

1954-55.

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA.

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PARLIAMENTARY STANDING COMMITTEE  
ON PUBLIC WORKS.

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REPORT

RELATING TO PROPOSED CONSTRUCTION OF AN

AUTOMATIC TELEPHONE EXCHANGE  
BUILDING

AT

REDFERN, N.S.W.

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*Presented pursuant to Statute; ordered to be printed, 21st April, 1955.*

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.  
(FIFTEENTH COMMITTEE.)

(Senators appointed 10th August, 1954, Members of the House of Representatives  
appointed 11th August, 1954.)

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EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES, No. 40,  
DATED 10TH NOVEMBER, 1954.

7. PUBLIC WORKS COMMITTEE—REFERENCE OF WORK—TELEPHONE EXCHANGE, REDFERN, NEW SOUTH WALES.—  
Mr. Kent Hughes (Minister for Works) moved, pursuant to notice, That, in accordance with the provisions of  
the *Public Works Committee Act 1913-1953*, the following proposed work be referred to the Parliamentary  
Standing Committee on Public Works for investigation and report, viz. :—Erection of Automatic Telephone  
Exchange Building at Redfern.

Mr. Kent Hughes laid on the Table plans in connexion with the proposed work.

Debate ensued.

Question—put and passed.

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# THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

## AUTOMATIC TELEPHONE EXCHANGE BUILDING, REDFERN, N.S.W.

### REPORT.

The Parliamentary Standing Committee on Public Works, to which the House of Representatives referred for investigation and report the question of the erection of an Automatic Telephone Exchange Building at Redfern, New South Wales, has the honour to report as follows:—

#### SECTION I.—INTRODUCTION.

##### HISTORICAL.

1. The existing Post Office and Telephone Exchange site at Redfern is situated on the corner of Redfern and George streets, and the present exchange building, which faces Redfern-street, was erected in 1909. It was extended in 1937 to accommodate automatic switching equipment to serve local subscribers, and it has now reached the limits of its capacity.

2. In 1949, it was decided that, as part of the planned development of the Sydney telephone network, the erection of a new major telephone exchange was necessary at Redfern. Additional land adjoining the existing Post Office and Branch Exchange was acquired, and sketch plans were prepared for the development of the whole site, including a new Post Office building. These plans were abandoned in 1951 through lack of funds, owing to commitments on higher priority works, and, in 1952, it was decided that the rebuilding of the Post Office would have to be deferred.

3. New designs were requested for a building on the southern portion of the site to accommodate all telecommunication facilities in one stage of construction, thus providing a more economical solution, as it will enable separate development for postal service activities as requirements arise. This could be achieved by the gradual remodelling of the existing premises when it becomes necessary.

4. Preliminary sketches for a building on the southern portion of the site were prepared, but the plan was again deferred, late in 1952, pending the establishment of the Postmaster-General's works priority list. The necessity for implementing the Metropolitan Network Development Plan involves conversion of the Redfern branch exchange into a main exchange serving other branch exchanges now attached to City South main exchange, as well as certain exchanges from City East main exchange. A new Redfern exchange is therefore planned at this stage to supply the urgent requirements of the extended area to be served from this point, and to provide for future expansion to meet development estimated for some years to come.

#### SECTION II.—THE PRESENT PROPOSAL.

##### THE BUILDING.

5. The present proposal is to erect, on the southern portion of the site, a building constructed of structural steel, with an outer skin of reinforced precast concrete slabs, fixed directly to the building. The building will comprise a ground, mezzanine, and five upper floors, and will be connected by a covered way to the existing post office.

##### ESTIMATED COST.

6. The estimated cost was set down in the original reference at £409,000, but it is estimated that this will be increased by the impact of marginal increases to

wages in the order of approximately 8 per cent. This would raise the estimated total figure to £442,000. Estimated time of construction is 21 months from the time of signing the contract.

#### SECTION III.—THE COMMITTEE'S INVESTIGATIONS.

##### GENERAL.

7. The Committee studied the plans and visited Sydney to take evidence on the proposal. A visit of inspection was made to view the site with the present buildings upon it, and to inform the members of the existing arrangements in relation to the proposed development of the area. Evidence was taken from appropriate officials of the Department of Works and the Postmaster-General's Department immediately concerned in the work, and from City Council officers in a position to advise the Committee on matters concerned with the project.

##### NEED FOR THE BUILDING.

8. *The Telephone Aspect.*—The Sydney network is divided into nine main exchange groups, each being accorded a letter on the telephone dial from B to Y. There are ten two-letter prefixes or dialling codes available in each main exchange area, and, theoretically the maximum number of subscribers who may be served in such an area is 100,000 (ten locality exchanges of 10,000 each). In practice the effective capacity of a locality exchange is 90 per cent. of the theoretical maximum, or 9,000 each.

9. A main exchange has the telephone traffic routed through underground cable junctions between the locality exchanges concerned, and is therefore a focal point in a complex network of junctions. The siting of the main exchange, in relation to the other exchanges, is therefore of great importance. From time to time it becomes necessary to rearrange the boundaries of the main exchange areas to ensure that available dialling codes and subscribers' number ranges can continue to meet the demand, and this is one of the objects planned in the present proposal.

10. *The Engineering and Traffic Aspects.*—Telephone subscribers' development in the Redfern area necessitates the provision of additional building space to house the required exchange equipment. In addition, the increased demand for service in the central area of the City of Sydney, and the eastern suburbs, has led to extra demands for switching equipment space at Redfern. A considerable amount of detailed evidence was submitted showing the position in the areas affected, with plans and charts to demonstrate to the Committee the real necessity at the present time for relief at various points. These showed that space is required to house the equipment at Redfern for its main exchange purposes, and also for expansion to meet future development for the local services at Redfern. The proposed building will include sufficient space to cater for the estimated requirements for the next twenty years.

11. There are therefore three basic reasons justifying the proposed Redfern main exchange. It allows the network re-arrangement plans for optimum use of available numbers to be implemented: it enables telephone equipment space to be freed at City South, where cable tunnel congestion and the need to accommodate long

line terminal equipment is creating urgent demands: and it allows the Redfern local exchange equipment to be expanded to meet development in the area. The Committee is therefore satisfied that there is an urgent need for the building proposed.

#### THE BUILDING.

12. The building is planned to enable future extension over the site now occupied by the Post Office, should this be required at a later date. The structure rises to a height of just under 100 feet above pavement level, and is to extend over the whole of the site after allowances have been made for light courts and clearances from the existing buildings. Civil defence precautions have been fully considered and, as a result have been limited to use of the cable chamber for emergency purposes. It will have a specially strengthened debris slab for protection.

13. *Accommodation.*—The ground floor will provide for entrance lobby, power room, cable chamber, public telephones, and cart dock. The first floor will contain the main distributing frame room, switch room, offices, unloading area and adjustment area, while the mezzanine floor provides for complaints telephonists. The second and third floors provide for selector and relay set equipment racks, technician's office and store. The fourth floor is a reserve equipment floor to meet unforeseen development, or the post twenty-year development, of the "M" main exchange area. This floor will be used initially to accommodate the Telegraph Service Depot, which is at present housed in unsuitable space in the Central City area. The fifth floor is allocated for amenities, air-conditioning plant, and Exchange Installation Depot. It is expected that the total ultimate staff will approximate 165.

14. *Amenities.*—The locker rooms, toilet blocks, and lunch room have been planned to provide for amenities, in accordance with modern standards, for use by the staff. There is to be a large lunch room on the fifth floor, seating 76 people, and this room has two sets of extensive windows with a southerly aspect. Male locker room plans for 122 lockers, and toilets and showers are provided on this floor. The female staff are to be employed principally on the mezzanine floor, and lockers, rest room, and toilets are therefore provided for them at that level.

15. *Construction.*—It is proposed that the frame of the building shall be constructed of structural steel. Half of the steel required is already in stock, but the balance may have to be imported. Cavity construction is proposed for the external walls, with the outer skin in suitably reinforced precast concrete panels. The inner skin will be of precast blocks, bringing the aggregate fire rating to that required by the authorities.

16. Samples to demonstrate the type of pre-cast concrete panels were submitted for the Committee's inspection, and inquiry was made regarding the desirability of using this method of construction. The Committee was informed that, although it is comparatively new, this method has been used extensively overseas, and has been well tested at the Experimental Building Station of the Department of Works. The intention is to provide a utilitarian standard in conformity with that adopted in the more recent exchanges, and this building presents a suitable opportunity to establish this method in practice, to test it for future use on more important buildings. The Committee is satisfied that pre-cast concrete panels should be used for this purpose.

17. Face bricks will be used up to the first floor level, with the pre-cast panels above showing exposed aggregate. Windows will be of bronze. The flat concrete roof will be waterproofed by means of a bituminous and aluminium membrane over lightweight concrete grading, and finished with pre-cast concrete

tiles. This is considered to be a reliable method of treating flat roofs which otherwise cause trouble in wet weather.

#### ENGINEERING SERVICES.

18. *Full Air-conditioning.*—Trouble-free operation is particularly important in this proposed main exchange, on which another eight exchanges will depend, and it will be essential to provide full air-conditioning for all areas housing telecommunication equipment. Investigation has been made with a view to keeping the provision of equipment at a minimum at this exchange, but it is considered expedient to make provision initially for air-conditioning plant of a capacity to cope with the ultimate exchange equipment.

19. Conditioned air will be distributed by means of ceiling type distributors connected to a separate duct system on each floor. Automatically controlled dampers, varying the proportion of hot and cold air admitted to the duct system on each floor, will be used to achieve the required individual temperature control on each floor.

20. *Mechanical Ventilation.*—The power and battery rooms are to be ventilated by means of propeller type fans and accompanying ductwork, while the cable tunnel will be ventilated by a centrifugal supply fan to keep the tunnel free of foul air from the cable conduits.

21. *Lifts.*—There will be one passenger lift to transport the Exchange staff between all floors. Facilities for raising heavy and bulky articles are being made available in the form of an enclosed hoist. A one-ton monorail will be provided on the ground floor over the loading area, and a 30-cwt. monorail over the diesel generating plant.

22. *Other Services.*—Hot water will be provided to all basins, &c., from a 300-gallon electrically heated "off-peak" water storage tank. An emergency diesel generating plant will be provided for use in case of break-down in this main exchange, and the plant will be installed in the existing adjacent building. Fire protection will consist of extinguishers, hydrants, and automatic fire alarm.

#### ESTIMATES OF COST.

23. The details of the estimated cost, based on building rates current in November, 1954, are—

	£
Preliminary site works .. .. .	6,700
Building work .. .. .	297,000
Electrical services .. .. .	25,000
Mechanical services .. .. .	59,000
Paths and paving .. .. .	800
Hydraulic services .. .. .	11,000
Furniture and floor coverings .. .. .	9,500
	<hr/>
	409,000
Estimated marginal increases 8 per cent. ..	33,000
	<hr/>
	442,000

#### FINANCIAL ASPECTS.

24. In addition to the cost of the building this project involves important commitments on various other sections of the activities carried out by the Postmaster-General's Department. The complete cost of the project is estimated as follows:—

	£
Site .. .. .	2,280
Building, as above .. .. .	409,000
Equipment—	
Material .. .. .	989,760
Labour .. .. .	218,000
Line construction .. .. .	297,460
Administration .. .. .	167,000
Contingencies .. .. .	10,500
	<hr/>
Grand total .. .. .	2,094,000

Expenditure of this amount would be spread over the period from now till 1960.



25. *Revenue*.—Based on current charges, it is estimated that the revenue that can be expected from the subscribers' lines connected to the Redfern exchange in 1964 is £310,000 per annum, and for the whole of the "M" group, for which Redfern is the proposed main exchange, £1,780,000 per annum. A great deal of the present equipment will be used, but its *in situ* value is a proper credit to the project under review. The credits could be summarized as—Internal plant credits, £283,091, and external plant credits, £59,950, making a total of £343,041.

#### CONSTRUCTION PROGRAMME.

26. It is estimated that contract documents could be complete in eight months, and the contract let approximately three months thereafter. Based on construction times for which contracts on large city buildings have recently been let, it is reasonable to assume that a properly equipped contractor should be able to complete the building in 21 months from the date of the contract, making two years and eight months for the complete building after approval is given to proceed.

#### PLANNING.

27. Evidence given by the City Council representatives concerning the technical aspects of the planning shows that the plans have been drawn up with due regard to the local by-laws and regulations, and all necessary provisions have been included in the proposal. The Committee is satisfied that the building as planned will be suitable for its purpose for some years to come, and recommends that it be proceeded with as soon as possible.

#### THE SITE.

28. Land on the south side of the existing Post Office was acquired in 1907 and extended in 1949 by the acquisition of adjoining property. On this latter acquisition three terrace houses are in existence. The new building would cover a site area of approximately 86 feet by 100 feet, the frontage to George-street being approximately 86 feet. The three residences on the area concerned are two-story attached buildings which have long since outlived their usefulness, and notice to quit was served on the tenants in 1950. The Committee is satisfied that the site is a good one and appropriate for the purpose.

#### FUTURE EXTENSIONS.

29. It is unlikely that this exchange building will require future extensions as the present proposal includes a reserve equipment floor. Any requirements

beyond the capacity of the new building would be met by the establishment of new and separate branch or main exchanges, but the Department of Works has designed the building so that it may be linked with a future rebuilding of the adjacent post office if required in the future.

#### THE PRESENT POST OFFICE.

30. The present post office building is very old, and the Committee, in its inspection noted various points at which repairs appeared to be urgently needed, while the whole building seemed to be in a bad condition. It was explained that, as the original plans included rebuilding of the post office, as well as erection of the new exchange, maintenance of the existing building was kept at a minimum. In view of the fact that it is now proposed to erect the new building separately, and no immediate additions are contemplated to the post office, the Committee recommends that maintenance work on the existing post office should be carried out without delay.

#### SECTION IV.—THE COMMITTEE'S CONCLUSIONS.

##### SUMMARY OF RECOMMENDATIONS.

31. The following is a summary of the Committee's recommendations, arrived at after study of the evidence and plans:—

- (1) There is an urgent necessity for the building. (Paragraph 11.)
- (2) The building as planned at an estimated cost of £442,000, is suitable and should be proceeded with as soon as possible. (Paragraph 27.)
- (3) Precast concrete panels should be used in this case as proposed. (Paragraph 16.)
- (4) The site is a good one and is appropriate for the purpose. (Paragraph 28.)
- (5) Maintenance work should be carried out on the existing post office without delay. (Paragraph 30.)

J. O. CRAMER, Chairman.

Office of the Parliamentary Standing Committee  
on Public Works,

Parliament House,  
Canberra.

2nd March, 1955,