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COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REPORT

Relating to the Proposed

Erection of

AUTOMATIC TELEPHONE EXCHANGE BUILDING

at

HAYMARKET, SYDNEY.

For Senator Henty,

I bring up the report of the Parliamentary Standing Committee on Public Works, relating to the following work:-

Erection of Automatic Telephone Exchange Building at Haymarket, Sydney,

and I move that the Report be printed.

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THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

HAYMARKET TELEPHONE EXCHANGE, N. S. W.

R E P O R T.

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 Haymarket, Sydney, has the honour to report as follows:-

S E C T I O N I - INTRODUCTION.

Historical.

1. A site in Barlow Street, Sydney, was acquired by the Postmaster-General's Department in 1947, at a cost of £51,941. Since that time various schemes have been prepared for an exchange building on that site. These early designs provided for limit height structures rising to 150 feet, and included office floors in addition to the floors required for equipment and special functions of the exchange.

2. More recently the policy of the Postmaster-General's Department has been changed, and it was decided that office floors would be eliminated from future exchange proposals. This policy has been followed, therefore, in preparing designs to suit the present requirements.

3. Shortly after the war the Postmaster-General's Department foresaw a requirement for an automatic telephone exchange in the Haymarket area to relieve the City South Exchange, and to provide for more economical underground cable distribution. It was for this reason that the site was originally purchased, after careful selection from the properties available at the time.

4. The City South Exchange, which at present includes the Haymarket area in Sydney, has already exceeded its planned capacity, but,

with the help of various expedients, such as the use of existing office accommodation and crowding in extra equipment, it has been possible to increase the effective capacity for the time being. However, development of the area is continuing, and other arrangements will be essential in this area by 1960.

S E C T I O N II. - THE PRESENT PROPOSAL.

The New Exchange.

5. As a consequence of the pressing need to develop the facilities in the Haymarket area, it is proposed to re-design the City-South Exchange, providing two distinct areas: one to be served by the existing City South Exchange, and the other by a new exchange to be known as Haymarket.

6. A survey of the general trend of development shows that it will be necessary to plan for approximately 35,000 telephone subscribers in the existing City South combined area, and the most economical and satisfactory way of meeting the situation is to proceed promptly with the erection of a new telephone exchange building at Haymarket to accommodate 20,000 lines of telephone subscribers' equipment.

7. It is also proposed to transfer from City North Exchange to Haymarket Exchange the main trunk line equipment serving the western route, and to provide 900 trunk terminations.

The Building.

8. In order to provide for the proposed transfer of equipment and development of this area, it is necessary to erect a six storey building on the site. Plans have been prepared for a building to cover the whole of the site, and will provide for the main functional requirements of the exchange, together with amenities, toilets, plant rooms, etc. It is proposed to construct the building by use of a structural steel frame encased in concrete, with concrete floor slabs, and external walls of precast concrete panels.

Estimated Cost.

9. The estimated cost of the building, based upon prices ruling at March, 1956, was stated at £716,000. If it becomes necessary to use

imported steel there would be an extra cost of £12,160, and an additional £26,340 would be required if the foundations are to be strengthened to take three future floors. The total estimated cost was therefore shown as £754,500.

S E C T I O N III - THE COMMITTEE'S INVESTIGATIONS.

General.

10. The Committee studied the plans and took evidence in Sydney and Melbourne from departmental officials concerned with the proposal, as well as from technical witnesses and persons able to inform the Committee on the various aspects of the project. An inspection was made of the site of the proposed building, and of the existing City South Exchange, which is one of the points in need of early relief from the pressure resulting from the growing demands for telephone facilities in the area.

Need for the new Exchange.

11. Provision until 1960. - The Haymarket area is at present included in the City South Exchange, situated on the Western side of Castlereagh Street between Bathurst and Liverpool streets, where there is telephone subscribers' equipment for 12,000 lines. In March, 1956, there were 11,141 of these lines connected and 875 applications on hand waiting for installation of apparatus at the subscribers' premises. This exchange has therefore already exceeded its maximum planned capacity, but, by making certain additions to the building, and by using various other expedients to crowd in more lines, it will be possible to increase the effective capacity to approximately 13,325 lines. Normal development will absorb these provisions by about 1960, so that other arrangements will have to be made by that date to provide for subsequent expansion in this section of the city.

12. Subdivision of the area. - In order to make provision for the growth of demand in this area it is proposed to re-design the City South Exchange area and sub-divide it into two distinct areas: one to be served by the existing City South Exchange, and the other by the new Exchange to be known as the Haymarket Exchange.

The estimated development of telephone subscribers' lines in both the proposed Haymarket and City South Exchange areas after re-alignment of boundaries is as follows:-

Exchange	1960	1961	1966	1971	1976	1981.
City South	13,320	7,700	9,800	12,000	13,320	13,320
Haymarket	-	8,000	9,700	11,300	13,780	17,780
Total.	13,320	15,700	19,500	23,300	27,100	31,100

13. The City South Area. - The reduced area of the City South Exchange has a prospective high telephone density which can be well served from the existing telephone exchange in that area, following the division of the boundaries as proposed.

14. The Haymarket Area. - It is stated that the most economical and satisfactory way to meet the situation is to construct the new Haymarket exchange to accommodate 20,000 lines of subscribers' equipment. To secure the greatest advantage from the two exchanges the area to be served by Haymarket Exchange can be defined generally by a line drawn from Darling Harbour Goods Yard along Liverpool Street, Oxford Street, Riley Street, Cooper Street and Devonshire Street to Central Railway Station, thence in a direct line to Broadway and along to Bay Street, William Henry Street to Darling Harbour.

15. This district contains a large proportion of old and dilapidated buildings, providing considerable scope for demolition and subsequent erection of modern buildings, with attendant demand for additional telephone services.

16. Rate of Development. - A graph was submitted to the Committee showing the net increase throughout the metropolitan area of Sydney since 1925, and it indicates a most striking and sustained rise in demand. During the past five years there has been an average yearly rise of 16,000 lines or approximately 7%, and there is no reason to believe that growth will not continue to at least the same extent in the future. The establishment of Haymarket Exchange is designed to meet the local demand in an adequate and orderly manner.

17. Trunk line provisions. - It is essential to avoid over concentration of trunk line terminal equipment in the city exchange

buildings, and also to provide for future development. It is therefore proposed to transfer from City North Exchange to the new Haymarket Exchange that part of the main trunk line equipment serving the Western route, and to provide accommodation initially for the 1980 requirement of 900 trunk lines.

18. The distant future. - The building as proposed is designed to meet the telephone requirements for approximately 20 years. This is considered to be a reasonable period for which provision should be made at this stage. It cannot be overlooked, however, that development in the post twenty-year period will inevitably demand further expansion, and sites for additional exchange buildings will no doubt be most difficult to obtain. It is also realised that the building now proposed is to occupy the whole of the site, and the only means left to meet probable future requirements will be to provide in the building design now, sufficient strength of foundations and general framework for future vertical extensions. This could permit the addition of three further equipment floors as required, thus increasing the building height up to the existing City limits.

Provisions required.

19. The Immediate demand. - In consideration of the details submitted in the evidence along the lines indicated above, the Committee was completely convinced that there is an urgent need for the Haymarket exchange, to provide for the telephone requirements until 1981 as shown.

20. Future additions. - The possibility of building expansion in the future, in this section of the city, was studied, and evidence was sought to help the Committee to decide whether action should be determined upon at this stage to provide for future extensions to the building.

21. The area at present does not show a great deal of building activity, and some of the old buildings appear to be used for storage and other activities, giving the area an atmosphere of lesser importance, if not stagnation. However, it is realised that city expansion in a southerly direction cannot be long delayed, and implementation of modern planning for the City of Sydney will push forward development in this locality.

22. The Committee was informed, in evidence, that studies of future trends in telephone development are carried out by an expert survey group in the Department. A comprehensive survey is made of a city section, and practically every owner is interviewed in order to determine future trends. This survey is amended on a weekly basis as new information comes to hand. Close liaison is maintained with the Sydney City Council, Cumberland County Council Planning Authorities, estate agents, and financial interests promoting building schemes.

23. It has been established that the Haymarket area is zoned as a future business and commercial area, and already some of the tenement areas which are reaching the end of their useful life have been purchased with commercial building in view. Despite trends towards decentralisation, all evidence compiled by the survey staff leads to the very confident expectation that 20,000 telephone subscribers' lines will be required within 20 years, and that the extra three floors will be needed after that time.

24. The general opinion of other witnesses on this point shows a confidence that development will proceed in this locality in the future, and the Committee is satisfied that some provision should be made to ensure that expansion will be possible to meet the needs there.

25. Inclusion of office accommodation. - This raised the question whether additions should be made to the structure planned for the present time, and the Committee gave careful consideration to this aspect of the proposal.

26. Although it was explained that the general policy of the Postmaster-General's Department at the present time is that office accommodation should not be planned as part of telephone exchange buildings, consideration was given to the proposal in this case, of erecting the extra three floors for future equipment purposes, but using them for office accommodation for the Department until they were required for telephone equipment. Under present circumstances of difficult financial problems, it was decided that the funds at the disposal of the Postmaster-General's Department must be used in various parts of Australia on urgent projects awaiting attention,

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rather than on additional provisions to the proposed Haymarket building, where they will not be essential for many years. It was pointed out, however, that the extra floors would be welcomed if additional funds were provided to the Department for the purpose, by the Treasury.

27. The Committee studied the various aspects of the matter, including the possibility of providing the extra floors for use by officials of other departments now in rented city premises. It was finally concluded that, even if financial provision could be made, it would involve considerable delays, as well as a number of other disadvantages concerned with occupancy of the building, and it is most important that this project should be pushed ahead without delay if telephone services are to be maintained satisfactorily. The Committee therefore recommends that the additional amount of £26,340 to strengthen the foundations should be provided now, so that future additions will be possible without delay, but that the three extra floors should not be constructed at the present time.

The Building.

28. The structure, as has been already explained, will extend over the whole of the available site, and will comprise ground, part mezzanine, first to fourth floors to accommodate the main functional requirements of the exchange, and a final 5th floor to accommodate amenities, plant rooms etc.

29. The main entrance to the building is at the north end of Parker Street, which is the wider of the two flanking streets. This entrance will also permit vehicles to enter down a ramp at the lower end of the site, against the adjoining property where natural light is not available for equipment and office space.

30. Accommodation.- As the building is to be used primarily for equipment, the numbers of staff will remain comparatively small. It is stated that the population of the building will consist of 10 women and 257 men, comprising technical and clerical staffs, the maximum number in the building at the greatest shift being approximately 180. The floors will be mainly filled with equipment, but subdivision for office personnel will be done in standard demountable partitions which can be recovered and re-used.

31. The planning.- The plans generally provide a simple

and economical solution to the special functional requirements of the building, and the departmental witnesses are satisfied that the building will adequately cater for the functions essential in this locality. It was also stated that the plans had been discussed with the various local authorities in Sydney, and comply with their requirements.

32. Construction. - As rock is present at 15 ft. below the surface, no difficulty is expected with the foundations. The estimates were based on the use of structural steel frame encased in concrete, with concrete slab floors. However, there is a possibility that this might be varied if the shortage of structural steel exerts an unfavourable influence on the rapid completion of the project.

33. The external walls will be of precast concrete panels, with light-weight inner skin. Partial rigid connections, together with specially strengthened walls and debris slab over the ground floor to the cable chamber, will be provided in accordance with current civil defence precautions.

34. The mechanical services include a full air conditioning system to serve all areas housing telecommunication equipment, and mechanical ventilation to power, battery, toilet rooms and tunnel.

35. It is estimated that documents could be completed within 9 months, tenders completed approximately 4 months later, and, subject to adequacy of materials, construction of the building could be accomplished in 30 months.

Site. -

36. The area available has a frontage of 83 feet 2 inches to Barlow Street on the south, and frontages of 123ft. 2¾in. to Parker Street on the east, and 122ft. 5in to Parker Lane on the west. The northern boundary of 83ft 0½in abuts on to private property on which is an old structure two stories high. The site has an area of 37½ perches, with a fall of approximately 3ft.6in. from south to north, and 2ft.from east to the west. It is occupied by an existing building, Berwyn House, erected in 1886. Test bores have been made on the site, and these have shown that hard rock is present at an approximate depth of 15 feet below the surface. The Committee agrees that the site is suitable for the purpose.

Financial Considerations.

37. Estimates of Expenditure.- The estimated cost of the building based upon prices ruling at March, 1956, was as follows:-

Building-		
Site preparation	9,800	
Building work	487,900	
Hydraulic Engineering services	17,400	
Mechanical engineering services	140,500	
Electrical engineering services	49,200	
Miscellaneous, floor coverings, etc.	11,200	716,000
Additional cost if imported steel is to be used		12,160
Extra cost of strengthening foundations etc. in imported steel (in Australian steel £22,800)		26,340
Total cost of building		754,500
Site (already purchased)		52,000
Exchange equipment for 10,000 lines-initial installation		1,500,000
Trunk exchange equipment		920,000
Line construction, cable diversion tunnel construction		280,000
Subscribers' telephone apparatus		220,000
		3,726,500
Less value of exchange equipment to be recovered and transferred		480,000
Net capital cost		3,246,500

38. Revenue.- Details were given of anticipated increase in revenue within five years of the initial cut-over of the equipment in 1961, taking into account the probable trends in traffic and demand for services, and a reasonable estimate was shown at £1,300,000. Principal annual charges were shown as £450,000.

Financial Summary.-

	£
Net capital cost of building and installation	3,246,500
Annual revenue from the additional telephone facilities available on completion	1,300,000
Annual charges, including working expenses, interest and depreciation	450,000

The difference between annual revenue and annual charges is therefore estimated at £850,000, but this figure would be somewhat reduced by other annual costs which would have to be met, in connection with the operation of junction lines between the metropolitan and country exchanges, inseparable from the operation of the telephone system.

Use of Steel.

39. The Committee was aware from previous inquiries that considerable difficulty has been experienced over the years in securing an adequate supply of structural steel for its building programmes in various parts of Australia. Evidence was therefore sought in order to obtain the latest information available regarding the present supply position, and promise

for the future. Attention was also given to the methods used by the Department in purchasing its steel for the projects handled from time to time.

40. It was stated that the Australian mills appear to have been unable for some years to meet the demand for structural steel, and it has become common practice to draw upon overseas sources, thus adding considerably to the cost of the buildings concerned. The proportion of imported structural steel in normal projects appears to vary between 50% and 70%, most of this steel being obtained from English mills. Reinforcing steel requires about 50% importation, and it largely comes from Japan.

41. There are three main methods of supplying steel for the works to be carried out, namely -

(i) Responsibility for supply of steel may be left to the contractor. This is the simplest method, but will inveitably lead to long delay.

(ii) The Commonwealth can purchase raw steel in quantities required from the most suitable source. This would necessitate ordering on an assessment of likely requirements, with risk of inaccuracies and the necessity for storing and protecting considerable quantities of the material.

(iii) The supply, fabrication and delivery of all steelwork can be done by independent contract, the steelwork being then supplied to the contractor free of cost. A gain of 6 to 7 months ahead of the building contractor's requirements may be achieved by this method. It would necessitate purchase of the structural steel by the Commonwealth before the actual building contract is let.

42. A considerable volume of evidence was submitted by the various witnesses on the question of the use of structural steel for the building, and the Committee considered the points at issue. As a result, the Committee recommends that particular attention be given to the third alternative method referred to above, and an effort made, by co-operation with the Treasury Department, to arrange the necessary finance to procure the essential supplies at the required stages, with the resulting important saving in time for construction of the building.

43. Purchase of steel.- The Committee was informed that the Commonwealth does not buy its Australian steel direct frm the Broken Hill Pty., Co. Ltd., but ranks as any other customer, buying through merchants. At one time supplies were bought direct, but the Company has declined to accept orders. This was regarded merely as a trade practice which the Company has adopted, but there seems little doubt that it adds to the delays in supply, so far as the Commonwealth projects are concerned. On the other hand, it was pointed out that there are so many different sections of steel that it is not possible to buy in the same way as simpler commodities. The advantages of buying direct have to be weighed against the problems of deterioration during storage and cost of double handling, if large stocks are maintained.

44. The Committee feels that some method could be evolved for more direct and expeditious purchasing and handling of the necessary structural steel, even if it were ultimately restricted to certain standard sections of steel forming the main bulk of the requirements for Commonwealth works. It is recommended that the matter be carefully investigated, so that, if desirable, suitable action may be taken to approach the B.H.P. concerning direct purchases and storage of suitable materials.

Lifts.

45. The original planning provided for two passenger lifts, each capable of carrying 12 passengers at 350 feet per minute, plus one slow goods lift. Study of the likely population of the building, and movements estimated during the day, led to further consideration of the essential requirements of the building, both in the immediate future, as well as in the post 20 year period if the building has to be extended.

46. Technical evidence was tendered by officers of the Department of Works, and other independent witnesses interested in such matters, and, after detailed study of the points involved, an amended proposal was put forward in respect of the necessary vertical transport.

47. A tabulated statement, setting out the comparative costs of the three alternative lift proposals, was submitted by the Department, with the suggestion that the No.3 installation would be most suitable

under the circumstances. This suggested that, for the initial building, a goods passenger lift, capable of handling rack equipment or accommodating 16 passengers at a speed of 350 feet per minute, plus one 16 passenger lift operating at the same speed, should be installed. In addition it is also proposed to provide a well for an additional passenger lift to meet the requirements of the limit height building in future years.

48. The Committee recommends the adoption of the No.3 proposal, for one passenger-goods lift to carry 16 passengers plus one 16 passenger lift, together with lift well for a future passenger lift when required, at a resulting saving of £4270 on the original proposal.

Facing for the Building.

49. Following inquiries by the Committee a number of samples of precast slabs for facing the building were exhibited by the Department. The Committee is of opinion that the pre-cast slab facing will be suitable for the purpose, but that it will be advisable to use aggregate to form a very bold pattern in order to be effective on a high building.

S E C T I O N IV. - THE COMMITTEE'S CONCLUSIONS.

Summary of Recommendations.

50. The following is a list of the Committee's conclusions in summary form only, arrived at after study of the proposal, model, evidence and the questions involved. The full recommendations are contained in the paragraphs of the Report referred to at the close of each of the following summarised recommendations:-

1. The Committee is convinced that there is an urgent demand for the Haymarket Exchange. (Paragraph18).
2. Provision should be made to ensure that expansion will be possible to meet the needs in this locality (Paragraph 24).
3. The amount of £26,340 to strengthen the foundations now, so that future additions will be possible without delay, should be provided, but the three extra floors considered should not be constructed at the present time (Paragraph 27).

4. The site is suitable for the purpose (Paragraph 36).

5. Particular attention should be given to the possibility of supply, fabrication and delivery of steelwork by independent contract, and co-operation of the Treasury sought to arrange the necessary finance to procure essential supplies at the required stages, with the resulting important saving in time for construction of the building (Paragraph 42).

6. Some more direct and expeditious method of purchasing and handling the necessary structural steel might be evolved, if suitable action is taken to approach the Broken Hill Proprietary Ltd., concerning purchases of appropriate materials (Paragraph 44).

7. The Committee recommends the adoption of the No.3 proposal for one passenger-goods lift to carry 16 passengers plus one 16 passenger lift, together with a lift well for future lift when required, at the resultant saving of £4,270 (Paragraph 48).

8. Pre-cast slab facing should be suitable for facing the building, but it will be advisable to use a very bold pattern to ensure that it will be effective in appearance on the high building (Paragraph 49).

DENHAM HENTY.
Chairman.

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