



1972

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

*Parliamentary Standing Committee on Public Works*

## REPORT

relating to the proposed construction of a

# TELEPHONE EXCHANGE

at

## Woolloongabba, Queensland

(TWENTY-SEVENTH REPORT OF 1972)

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

TELEPHONE EXCHANGE  
WOOLLOONGABBA, QUEENSLAND

R E P O R T

By resolution on 31 August 1972, the Senate referred to the Parliamentary Standing Committee on Public Works for investigation and report to the Parliament, the proposal to erect a Telephone Exchange building at Woolloongabba, Brisbane, Queensland.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the erection of a self-contained building comprising a basement, ground floor and fifteen upper floors on a site on the corner of Main and Linton Streets, Woolloongabba, adjacent to the existing exchange.
2. The estimated cost of the proposed work is \$10.2 million.
3. The proposed building is to become the principal trunk switching centre for Queensland and will also contain local subscribers and tandem exchange equipment, an automatic telex centre and data processing facilities. The work in the reference is planned to cater for expected subscriber growth and other telecommunications requirements up to the year 2000.

THE COMMITTEE'S INVESTIGATION

4. The Committee received written submissions and drawings from the Australian Post Office and the Department of Works and took evidence from their representatives at a public hearing in Canberra on 19 September 1972. Before the hearing the Committee had inspected facilities in the existing exchange building, the Edison and Central exchanges and the site proposed for the new building.

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

BRISBANE TRUNK TELEPHONE FACILITIES

6. Edison Exchange The Edison Exchange in Elizabeth Street, City is currently the focus of trunk telephone facilities in Brisbane. It was completed in 1965 and equipped with automatic trunk switching equipment which was brought into service in 1968. Continued growth of subscriber services will result in full utilisation of equipment and available space by 1975. The building is not capable of vertical extension and lateral expansion is undesirable and uneconomic because of cable reticulation arrangements. Also, further extension of the main trunk switching system in this location is not favoured from an overall security view because it would result in excessive concentration of essential services on a single site in the high density city area.

7. The building also contains long line trunk equipment but the available accommodation can cope with short term needs only.

8. However, Edison is well located to serve the city area and it is planned that it will be retained in the role of the city switching centre for the remainder of its useful life.

9. Central Exchange The original Brisbane manual trunk exchange equipment was installed in this building 45 years ago. It is located close to the Edison Exchange. The equipment is still in use but the accommodation is congested and the operating positions lack many of the technical aids now fundamental to efficient and economic manual assistance. No space is available in the building for the installation of additional manual assistance positions and a limited number are now being installed in the Edison Exchange. To release some space in Central Exchange a number of facilities are presently being relocated in leased accommodation in the adjoining Dunstan House.

10. The exchange also accommodates a telex centre and whilst space for expansion is limited, this facility will be able to meet requirements until the year 1978. It is proposed that development will then be met by new facilities in the proposed Woolloongabba centre.

11. Woolloongabba Exchange The existing exchange building serves as the local switching centre for southern Brisbane suburbs and houses local subscriber switching and tandem switching equipment, associated plant and a major fault dispatch centre. Accommodation in the building is now almost fully utilised and it is expected that facilities will not cope with development beyond 1976.

#### FUTURE PLANS

12. The Committee were provided with projections of subscriber growth and expected trends in telecommunications development up to the year 2000. Substantial increases are expected in international calls and interstate and intrastate trunk calls. Smaller but significant increases are expected in local calls.

13. To meet the future growth of the Brisbane trunk network it is planned that ultimately there will be three main switching centres, Metropolitan in the Edison Exchange, Southern in the proposed Woolloongabba centre and by about 1982, depending on actual growth, the third at Spring Hill on the northern fringe of the inner city area.

14. Implementation Implementation of these long term plans will require new accommodation to cater for expansion of services and provide the necessary support facilities for the technically more sophisticated equipment now coming into service.

15. It is intended that the proposed Woolloongabba centre will become the principal trunk switching centre but also continue in the local role of a subscriber and tandem switching exchange. It will also provide automatic telex and data processing facilities. The centre is required initially to meet growth for the interstate, intrastate and international networks and for associated manual assistance and long line services.

16. An outline of the services to be provided in the new building follows:

17. Automatic Trunk Exchange Equipment The automatic trunk switching centre in Edison Exchange handles most interstate traffic but can cope with expansion only until 1975. It is planned that growth beyond 1975 will be met by the proposed Woolloongabba centre. The two exchanges will be linked directly to main centres in State capitals and to overseas networks by way of the O.T.C. cable terminal at Cairns. It is proposed that the two centres will be the focal points for interstate traffic and be key locations for handling trunk traffic in the national network.

18.     Local Subscribers Exchange     The subscribers exchange area includes the suburbs of Kangaroo Point, East Brisbane, Woolloongabba, Buranda and Stones Corner. These suburbs are located relatively close to the city centre and are regarded as having high potential for redevelopment. The area currently has some 5,000 telephone subscribers and after taking into account planned adjustments with the South Brisbane exchange area, it is expected that there will be 11,000 subscribers by 1990 and 15,000 by the year 2000. To meet this growth it is proposed to house subscribers switching equipment on two floors of the proposed building to augment the facilities in the existing building.

19.     Tandem Exchange Facilities     The present Woolloongabba Exchange is the tandem centre for the south side of Brisbane, collecting calls from a number of sources and dispatching or dispersing them to various destinations. The tandem exchange area is developing more rapidly than other areas of Brisbane and growth will receive further impetus with the completion of improved road access including the south eastern freeway and the Captain Cook Bridge. It is expected that tandem equipment will reach 8,000 lines by 1977 and grow to 32,000 by 1990. This growth cannot be contained by expansion in the existing building alone.

20.     Manual Assistance Services     Given that the maximum possible use will be made of STD facilities and automation in the future, some manual assistance services will always be necessary. Operator assistance will also continue to be required for directory assistance, service difficulties and faults and appointment and reminder calls. It has been assessed that fifty national and fifty international assistance positions will be required at Woolloongabba to meet trunk development until 1984. It is planned that growth after 1984 will be accommodated in the proposed Spring Hill Exchange.

21. Automatic Telex Equipment The existing equipment in Central Exchange has limited capacity and a slow speed of working. As the facility is not suitable for upgrading with newer electronic switching equipment it is proposed that a new facility be established at Woolloongabba. In 1970 telex services numbered 950 and are expected to reach 6,400 by the year 2000.

22. Long Line Equipment Accommodation is required in the Woolloongabba centre to cope with expansion beyond the short term capacity of the facilities in the Edison Exchange. Some 32,000 trunk circuits will ultimately be connected to trunk switching equipment in the new building.

23. User Data Network It is expected that by 1980 the common user data network (CUDN) installation in the Edison Exchange will be at capacity. It is proposed to then establish a new facility at Woolloongabba.

24. Woolloongabba Location The Woolloongabba site has several features which commend it for the establishment of a major exchange centre within the overall trunk network plan. Particularly, the site is at the hub of the trunk and junction cable routes south of the Brisbane River and a minimum of disruption and cable diversion would be required. It was noted that alternative sites were investigated including several nearby but all would involve more costly cable diversion works.

25. It is 200 yards from a major public transport interchange. Whilst the locality is zoned residential, use of the site as proposed has been endorsed by the local authorities.

26. Committee's Conclusion It was evident to the Committee that the present accommodation for major telecommunication facilities in Brisbane is approaching full utilisation and requires substantial augmentation to cope with forecast traffic growth.

It was further evident that much of the existing equipment is becoming obsolete and must soon be replaced if degradation of service is to be avoided.

27. The Committee consider that the proposals of the Australian Post Office to meet the long term needs of the expanding networks are soundly based and establishment of a major switching centre at Woolloongabba is appropriate to these needs.

28. The Committee concur with the decision to establish the centre adjacent to the existing exchange at Woolloongabba.

#### THE BUILDING PROPOSAL

29. The Site and Site Usage The site is of irregular shape with frontages of 322 feet to Linton Street and 98 feet to Main Street. It adjoins private property and the existing telephone exchange. Several old houses on the site have been allowed to remain pending demolition before construction commences.

30. The building will cover about half of the site with setbacks from both streets. The setbacks will be landscaped with lawns, trees and shrubs. The eastern end of the site is to be used for 40 car parking spaces of which 30 will be required for official vehicles and visitors. However, additional spaces for private parking will be available after normal working hours.

31. We were informed that as the opportunity occurs, the Post Office intends to purchase adjoining property to improve the site amenity and to augment the car parking area. Because the Committee believe that it is important to improve the setting of the building and the amenity of its immediate environment including car parking, we recommend that a more positive approach be adopted and that the Post Office acquire additional land adjacent to the new complex for these purposes.

32. General Planning As the building will rise above the adjoining domestic development and be viewed from all sides, care will be taken to achieve an acceptable appearance and whilst it will be virtually windowless, it will have exposed aggregate facings, exposed columns and deep reveals for visual relief.

33. The basically rectangular floor plan will provide large clear areas for equipment, with lifts, lobbies and amenities areas grouped at the western end. Fire isolated stairways will be provided at both ends.

34. In view of the key role the exchange will play in the State and national trunk networks, special security features will be provided.

35. It is proposed that the building will be occupied in the following way:

36. Basement Dining and recreation facilities for staff employed in the building will occupy the greater proportion of this floor. A cable chamber will be located on the southern side. Other facilities will include an electricity substation, PMG substation and air conditioning plant.

37. Ground Floor This floor will be largely occupied by the main distribution frame, test desks and apparatus racks. The main building entrance, a security control point and the main lift lobby will also be on this level.

38. Upper Floors Floors 1 to 14 inclusive will accommodate the various forms of telecommunications equipment proposed together with associated power rooms, air conditioning plant, supervisory offices and staff amenities.

The telecommunication facilities will include manual assistance centres, local subscribers switching equipment, tandem exchange equipment, test and performance analysis facilities, long line equipment, automatic trunk switching equipment, a common user data network facility and automatic telex equipment.

39.        Fifteenth Floor        This floor will house an emergency generating plant room, electricity substations, air conditioning plant, the main power control room, a radio telephone equipment room and supervisory office, equipment areas, stores and amenities.

40.        Roof        This level will be occupied by the lift motor room, plant cooling towers, water storage tanks, a radio mast and a lightning conductor system.

41.        Amenities        It was noted that the amenities and facilities to be provided will conform with relevant ordinances, the approved amenities code and to the Post Office's standards. The cafeteria will provide hot meals and light refreshments with seating for up to 250 persons. The total staff in the establishment will be of the order of 1,115 of whom a maximum of 705 would be on duty at any one time.

42.        Structure        The building frame will be of reinforced concrete on pad footings founded on rock. The floor to floor height will be 15 feet 9 inches to meet the clear height requirements of equipment racks after allowing for service ducts and the floor structure. Special features of the structural design are the use of high strength concrete for minimum column sizes and the ability of the floor structure to absorb heat gain in the event of failure of the air conditioning plants.

43. Internal Finishes Internal wall finishes will be plain with smooth surfaces to avoid dust collection and will include a semi gloss paint finish to equipment rooms, ceramic tiles to toilets, vinyl fabric in lift lobbies and paint finish on cement render generally throughout the building. Floors in equipment rooms and working areas will be finished with vinyl tiles. The manual assistance centres will be carpeted and supplied with heavy drapes along cable risers for aesthetic and acoustic reasons. Ceilings will have a paint finish in equipment areas and will be of the suspended acoustic type in amenities and staff working areas. Internal partitions will be of a demountable type.

44. Mechanical Services Air conditioning will be provided to equipment rooms and normally occupied areas. To maintain continuous air conditioning within strict temperature and humidity tolerances in equipment areas, multiple air handling and refrigeration plants will be installed. Exhaust ventilation will be provided in battery and rectifier rooms, plant areas, toilets, kitchens and electricity substations. Emergency generating sets will be provided to power equipment and air conditioning plants in the event of failure of the mains supply. Other services to be provided include domestic hot water, refrigerated drinking water units, kitchen equipment, cold rooms, water booster pumps and hoisting equipment.

45. Electrical Services To meet the heavy power requirements of the telecommunications and air conditioning equipment it will be necessary to supply high voltage power to a number of substations at various floor levels. Critical electrical components will be duplicated to ensure a high degree of reliability of service. Fluorescent lighting will be provided generally throughout the building and external flood lighting will be installed.

46. Lifts Three high rise and two low rise passenger lifts will be provided. A goods lift designed to transport equipment racks and other items of equipment and a service lift of the dumb-waiter type will also be installed.

47. Fire Protection The building will be of fire resistant construction generally in accordance with the local building regulations. The fire protection system will include a combination of fire detectors and sprinklers, automatic extinguishing systems in substations, manual alarm points, hydrants, portable extinguishers and hose reels. An explosive gas detection system will be installed in the cable chamber.

48. Hydraulic Services Water, sewerage and drainage lines will be connected to adjacent council mains. Water storage tanks of 60,000 gallons capacity will be provided on the site to maintain water supply for all purposes. Two 5,000 gallon tanks will be installed on the roof to supply the cooling towers.

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

ESTIMATE OF COST

50. The estimated cost of the work when referred to the Committee was \$10.2 million, as follows:

|                     | \$           |
|---------------------|--------------|
| Building works      | 4,676,600    |
| Mechanical services | 3,973,000    |
| Electrical services | 1,105,400    |
| Lifts               | 445,000      |
|                     | <hr/>        |
|                     | \$10,200,000 |
|                     | <hr/>        |

PROGRAMME

51. The target of the Australian Post Office is to have the building completed by the end of September 1975. Providing an early approval to proceed is given this can be achieved by letting a contract for the excavation works in November 1972 and the main building contract in April 1973.

RECOMMENDATIONS AND CONCLUSIONS

52. 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.

|                                                                                                                                                                                          | <u>Paragraph</u> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1. PRESENT ACCOMMODATION FOR MAJOR TELECOMMUNICATIONS FACILITIES IN BRISBANE IS APPROACHING FULL UTILISATION AND REQUIRES SUBSTANTIAL AUGMENTATION TO COPE WITH FORECAST TRAFFIC GROWTH. | 26               |
| 2. MUCH OF THE EXISTING EQUIPMENT IS BECOMING OBSOLETE AND MUST SOON BE REPLACED.                                                                                                        | 26               |
| 3. PROPOSALS TO MEET THE LONG TERM NEEDS OF THE EXPANDING NETWORK ARE SOUNDLY BASED.                                                                                                     | 27               |
| 4. ESTABLISHMENT OF A MAJOR SWITCHING CENTRE AT WOOLLOONGABBA IS APPROPRIATE.                                                                                                            | 27               |
| 5. THE COMMITTEE CONCUR WITH THE DECISION TO ESTABLISH THE CENTRE ADJACENT TO THE EXISTING EXCHANGE AT WOOLLOONGABBA.                                                                    | 28               |

6. THE POST OFFICE SHOULD ACQUIRE ADDITIONAL LAND  
ADJACENT TO THE NEW COMPLEX TO IMPROVE THE  
SETTING OF THE BUILDING AND THE AMENITY OF ITS  
IMMEDIATE ENVIRONMENT INCLUDING CAR PARKING. 31
7. THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE  
WORK IN THIS REFERENCE. 49
8. THE ESTIMATED COST OF THE WORK WHEN REFERRED  
TO THE COMMITTEE WAS \$10.2 MILLION. 50



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28 September 1992.