPRIATE TO MEET THESE NEEDS.	26
4.	THE SITE IS SUITABLE, BUT CONSIDERATION SHOULD BE GIVEN TO PORTION OF THE LAND BEING HANDED BACK TO THE NATIONAL CAPITAL DEVELOPMENT COMMISSION.	31
5.	THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE WORK IN THIS REFERENCE.	53
6.	THE ESTIMATED COST OF THE WORK AT THE TIME OF THE COMMITTEE'S HEARING WAS $13.5 MILLION.	54

(L.K. JOHNSON)
Chairman

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

21 August 1975.



VIEW FROM KENT STREET