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DEPARTMENT OF
1929-30/425

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

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PARLIAMENTARY STANDING COMMITTEE
ON PUBLIC WORKS.

Clark of the Senate.

26 JUN 1930

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

RELATING TO THE PROPOSED ESTABLISHMENT OF AN

AUTOMATIC TELEPHONE EXCHANGE

AT

NORTH SYDNEY, NEW SOUTH WALES.

By Authority:

H. J. GREEN, GOVERNMENT PRINTER, CANBERRA.

MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE OF PUBLIC WORKS.

(Seventh Committee.)

ANDREW WILLIAM LACEY, Esq., M.P., CHAIRMAN.

Senate.

Senator John Braidwood-Dooley.
Senator Matthew Reid.
Senator Burford Sampson.

House of Representatives.

Malcolm Duncan Cameron, Esq., M.P.
John Curtin, Esq., M.P.
Hon. Henry Gregory, M.P.
Edward James Holloway, Esq., M.P.
William John Long, Esq., M.P.

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EXTRACT FROM THE VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES, No. 18,
DATED 11th DECEMBER, 1929.

7. PUBLIC WORKS COMMITTEE—REFERENCE OF WORK—NORTH SYDNEY, NEW SOUTH WALES—AUTOMATIC TELEPHONE EXCHANGE.—Mr. Lyons (Minister for Works and Railways) moved, pursuant to notice, That, in accordance with the provisions of the Commonwealth Public Works Committee Act 1913-1921, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for investigation and report:—North Sydney, New South Wales—Establishment of Automatic Telephone Exchange.

Mr. Lyons having laid on the Table plans, &c., in connexion with the proposed work—

Question—put and passed.

LIST OF WITNESSES.

Crawford, John Murray, Chief Engineer, Postmaster-General's Department	PAGE
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AUTOMATIC TELEPHONE EXCHANGE, NORTH SYDNEY,
NEW SOUTH WALES.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, to which the House of Representatives referred for investigation and report the question of the establishment of an Automatic Telephone Exchange at North Sydney, New South Wales, has the honour to report as follows:—

INTRODUCTORY.

1. The existing North Sydney Telephone Exchange, located in Mount-street at the back of the North Sydney Post Office, was opened for service in 1886. It has a common battery manual equipment, and, during the year-ended 30th June, 1929, catered for an average number of 4,440 subscribers.

2. It is represented that at the average rate of normal expansion, the existing equipment will reach the limit of its capacity during 1930, and further extension to provide for future development will not be possible in the present building.

PRESENT PROPOSAL.

3. The proposal now submitted is to erect on a site which has been acquired in West-street, almost opposite Ridge-street, a modern exchange building, and install therein an automatic telephone switching system having an initial equipment for 5,800 subscribers' lines, and an ultimate capacity of, approximately, 10,000 subscribers' lines. It is proposed that the initial equipment shall be capable of extension to the ultimate capacity named, and thus enable requirements to be met in the proposed automatic exchange area for a period of, approximately, twenty years from the proposed date of opening.

ESTIMATED COST.

4. The estimated immediate cost of the work is set down at:—

	£
Site (already acquired)	2,000
Building	19,600
Air-conditioning plant, &c.	4,080
Exchange equipment, including that necessary at other exchanges	108,780
Sub-station equipment	20,220
Initial plant (diversion)	21,790
Sundries	3,030
	<hr/>
	179,500

and it is estimated that the new exchange will be opened for traffic by about June, 1931.

COMMITTEE'S INVESTIGATIONS.

5. The Committee inspected the site for the proposed new building, and traversed portion of the area which would be served by the new automatic exchange. A careful scrutiny was made of the plans submitted, and evidence obtained from the Chief Engineer, Postmaster-General's Department, and the Principal Designing Architect, Department of Works.

AREA TO BE SERVED.

6. It was ascertained in evidence that the area which would be served by the new exchange is the same as is now served by the existing North Sydney manual exchange, and contained at the end of 1929 a population of, approximately, 60,000.

SITE.

7. The site, which was acquired by the Commonwealth for the sum of £2,000, is situated on the western side of West-street, North Sydney, at a distance of approximately a quarter of a mile from the theoretical telephone centre, and nearly half a mile from the existing telephone exchange. It has a frontage of about 94 feet to West-street, by a depth of 184 ft. 1 in. on the north boundary, and 153 ft. 4½ in. on the south. It is level in character and good building land, and, in the opinion of the Committee, eminently suitable for the purpose for which it is intended.

BUILDING.

8. The building proposed will cover an area of about 69 feet by 130 feet, and is to be of simple construction, two-story in the front, and one-story at the rear. The walls are to be of brick with steel beams, and the floors and staircases of reinforced concrete. Over the switch room the roof will be constructed of steel principals covered with galvanized iron and ceilings of fibrous cement sheets fixed to wooden bearers. Owing to the prominent position of the building it is proposed to use terra-cotta tiles for the two-story portion forming the front of the building. In addition to the natural lighting six skylights in the south side of the roof will give direct light. The whole of the building is to have steel-framed windows glazed with wired rolled plate glass. The elevations are designed in brick, with cement finishings, and, generally speaking, the building will be of plain design, and fire-resisting.

9. The ground floor will contain an air-conditioning room 28 ft. 3 in. by 23 ft. 3 in.; power room 28 ft. 3 in. by 23 ft. 3 in.; and a switch room 105 feet by 60 feet. On the first floor there is to be a staff room 24 feet by 16 feet; locker room 12 feet by 9 feet; battery room 28 ft. 9 in. by 24 feet, and a store 9 feet by 8 ft. 6 in., together with the necessary lavatory accommodation.

In the front portion of the building the ground floor will have a height of 12 feet from floor to ceiling, and the upper floor 10 feet. The switch room will be 12 feet in height.

It is estimated that the building can be erected in about eight months from date of commencement.

10. At the back, and on each side of the exchange building, it is proposed to construct a concrete road for the convenience of vehicles entering the exchange yard. The Committee is not convinced of the necessity for these roads, and recommends that they be omitted.

With this exception the Committee is satisfied that the building as designed will prove satisfactory.

MECHANICAL SERVICES.

11. The mechanical services proposed to be installed are as follows:—

	Estimated Cost,
	£
Heating and ventilating and de-humidifying plant	3,680
Vacuum cleaning plant	400
Total	4,080

The proposed air-conditioning plant is similar to those approved for other exchanges in the metropolitan area of New South Wales, and is represented by the telephone engineers to be necessary to ensure the efficient working of the equipment under the climatic conditions to be expected at North Sydney.

The estimated annual running cost of this installation is approximately £700, made up as follows:—

	£
10 per cent. interest and depreciation on capital cost	368
Fuel for boiler	50
Electric power, oils, &c.	282
Total	700

12. The estimate of the building is a tentative one, based on the preliminary sketches, and allows for sewerage and water services. These services present no difficulties the necessary main sewers, electric light and water mains being in the adjacent streets. The electric light and power installation is estimated to cost £1,000. Fire appliances will be installed in accordance with the regulations governing these services as laid down by the Commonwealth Fire Board for all exchanges.

FINANCIAL ASPECT.

13. It was stated in evidence that the total annual charges for the proposed automatic telephone system as at the proposed date of cut-over, namely, June, 1931, are estimated at £47,620 and five years later at 58,900 The actual revenue for the year ended 30th June, 1929, was 50,428 The estimated revenue as at June, 1931, is 59,000 and the estimated revenue five years later is 77,230 The assets thrown spare if the automatic system is installed in June, 1931, are estimated to have a recoverable value of 44,800

An amount of £45,270 will have to be written off in the Departmental accounts as representing the proportion of the capital outlay on the original assets which is irrecoverable, and includes depreciation due to wear and tear, and labour in installation.

SAVING EFFECTED.

By the omission of the concrete roads as recommended, a saving will be effected on the proposal of approximately £250.

COMMITTEE'S RECOMMENDATION.

14. After considering all the aspects of the question the Committee recommends that provided the normal rate of expansion be maintained, the proposed installation, as suggested by the Department, be put in hand when practicable.

A. W. Lacey.

A. W. LACEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
Parliament House,
Canberra, 12th June, 1930.

MINUTES OF EVIDENCE.

(Taken at Canberra.)

WEDNESDAY, 14TH MAY, 1930.

Present:

Mr. Lacey, Chairman;
 Senator Reid Mr. M. Cameron
 Senator Sampson Mr. Gregory.
 John Murray Crawford, Chief Engineer, Postmaster-General's Department, sworn and examined.

1. *To the Chairman.*—The proposal to establish an automatic telephone exchange at North Sydney involves the erection of a building on a site which is Commonwealth property, situated in West-street, opposite Ridge-street and the installation therein of an automatic telephone switching system having an initial equipment for 5,800 subscribers' lines and an ultimate capacity of approximately 10,000 lines. It is proposed that the initial equipment shall be capable of extension to the ultimate capacity named, and thus enable requirements to be met in the proposed automatic exchange area for approximately twenty years after the proposed date of opening. The existing common battery manual equipment will reach the limit of its capacity about 1930, and further extensions to provide for development are not possible in the existing building, which was opened for service on 14th May, 1926, and is therefore 4 years old. It is proposed to install a complete modern plant in a new building on the new site, in order to give efficient service to the existing and prospective subscribers in the area. The new site is about a quarter of a mile from the theoretical centre, and nearly half a mile from the existing exchange. The estimated immediate cost of the work is—

Site (already acquired)	£	2,000
Building	£	10,000
Air-conditioning plant, &c. .. .	£	4,650
Exchange equipment, including that necessary at other exchanges	£	168,750
Substation equipment	£	50,220
Line plant (diversion)	£	21,700
Sundries	£	3,030
	£	170,000

The actual revenue for the year ended 30th June, 1929, and the annual revenue it is estimated will be obtained on the date of opening and five years thereafter is shown hereunder—

	Number of lines	Rents	Calls	Miscellaneous Charges	Trunk Line Calls	Total
As at cut-over	5,200	£ 2,057	£ 30,108	£ 1,232	£ 2,750	£ 35,035
Five years later	6,800	£ 32,030	£ 39,372	£ 1,611	£ 3,608	£ 77,227

The proposed site is situated in West-street, opposite Ridge-street, North Sydney, and is Commonwealth property. It has a frontage of approximately 94 feet in West-street, and a depth of approximately 184 feet along the right-of-way, and is located as near as practicable to the telephonic centre of the proposed automatic exchange area. It is proposed that the building shall be of simple design, and built on the latest fire-resisting principles. The immediate installation in the exchange is for an equipment of 5,800 subscribers' lines, but the building will be designed to accommodate

equipment having a capacity of approximately 10,000 subscribers' lines. The following table shows the financial aspect of the project—

Item.	As at June, 1931.	As at June, 1929.
1. Capital cost, new	£ 170,500	£ 108,830
2. Capital cost, new and in situ	£ 407,900	£ 507,410
3. Annual working expenses of proposed automatic exchange	£ 13,220	£ 10,000
4. Total annual charges for proposed automatic exchange	£ 47,020	£ 39,990
5. Annual revenue— Actual for the year ended 30th June, 1929—£50,428 Estimated as at June, 1931	£ 50,000	—
6. Assets recoverable or thrown spare if an automatic exchange is established at June, 1931— (i) Book value	£ 90,070	—
(ii) Recoverable value	£ 44,800	—
(iii) Cost of recovery	£ 3,940	—

Regarding item 6 of the foregoing statement, the difference between sub-items (i) and (ii), namely, £45,270, is an amount which will have to be written off in the departmental accounts as representing the proportion of the capital outlay on the original assets, which is irrecoverable and includes depreciation due to wear and tear and labour in installation. The staff of the existing manual exchange consists of 17 mechanics and 44 telephonists. The automatic exchange will start with 18 mechanics, and five years later 19 mechanics, and probably 3 telephonists. I submit the following certificate by the accountant regarding actual and estimated annual revenue—

REVENUE PROPOSED AT A NEW TELEPHONE EXCHANGE—NORTH SYDNEY.

(a) Actual total revenue received from the subscribers and public telephones in the existing North Sydney Telephone Exchange area for the twelve months ended 30th June, 1929—	£ s. d.
Rents	2,057 0 0
Calls	25,708 10 4
Miscellaneous charges	1,232 18 2
Trunk line calls	2,750 3 8
Total	50,427 10 2

Average number of lines connected during the above-mentioned twelve months—4,410.
 Average revenue per line—£11 7s. 13d.

(b) Estimated annual revenue for the proposed North Sydney Automatic Telephone Exchange area as at the proposed date of entry, i.e., June, 1931, and five years later—

	Average number of lines connected during the year ended 30th June, 1929	Actual total revenue per line for the year ended 30th June, 1929	Estimated number of subscribers (June, 1931, or date of opening)	Estimated annual revenue, June, 1931.	Estimated annual revenue, June, 1935.
	4,440	£50,428	5,200	£59,040	£77,220

I hereby certify that the above figures have been compiled from the books and records of this office, and to the best of my knowledge and belief, correct.

O. V. WESTBURY,
 Accountant, Postmaster-General's Department, Sydney,
 11th September, 1929.

Later, Lane Cove, and Northridge may have sub-exchanges, which will relieve Chatswood and North Sydney. This proposal deals only with the area now served by the North Sydney manual exchange. A year

hence the manual exchange will have reached it full capacity, therefore the establishment of an automatic exchange is urgent. The department proposes to equip all automatic exchanges in the Sydney area with a complete air-conditioning plant. At the end of 1929 the population of the district to be served by the new North Sydney exchange was approximately 60,000. The opening of the North Shore Bridge will give a great impetus to development in that direction, and I anticipate a substantial increase of population and telephonic traffic. The site of the proposed new exchange was acquired by the superintending engineer, Sydney, through the survey branch of the Works Department, and is the most suitable available for the purpose. The adjacent buildings are only cottages, and therefore the fire risk is negligible.

2. *To Mr. M. Cameron.*—The greater cost of line plant (diversion) at North Sydney as compared with Hawthorn is due to the fact that the new exchange at North Sydney will be nearly half a mile from the existing exchange. This exchange area includes a large number of flats, and for that reason the calling rate will be higher than in an area occupied mainly by private homes. The calling rate from flats has been as high as 30 per day. We have reached the stage when we cannot extend any further on the manual switchboard, and the most economical policy is to establish an automatic exchange. The North Sydney project is the most urgent of the three now under consideration by this committee, because of the flow of new traffic to that area. When the harbour bridge is completed there is bound to be a big rush of population to the north side, because the first sub-station there will be more convenient to Sydney than Darlinghurst is now. If the committee approves of this proposal a commencement will be made with the establishment of the exchange as soon as we can get tenders in and material delivered; that will take about eighteen months.

3. *To Mr. Gregory.*—I shall furnish the committee with a statement showing the financial aspect of this proposal if it is debited with the rate of interest now being paid for loan money and the depreciation usually charged.

4. *To Senator Reid.*—The area to be served by the exchange is mainly residential, and includes a large proportion of flats. Waverley is only about 120 feet above sea level, and the humidity there will be quite as bad as at Edgcliffe.

The old foundations of a demolished cottage and shed remain on the site which is covered by weed growth and shrubs. The clearing of the site, which is good building land and fairly level, presents no difficulty. The design allows for a two-storey building facing West-street, with a single-storey at the rear devoted entirely to the switch room and cable trunk. The entrance from West-street, the staircase and the air-conditioning and power room are placed on the ground floor at the front, while the first floor will contain the battery room, staff room, lockers, store and lavatories. The necessary entrances for machinery are allowed for in the rooms where required. The general construction of the building will be of brick with steel beams, the floors and staircase being of reinforced concrete. The roof over the switch room will be constructed of steel principals covered with corrugated wooden boards. In addition to the natural lighting, six skylights shown in the south side of the roof give direct light to a similar number of fixed lights in the ceiling. The roof over the two-storey structure is to have terra cotta tiles to conform with the surrounding buildings. Steel-framed windows will be used throughout, glazed with wired rolled plate glass. The frame to West-street has been carefully considered. With brick and cement finishes it should make a pleasing facade, while allowing for simple and sound construction. It is proposed to install an air-conditioning and de-humidifying plant at an estimated cost of £3,650, and a vacuum cleaning system at £400. These services will be similar to those described in detail for the Ilmorville telephone exchange, and mentioned in detail for this building, but will be of considerably larger capacity to meet the requirements of this exchange. A full air-conditioning plant is considered necessary in this case, as the location of the building is such that it is fully exposed to sea atmosphere, and conditions during the summer months are particularly humid. The estimated annual running cost of this installation is approximately £700, made up as follows—

Ten per cent. interest and depreciation on capital cost	£	308
Fuel for boiler	£	282
Electric power, oils, &c.	£	700
Total	£	1,290

The estimated cost of the building, £18,000, is a tentative one based on the preliminary sketches, and allows for the sewerage and water services. These services present no difficulties, the necessary main sewers, electric light and water mains being in the adjacent street. The electric light and power installation is estimated to cost £1,000. Fire appliances will be in accordance with the regulations governing these services and as laid down by the Commonwealth Fire Board for all exchanges. A detailed estimate of cost will be prepared on completion of the working drawings and before commencing the work. On the ground floor the air-conditioning room measures 28 ft. 3 in. by 23 ft. 3 in. The power room is of a similar size, and the switch room is 28 ft. 0 in. x 24 feet, the staff room 24 feet x 16 feet, the locker room 12 feet x 9 feet, and the store 9 feet x 8 ft. 0 in. There will be one roof over the two-storey portion and a separate roof over the single storey. The roof over the switch room is to be composed of six steel principals and corrugated iron, and the other roof will be tiled. The estimated cost of the building is £18,000, and it is estimated that about eight months will be occupied in the construction of the building. The area that the exchange will occupy has a frontage of 70 feet and a depth of 130 feet. The building will be flush with the street alignment. I do not

(Taken at Canberra.)

WEDNESDAY, 23RD MAY, 1930.

Present:

Mr. Lacey, Chairman;

Senator Dooley Mr. M. Cameron
 Senator Reid Mr. Long
 Senator Sampson

Edwin Hubert Henderson, Principal Designer, Architect, Department of Works, sworn and examined.

5. *To the Chairman.*—I am aware of the proposal to establish an automatic telephone exchange at North Sydney, New South Wales, and am responsible for the design of the building. The site has a prominent position and is bounded by West-street on the east, a public right-of-way on the north, an adjoining cottage on the south and vacant land on the west. The dimensions of the various frontages are—North, 184 ft. 1 in.; south, 153 ft. 4 in.; east, 93 ft. 11 in.; west, 80 ft. 3 in. The total area of the land is 15,000 square

know that the provision made for concrete roads on each side and at the back of the building has been definitely considered. I do not regard that concrete work as essential; but, in this case, there is not much of it, and I think that it would be as well to provide it on either side of the building. The rest of the concrete work indicated is not essential. The depth of concrete proposed for the road construction is about 6 inches. It would not be necessary to reinforce the concrete. I have no figures as to the estimated cost of this work; it is evidently included in the cost of the building. I regard the site as an excellent one, the land being above the average for building purposes. There should be no difficulties in regard to foundations or with respect to drainage. I am familiar with the locality, and I do not think that there would be any more danger of fire from adjacent buildings than exists in the vicinity of any other exchange. There is not the same danger that there would be in an industrial centre, with factories nearby. The engineers have said that a full air-conditioning plant is necessary in that district.

6. *To Senator Dooley*.—The only object of providing a concrete roadway on either side of the building would be to give it a better finish, but that work is not essential.

7. *To Senator Reid*.—The door to the switch room is at the back of the stairway, and it was put there so that the mechanics using that entrance should have direct access to the switch room. Under the plan that door is necessarily forced back to that position, and it has the advantage of excluding dust from the switch room.

8. *To Mr. Long*.—The altitude of the site is considerable, but I think that that does not make a great deal of difference in North Sydney. Anywhere near the sea the engineers recommend the installation of a full air-conditioning plant.

9. *To Mr. M. Cameron*.—I do not know the exact date when the site was acquired. It was mentioned in the *Commonwealth Gazette* of the 7th February, 1929. I can remember this block nine months ago. It is becoming more valuable, and in my opinion a better site for the purpose could not be obtained.