

New South Wales.



ANNO TERTIO DECIMO

GEORGII V REGIS.

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Act No. 28, 1922.

An Act to sanction the construction of a high-level cantilever or arch bridge across Sydney Harbour by connecting Dawes Point with Milson's Point, together with the necessary approaches, railway connections, and other works connected therewith ; to provide for the use of such works by the Constructing Authority and other persons ; to provide for the cost of the said works and other expenses connected therewith ; to impose a rate on certain lands in relation to such works ; to amend the Public Works Act, 1912, and certain other Acts ; and for purposes connected therewith. [Assented to, 24th November, 1922.]

BE

*Sydney Harbour Bridge.*

**B**E it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:—

Short title.

**1.** This Act may be cited as the "Sydney Harbour Bridge Act, 1922," and is divided into Parts as follows:—

**PART I.—WORKS AUTHORISED—ss. 2-6.**

**PART II.—FINANCIAL—ss. 7-14.**

**PART III.—MISCELLANEOUS—ss. 15-22.**

## PART I.

### WORKS AUTHORISED.

Works sanctioned.

**2.** The carrying out of the works described in the First Schedule (in this Act referred to as "the said works") is hereby sanctioned; and the Secretary for Public Works is empowered to carry out the said works.

The plan.

**3.** The plan of the said works is the plan marked "Sydney Harbour Bridge," signed by the said Secretary and countersigned by the chief engineer, Sydney Harbour Bridge, and deposited in the public office of the said Secretary.

Estimated cost of works.

**4.** The estimated cost of the said works, inclusive of land resumptions, is the sum of five million seven hundred and fifty thousand pounds, which shall not be exceeded by more than ten per centum.

Lines may be constructed on road.

**5.** The lines of railway and cables for the transmission of power referred to in the First Schedule may be constructed under, over, along, or by the side of any public road, street, or highway, or any public place.

**6.**



*Sydney Harbour Bridge.*

**6.** The constructing authority, and any persons authorised by him, may use the said lines of railway, or any part thereof, before they are transferred to the Railway Commissioners for New South Wales, and for that purpose may run thereon any carriages or waggons propelled or drawn by any motive power, and the net receipts therefrom shall be paid into the Treasury.

## PART II.

## FINANCIAL

**7.** (1) In this Part the capital cost of the works shall be deemed to be the total amount expended on the construction of the said works together with the cost of land resumptions, costs, compensations, and all other incidental outgoings whatsoever, and together also with interest on the moneys expended for such purposes from time to time until the completion of the said works, such interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

(2) The date of the completion of the said works shall be determined by the Governor, and the date so determined shall be notified in the Gazette.

**8.** (1) Two-thirds of the capital cost of the works shall be debited to the Railway Commissioners for New South Wales.

(2) One-third of the capital cost of the works shall be paid out of the proceeds of the rate hereinafter provided for.

**9.** (1) There is hereby imposed for the year one thousand nine hundred and twenty-three, and for each year thereafter, as from the first day of January in each of the said years, a rate of one-half of a penny in the pound upon the unimproved value of all land which

is



*Sydney Harbour Bridge.*

is within the city of Sydney and is ratable under the Sydney Corporation Act, 1902, or any Act amending the same, or which is within the area of any municipality or shire referred to in the Second Schedule (except the shire of Hornsby), and is ratable under the Local Government Act, 1919, or any Act amending the same, and of all land which is within the area of the shire of Hornsby and is situate within the boundaries described in the said schedule and ratable as aforesaid.

(2) Such unimproved value shall be ascertained in accordance with the provisions of the law relating to the determination of the unimproved value of land for the purposes of the Sydney Corporation Act, 1902, or the Local Government Act, 1919, or any Acts amending the same as the case may require.

(3) The provisions of the Local Government Act, 1919, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate outside the city of Sydney; and the provisions of the Sydney Corporation Act, 1902, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate within the said city: Provided that the amount of the rate shall not be included in calculating the maximum amount that may be levied as rates under the Local Government Act, 1919, or the Sydney Corporation Act, 1902, or any Acts amending the same.

The rate—  
collection and  
disposal.

**10.** (1) The Municipal Council of Sydney and the councils of the municipalities and shires referred to in the Second Schedule (hereinafter called "the said councils") shall and they are hereby authorised, empowered, and required to collect each year the rate imposed by this Act.

(2) The proceeds of such rate after deducting such proportion thereof for the expense of collection as the said Secretary may from time to time in each case approve shall within such period as may be prescribed by regulations made under this Act be paid by the said councils to a special account in the Treasury.

**11.**



*Sydney Harbour Bridge.*

**11.** The proceeds of such rate when paid to such special account shall be credited with interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

Application  
of proceeds  
of rate.

**12.** (1) The moneys standing to the credit of such special account shall be applied by the Colonial Treasurer as follows :—

Application  
of money in  
special  
account.

- (i) During the construction of the said works in payment of the cost of and incidental to the carrying out of the said works.
- (ii) After the completion of the said works in payment of—
  - (a) interest at a rate to be determined by the Governor from time to time and notified in the Gazette on so much of the one-third part of the capital cost of the works payable out of the proceeds of the said rate as shall not have already been defrayed from such moneys ;
  - (b) the cost of the maintenance and lighting of the roadways and footway on the cantilever or arch bridge, including the piers (hereinafter referred to as “ the main bridge ”) ;
  - (c) the cost of the maintenance and lighting of the roadway and footway approaches to the main bridge ; and
  - (d) one-third of the cost of the maintenance of the main bridge, exclusive of the railway tracks.

Any balance of such moneys, after making such payments, shall be applied in payment of the said one-third of the capital cost of the works, which is payable out of the proceeds of the said rate.

(2) The cost of the maintenance of the railway approaches to the main bridge and of the maintenance of the railway tracks on such approaches and bridge, together with two-thirds of the cost of maintenance of the main bridge other than the cost of the maintenance and



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and lighting of the roadways and footway on such bridge, shall be paid by the Railway Commissioners for New South Wales.

When rate shall cease to be imposed.

**13.** (1) When one-third of the capital cost of the works, when completed, has been paid out of the proceeds of the said rate, and there is standing to the credit of the said special account an additional sum of money which if invested at a rate to be fixed by the Governor will provide an annual income sufficient to pay for the costs referred to in paragraphs (b), (c), and (d) of subsection one of the last preceding section, the Governor shall declare by notification in the Gazette that upon a date to be stated in such notification the said rate shall cease to be imposed, but the publication of such notification shall not release any person from any liability in respect of any rate, or relieve any of the said councils from the obligation to account for the proceeds of such rate or affect the remedies hereinafter provided against defaulting councils :

Provided that the date stated in such notification may be retrospective, and a rate shall not be imposed, or if imposed shall not be payable, in respect of any period after the date stated in such notification.

The costs referred to in the said paragraphs (b), (c), and (d) shall be the average annual amount of such costs during the three completed years immediately preceding the date on which one-third of the capital cost of the works has been paid out of the proceeds of the said rate.

(2) Any surplus moneys standing to the credit of the said special account after the investment of the additional sum of money referred to in subsection one of this section shall be refunded to the said councils in the proportion in which they contributed to the same respectively, and shall be dealt with by them as general rates.

Default by council.

**14.** (1) If the council of any municipality or shire makes default in collecting the said rate or in paying the proceeds less such deductions as aforesaid into the special account in the Treasury such municipality or shire shall be deemed to be a defaulting area within the meaning and for the purposes of the Local Government Act, 1919, or any Act amending the same. (2)



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(2) If any such default is made by the Municipal Council of Sydney, the city of Sydney shall be deemed to be a defaulting area within the meaning and for the purposes of Part VIII of the Local Government Act, 1919, and the provisions of the said Part shall apply to the said council and the said city.

PART III.

MISCELLANEOUS.

**15.** For the purposes of this Act, but not otherwise, the following amendments and additions shall be made in the Public Works Act, 1912, that is to say:—

Amendments  
of Public  
Works Act,  
1912.

(1) The following section is inserted next after section four:—

4A. The provisions of this Act relating to the acquisition of land shall also apply to the acquisition of an easement or right to use the subsoil or the under-surface of land, whether such easement or right is acquired separately from or together with any land.

Acquisition  
of an  
easement.

(2) Section eighty-two is amended by omitting in subsection one the words "and (b) not being a garden, orchard, or plantation attached or belonging to a house, nor a park, planted walk, avenue, or ground ornamentally planted; and (c) not being nearer to the dwelling-house of the owner of any such lands than a distance of five hundred yards."

Sec. 82.

(3) Section ninety-eight is amended as follows:—

Sec. 98.

(a) At the end of subsection one insert the following:—

Land may be superfluous within the meaning of this section although the subsoil or under-surface of the land is used or required for the purposes of the work.

In



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In any sale of superfluous land the constructing authority may reserve an easement or a right of using any part of the land.

- (b) In subsection three, before "public works" insert "authorised works or" and omit the words "not exceeding fifty years."

Sec. 124.

- (4) Section one hundred and twenty-four is amended by omitting the words "at the time notice was given, or notification published, as the case may be" and substituting therefor the words "at the date of the passing of the Sydney Harbour Bridge Act, 1922."

Sec. 126.

- (5) Section one hundred and twenty-six is amended by inserting at the end of subsection two the following proviso:—

Provided that such interest shall not be paid for any period during which delay in fixing the amount of compensation or in completing title has been caused without reasonable excuse by the act or default of the person to whom such compensation is payable.

Secs. 86, 87,  
88, 89, 90, 91,  
92, 95, 97,  
126, and  
Part IX.

- (6) Sections eighty-six, eighty-seven, eighty-eight, eighty-nine, ninety, ninety-one, ninety-two, ninety-five, ninety-seven, subsection three of section one hundred and twenty-six, and Part IX are repealed.

Right of way.  
s. 18, London  
Electric  
Railway Act.

**16.** All private rights of way over any lands which may under the powers of this Act be acquired compulsorily shall from the date of such acquisition be extinguished: Provided that the constructing authority shall make full compensation to all parties interested in respect of any such rights, and such compensation shall be settled in manner provided for the assessment of compensation by reason of the compulsory acquisition of land.

Accommoda-  
tion works  
not required.

**17.** The constructing authority shall not be required to make any accommodation works for the convenience of persons of whose lands he may have taken possession, or for the convenience of persons using any road, street, or lane under or over which the said railway may be



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be carried, or which may be closed or partly closed for the purpose of constructing the works hereby authorised, or any works to be carried out in connection therewith. But the constructing authority may carry out such accommodation works as he may think reasonable or desirable under the circumstances, and shall in constructing the said works cause as little inconvenience as may reasonably be, having regard to the circumstances.

**18.** Notwithstanding any provision in any Act to the contrary, it shall be necessary for the constructing authority to give notice of his intention to blast any rock. No injunction shall be issued to restrain him from causing or continuing to cause any nuisance by such blasting or by any other operation necessary or proper in connection with the construction of the works authorised by this Act.

Notices required.  
No liability for nuisances in carrying out work.

**19.** (1) Any action for damage or injury caused by the carrying out of any work or the doing of anything under the authority of this Act (not being an action for compensation in respect of any land taken under the said authority) shall be heard and determined, when the amount claimed in such action exceeds one thousand pounds, by a judge of the Supreme Court without a jury, and when such amount does not exceed one thousand pounds by a judge of the said court or the judge of a district court without a jury.

Certain actions to be determined by judge without jury.

(2) No such action may be brought unless a claim in writing setting out the nature of the damage or injury complained of has been served upon the constructing authority within twelve months after the carrying out of the work or the doing of the thing by reason of which the damage or injury complained of is alleged to have arisen, or within such further time as a judge of the Supreme Court or of a district court shall allow.

(3) If the constructing authority does not admit such claim or is unable to agree with the claimant as to the amount of compensation to be paid, he may by notice in writing require the claimant to bring an action for the prosecution of such claim, and such action shall be commenced within twelve months from the date of such notice.



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Constructing  
authority  
may enter  
land, build-  
ing, &c.

**20.** The constructing authority or any person authorised by him in writing may at any reasonable hour in the daytime enter any land or building along or near to the line of the said works and inspect the same and make measurements and drawings and take photographs thereof, and take such other measures as he may think necessary to ascertain the construction and condition of any such building :

Provided that notice shall be given to the person in occupation of such land or building at least twenty-four hours before such entry.

Materials to  
be used.

**21.** The works authorised shall as far as practicable be constructed of materials produced and manufactured in Australia at the date of closing of tenders. The constructing authority shall afford full opportunity to local industries to manufacture or arrange for the manufacture and supply from Australian industries or production in fair competition with imported materials.

Regulations.

**22.** (1) The Governor may make regulations for carrying this Act into effect, and may in such regulations impose any penalty not exceeding twenty pounds for any breach thereof. Any such penalty may be recovered before a stipendiary or police magistrate or any two justices in petty sessions.

(2) Such regulations shall be published in the Gazette and shall come into force upon publication and shall be laid before both Houses of Parliament within fourteen days after publication, if Parliament is then in session, and if Parliament is not then in session within fourteen days after the commencement of the next session. If either House of Parliament passes a resolution, of which notice has been given within fifteen sitting days after such regulations have been laid before such House, disallowing any regulation or part thereof, such regulation or part shall thereupon cease to have effect.



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SCHEDULES.

FIRST SCHEDULE.

THE works provided for are as follow :—

A bridge of the cantilever or arch type across Sydney Harbour from Dawes Point to Milson's Point designed, in common with the approaches thereto, to carry four lines of railway, one main roadway, one motor roadway, and one footway.

The necessary approaches to the bridge.

The construction of electric railway lines connecting the respective ends of the approaches with the proposed city railway station at Wynyard-square on the southern side and with the existing Milson's Point railway near Bay-road Station on the northern side.

Cables for the transmission of electric power and all other necessary works incidental to the before-mentioned works.

Subject to such deviations and modifications as may be considered desirable by the constructing authority.

SECOND SCHEDULE.

City of Sydney. (Boundaries to be the same as constituted at the date of the passing of this Act.)

Municipality of Manly.

Municipality of Mosman.

Municipality of Lane Cove.

Municipality of North Sydney.

Municipality of Willoughby.

Shire of Warringah.

Shire of Ku-ring-gai.

The shire of Hornsby as to so much thereof as is bounded as follows :  
Commencing at Flint and Steel Point ; by a line towards Juno Head to the channel of the Hawkesbury River (being the line of greatest depth as per soundings shown on chart catalogued Misc. 144) ; thence upwards along the channel to meet the northerly prolongation of a line along the centre of Berowra Creek ; by that prolongation and line generally southerly to its intersection with the southerly prolongation of the eastern boundary of portion 164, parish of North Colah ; by that prolongation and boundary northerly ; by the northern boundaries of that portion and portion 139 westerly, part of the eastern boundary of portion 55 and a line northerly ; part of the southern boundary of  
portion



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*Sydney Harbour Bridge.*

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portion 107 and the southern boundaries of portions 7, 6, and 5, westerly; by the western boundaries of portions 108 and 44 southerly; by the southern boundary of the latter portion easterly; by eastern and northern boundaries of portion 133 southerly, easterly, and again southerly; the southern boundary of that portion westerly; the eastern boundary of portion 141 southerly; by Cabbage Tree Hollow upwards; the western boundaries of portions 134 and 128 southerly; by Carter's Gully downwards; the western and southern boundaries of portion 174 southerly and easterly; the eastern boundary of portion 172 southerly; the southern boundary of that portion and part of the southern boundary of portion 192 westerly; the eastern boundaries of portion 171, parish of North Colah, 62, 63, and 67, parish of South Colah, southerly; the north-eastern boundaries of portions 25 and 114; the north-eastern and south-eastern boundaries of portions 26, 32, and 80 generally southerly; part of the northern boundary of portion 110 easterly; the eastern boundary of that portion and of portion 111 and the western side of Hull-road southerly; the northern and north-western boundaries of section 1, as shown on deposit plan 1,879 in Registrar-General's office, and the northern boundary of public school land at Pennant Hills, south-westerly and westerly; by a line west to the boundary of Hornsby Shire; thence by part of the western boundary, the southern boundary, and the eastern boundary of Hornsby Shire, to the point of commencement.

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By Authority :

JOHN SPENCE, Acting Government Printer, Sydney, 1922.

[G.L.]





*I certify that this PUBLIC BILL, which originated in the LEGISLATIVE ASSEMBLY, has finally passed the LEGISLATIVE COUNCIL and the LEGISLATIVE ASSEMBLY of NEW SOUTH WALES.*

W. S. MOWLE,  
*Clerk of the Legislative Assembly.*  
*Legislative Assembly Chamber,*  
*Sydney, 16 November, 1922.*

## New South Wales.



ANNO TERTIO DECIMO

# GEORGII V REGIS.

\*\*\*\*\*

### Act No. 28, 1922.

An Act to sanction the construction of a high-level cantilever or arch bridge across Sydney Harbour by connecting Dawes Point with Milson's Point, together with the necessary approaches, railway connections, and other works connected therewith; to provide for the use of such works by the Constructing Authority and other persons; to provide for the cost of the said works and other expenses connected therewith; to impose a rate on certain lands in relation to such works; to amend the Public Works Act, 1912, and certain other Acts; and for purposes connected therewith. [Assented to, 24th November, 1922.]

BE

*I have examined this Bill, and find it to correspond in all respects with the Bill as finally passed by both Houses.*

R. B. WALKER,  
*Chairman of Committees of the Legislative Assembly.*



*Sydney Harbour Bridge.*

**B**E it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:—

Short title.

**1.** This Act may be cited as the "Sydney Harbour Bridge Act, 1922," and is divided into Parts as follows:—

PART I.—WORKS AUTHORISED—ss. 2-6.

PART II.—FINANCIAL—ss. 7-14.

PART III.—MISCELLANEOUS—ss. 15-22.

PART I.

WORKS AUTHORISED.

Works sanctioned.

**2.** The carrying out of the works described in the First Schedule (in this Act referred to as "the said works") is hereby sanctioned; and the Secretary for Public Works is empowered to carry out the said works.

The plan.

**3.** The plan of the said works is the plan marked "Sydney Harbour Bridge," signed by the said Secretary and countersigned by the chief engineer, Sydney Harbour Bridge, and deposited in the public office of the said Secretary.

Estimated cost of works.

**4.** The estimated cost of the said works, inclusive of land resumptions, is the sum of five million seven hundred and fifty thousand pounds, which shall not be exceeded by more than ten per centum.

Lines may be constructed on road.

**5.** The lines of railway and cables for the transmission of power referred to in the First Schedule may be constructed under, over, along, or by the side of any public road, street, or highway, or any public place.

**6.**



*Sydney Harbour Bridge.*

6. The constructing authority, and any persons authorised by him, may use the said lines of railway, or any part thereof, before they are transferred to the Railway Commissioners for New South Wales, and for that purpose may run thereon any carriages or waggons propelled or drawn by any motive power, and the net receipts therefrom shall be paid into the Treasury.

PART II.

FINANCIAL.

7. (1) In this Part the capital cost of the works shall be deemed to be the total amount expended on the construction of the said works together with the cost of land resumptions, costs, compensations, and all other incidental outgoings whatsoever, and together also with interest on the moneys expended for such purposes from time to time until the completion of the said works, such interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

(2) The date of the completion of the said works shall be determined by the Governor, and the date so determined shall be notified in the Gazette.

8. (1) Two-thirds of the capital cost of the works shall be debited to the Railway Commissioners for New South Wales.

(2) One-third of the capital cost of the works shall be paid out of the proceeds of the rate hereinafter provided for.

9. (1) There is hereby imposed for the year one thousand nine hundred and twenty-three, and for each year thereafter, as from the first day of January in each of the said years, a rate of one-half of a penny in the pound upon the unimproved value of all land which is



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is within the city of Sydney and is ratable under the Sydney Corporation Act, 1902, or any Act amending the same, or which is within the area of any municipality or shire referred to in the Second Schedule (except the shire of Hornsby), and is ratable under the Local Government Act, 1919, or any Act amending the same, and of all land which is within the area of the shire of Hornsby and is situate within the boundaries described in the said schedule and ratable as aforesaid.

(2) Such unimproved value shall be ascertained in accordance with the provisions of the law relating to the determination of the unimproved value of land for the purposes of the Sydney Corporation Act, 1902, or the Local Government Act, 1919, or any Acts amending the same as the case may require.

(3) The provisions of the Local Government Act, 1919, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate outside the city of Sydney; and the provisions of the Sydney Corporation Act, 1902, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate within the said city: Provided that the amount of the rate shall not be included in calculating the maximum amount that may be levied as rates under the Local Government Act, 1919, or the Sydney Corporation Act, 1902, or any Acts amending the same.

The rate—  
collection and  
disposal.

**10.** (1) The Municipal Council of Sydney and the councils of the municipalities and shires referred to in the Second Schedule (hereinafter called "the said councils") shall and they are hereby authorised, empowered, and required to collect each year the rate imposed by this Act.

(2) The proceeds of such rate after deducting such proportion thereof for the expense of collection as the said Secretary may from time to time in each case approve shall within such period as may be prescribed by regulations made under this Act be paid by the said councils to a special account in the Treasury.

**11.**



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*Sydney Harbour Bridge.*

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**11.** The proceeds of such rate when paid to such special account shall be credited with interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

Application  
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**12.** (1) The moneys standing to the credit of such special account shall be applied by the Colonial Treasurer as follows:—

Application  
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- (i) During the construction of the said works in payment of the cost of and incidental to the carrying out of the said works.
- (ii) After the completion of the said works in payment of—
  - (a) interest at a rate to be determined by the Governor from time to time and notified in the Gazette on so much of the one-third part of the capital cost of the works payable out of the proceeds of the said rate as shall not have already been defrayed from such moneys;
  - (b) the cost of the maintenance and lighting of the roadways and footway on the cantilever or arch bridge, including the piers (hereinafter referred to as "the main bridge");
  - (c) the cost of the maintenance and lighting of the roadway and footway approaches to the main bridge; and
  - (d) one-third of the cost of the maintenance of the main bridge, exclusive of the railway tracks.

Any balance of such moneys, after making such payments, shall be applied in payment of the said one-third of the capital cost of the works, which is payable out of the proceeds of the said rate.

(2) The cost of the maintenance of the railway approaches to the main bridge and of the maintenance of the railway tracks on such approaches and bridge, together with two-thirds of the cost of maintenance of the main bridge other than the cost of the maintenance and



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and lighting of the roadways and footway on such bridge, shall be paid by the Railway Commissioners for New South Wales.

When rate  
shall cease to  
be imposed.

**13.** (1) When one-third of the capital cost of the works, when completed, has been paid out of the proceeds of the said rate, and there is standing to the credit of the said special account an additional sum of money which if invested at a rate to be fixed by the Governor will provide an annual income sufficient to pay for the costs referred to in paragraphs (b), (c), and (d) of subsection one of the last preceding section, the Governor shall declare by notification in the Gazette that upon a date to be stated in such notification the said rate shall cease to be imposed, but the publication of such notification shall not release any person from any liability in respect of any rate, or relieve any of the said councils from the obligation to account for the proceeds of such rate or affect the remedies hereinafter provided against defaulting councils:

Provided that the date stated in such notification may be retrospective, and a rate shall not be imposed, or if imposed shall not be payable, in respect of any period after the date stated in such notification.

The costs referred to in the said paragraphs (b), (c), and (d) shall be the average annual amount of such costs during the three completed years immediately preceding the date on which one-third of the capital cost of the works has been paid out of the proceeds of the said rate.

(2) Any surplus moneys standing to the credit of the said special account after the investment of the additional sum of money referred to in subsection one of this section shall be refunded to the said councils in the proportion in which they contributed to the same respectively, and shall be dealt with by them as general rates.

Default by  
council.

**14.** (1) If the council of any municipality or shire makes default in collecting the said rate or in paying the proceeds less such deductions as aforesaid into the special account in the Treasury such municipality or shire shall be deemed to be a defaulting area within the meaning and for the purposes of the Local Government Act, 1919, or any Act amending the same.

(2)



*Sydney Harbour Bridge.*

(2) If any such default is made by the Municipal Council of Sydney, the city of Sydney shall be deemed to be a defaulting area within the meaning and for the purposes of Part VIII of the Local Government Act, 1919, and the provisions of the said Part shall apply to the said council and the said city.

PART III.

MISCELLANEOUS.

**15.** For the purposes of this Act, but not otherwise, the following amendments and additions shall be made in the Public Works Act, 1912, that is to say:—

Amendments  
of Public  
Works Act,  
1912.

(1) The following section is inserted next after section four:—

4A. The provisions of this Act relating to the acquisition of land shall also apply to the acquisition of an easement or right to use the subsoil or the under-surface of land, whether such easement or right is acquired separately from or together with any land.

Acquisition  
of an  
easement.

(2) Section eighty-two is amended by omitting in subsection one the words “and (b) not being a garden, orchard, or plantation attached or belonging to a house, nor a park, planted walk, avenue, or ground ornamentally planted; and (c) not being nearer to the dwelling-house of the owner of any such lands than a distance of five hundred yards.”

Sec. 82.

(3) Section ninety-eight is amended as follows:—

Sec. 98.

(a) At the end of subsection one insert the following:—

Land may be superfluous within the meaning of this section although the subsoil or under-surface of the land is used or required for the purposes of the work.

In



*Sydney Harbour Bridge.*

In any sale of superfluous land the constructing authority may reserve an easement or a right of using any part of the land.

- (b) In subsection three, before "public works" insert "authorised works or" and omit the words "not exceeding fifty years."

Sec. 124.

- (4) Section one hundred and twenty-four is amended by omitting the words "at the time notice was given, or notification published, as the case may be" and substituting therefor the words "at the date of the passing of the Sydney Harbour Bridge Act, 1922."

Sec. 125.

- (5) Section one hundred and twenty-six is amended by inserting at the end of subsection two the following proviso:—

Provided that such interest shall not be paid for any period during which delay in fixing the amount of compensation or in completing title has been caused without reasonable excuse by the act or default of the person to whom such compensation is payable.

Secs. 86, 87,  
88, 89, 90, 91,  
92, 93, 97,  
126, and  
Part IX.

- (6) Sections eighty-six, eighty-seven, eighty-eight, eighty-nine, ninety, ninety-one, ninety-two, ninety-five, ninety-seven, subsection three of section one hundred and twenty-six, and Part IX are repealed.

Right of way.  
s. 18, London  
Electric  
Railway Act.

**16.** All private rights of way over any lands which may under the powers of this Act be acquired compulsorily shall from the date of such acquisition be extinguished: Provided that the constructing authority shall make full compensation to all parties interested in respect of any such rights, and such compensation shall be settled in manner provided for the assessment of compensation by reason of the compulsory acquisition of land.

Accommoda-  
tion works  
not required.

**17.** The constructing authority shall not be required to make any accommodation works for the convenience of persons of whose lands he may have taken possession, or for the convenience of persons using any road, street, or lane under or over which the said railway may be



*Sydney Harbour Bridge.*

be carried, or which may be closed or partly closed for the purpose of constructing the works hereby authorised, or any works to be carried out in connection therewith. But the constructing authority may carry out such accommodation works as he may think reasonable or desirable under the circumstances, and shall in constructing the said works cause as little inconvenience as may reasonably be, having regard to the circumstances.

**18.** Notwithstanding any provision in any Act to the contrary, it shall be necessary for the constructing authority to give notice of his intention to blast any rock. No injunction shall be issued to restrain him from causing or continuing to cause any nuisance by such blasting or by any other operation necessary or proper in connection with the construction of the works authorised by this Act.

Notices required.  
No liability for nuisances in carrying out work.

**19.** (1) Any action for damage or injury caused by the carrying out of any work or the doing of anything under the authority of this Act (not being an action for compensation in respect of any land taken under the said authority) shall be heard and determined, when the amount claimed in such action exceeds one thousand pounds, by a judge of the Supreme Court without a jury, and when such amount does not exceed one thousand pounds by a judge of the said court or the judge of a district court without a jury.

Certain actions to be determined by judge without jury.

(2) No such action may be brought unless a claim in writing setting out the nature of the damage or injury complained of has been served upon the constructing authority within twelve months after the carrying out of the work or the doing of the thing by reason of which the damage or injury complained of is alleged to have arisen, or within such further time as a judge of the Supreme Court or of a district court shall allow.

(3) If the constructing authority does not admit such claim or is unable to agree with the claimant as to the amount of compensation to be paid, he may by notice in writing require the claimant to bring an action for the prosecution of such claim, and such action shall be commenced within twelve months from the date of such notice.



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*Sydney Harbour Bridge.*

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Constructing  
authority  
may enter  
land, build-  
ing, &c.

**20.** The constructing authority or any person authorised by him in writing may at any reasonable hour in the daytime enter any land or building along or near to the line of the said works and inspect the same and make measurements and drawings and take photographs thereof, and take such other measures as he may think necessary to ascertain the construction and condition of any such building :

Provided that notice shall be given to the person in occupation of such land or building at least twenty-four hours before such entry.

Materials to  
be used.

**21.** The works authorised shall as far as practicable be constructed of materials produced and manufactured in Australia at the date of closing of tenders. The constructing authority shall afford full opportunity to local industries to manufacture or arrange for the manufacture and supply from Australian industries or production in fair competition with imported materials.

Regulations.

**22.** (1) The Governor may make regulations for carrying this Act into effect, and may in such regulations impose any penalty not exceeding twenty pounds for any breach thereof. Any such penalty may be recovered before a stipendiary or police magistrate or any two justices in petty sessions.

(2) Such regulations shall be published in the Gazette and shall come into force upon publication and shall be laid before both Houses of Parliament within fourteen days after publication, if Parliament is then in session, and if Parliament is not then in session within fourteen days after the commencement of the next session. If either House of Parliament passes a resolution, of which notice has been given within fifteen sitting days after such regulations have been laid before such House, disallowing any regulation or part thereof, such regulation or part shall thereupon cease to have effect.

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SCHEDULES.



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*Sydney Harbour Bridge.*

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SCHEDULES.

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FIRST SCHEDULE.

THE works provided for are as follow :—

A bridge of the cantilever or arch type across Sydney Harbour from Dawes Point to Milson's Point designed, in common with the approaches thereto, to carry four lines of railway, one main roadway, one motor roadway, and one footway.

The necessary approaches to the bridge.

The construction of electric railway lines connecting the respective ends of the approaches with the proposed city railway station at Wynyard-square on the southern side and with the existing Milson's Point railway near Bay-road Station on the northern side.

Cables for the transmission of electric power and all other necessary works incidental to the before-mentioned works.

Subject to such deviations and modifications as may be considered desirable by the constructing authority.

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SECOND SCHEDULE.

City of Sydney. (Boundaries to be the same as constituted at the date of the passing of this Act.)

Municipality of Manly.

Municipality of Mosman.

Municipality of Lane Cove.

Municipality of North Sydney.

Municipality of Willoughby.

Shire of Warringah.

Shire of Ku-ring-gai.

The shire of Hornsby as to so much thereof as is bounded as follows :  
Commencing at Flint and Steel Point ; by a line towards Juno Head to the channel of the Hawkesbury River (being the line of greatest depth as per soundings shown on chart catalogued Misc. 144) ; thence upwards along the channel to meet the northerly prolongation of a line along the centre of Berowra Creek ; by that prolongation and line generally southerly to its intersection with the southerly prolongation of the eastern boundary of portion 164, parish of North Colah ; by that prolongation and boundary northerly ; by the northern boundaries of that portion and portion 139 westerly, part of the eastern boundary of portion 55 and a line northerly ; part of the southern boundary of portion



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*Sydney Harbour Bridge.*

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portion 107 and the southern boundaries of portions 7, 6, and 5, westerly; by the western boundaries of portions 108 and 44 southerly; by the southern boundary of the latter portion easterly; by eastern and northern boundaries of portion 133 southerly, easterly, and again southerly; the southern boundary of that portion westerly; the eastern boundary of portion 141 southerly; by Cabbage Tree Hollow upwards; the western boundaries of portions 134 and 128 southerly; by Carter's Gully downwards; the western and southern boundaries of portion 174 southerly and easterly; the eastern boundary of portion 172 southerly; the southern boundary of that portion and part of the southern boundary of portion 192 westerly; the eastern boundaries of portion 171, parish of North Colah, 62, 63, and 67, parish of South Colah, southerly; the north-eastern boundaries of portions 25 and 114; the north-eastern and south-eastern boundaries of portions 26, 32, and 80 generally southerly; part of the northern boundary of portion 110 easterly; the eastern boundary of that portion and of portion 111 and the western side of Hull-road southerly; the northern and north-western boundaries of section 1, as shown on deposit plan 1,879 in Registrar-General's office, and the northern boundary of public school land at Pennant Hills, south-westerly and westerly; by a line west to the boundary of Hornsby Shire; thence by part of the western boundary, the southern boundary, and the eastern boundary of Hornsby Shire, to the point of commencement.

*In the name and on behalf of His Majesty I assent  
to this Act.*

W. E. DAVIDSON,  
Governor.

Government House,  
Sydney, 24th November, 1922.



## SYDNEY HARBOUR BRIDGE.

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IN fulfilment of the promise made by me when dealing with the Motion asking for leave to introduce the Bill, that full details would be furnished for the information of Honorable Members in order that they might be fully seized of the financial and other provisions, the accompanying statement is now made available.

(Sgd.) R. T. BALL.

12th September, 1922.

76503



10th September 1914

(2nd) E. J. B. B. B.

other provisions, the accompanying... of... of... of...



# Notes on the Sydney Harbour Bridge Bill.

## HISTORICAL.

THE first suggestion to link Sydney with North Sydney was made in 1815 by Francis H. Greenway, Government Architect, in a report to Governor Macquarie. In letters to *The Australian* some years later, Greenway wrote:—

“ Thus in the event of the Bridge being thrown across from Dawes Battery to the North Shore, a town would be built on that shore, and would have formed with these buildings, a grand whole, that would have indeed surprised anyone on entering the Harbour: and have given an idea of strength and magnificence that would have reflected credit and glory on the Colony and the Mother Country.”

The earliest recorded drawing of a bridge to North Sydney was made in 1857 by a Sydney Engineer, Mr. Peter Henderson, for a bridge from near Dawes Point, Sydney, to near Milson's Point, North Sydney.

In 1878, Mr. W. C. Bennett, then Commissioner for Roads and Bridges, stated that he favoured a floating bridge from Dawes Point to Milson's Point, to carry vehicles, passengers, and, if necessary, a railway train.

In 1879, Mr. T. S. Parrott prepared a sketch design of a truss bridge of seven spans from Dawes Point to Milson's Point, the longest span being 500 feet.

In 1880, negotiations were opened between the Government and Mr. J. E. Garbett, representing a company which was prepared to construct a high-level bridge to the North Shore at a cost of £850,000, upon condition that the Government guaranteed, for a period of thirty years, an amount equal to  $3\frac{1}{2}$  per cent. upon the cost of construction.

Sir John Fowler prepared plans for a suspension bridge to Milson's Point for vehicular traffic at an estimated cost of £400,000.

Tunnel connection to North Sydney was first proposed by Mr. C. O'Neill, M.Inst.C.E., in conjunction with Mr. Gipps, C.E. His proposal was made in January, 1885, and in 1887 the Government was asked to guarantee 4 per cent. on the cost of the two tunnels proposed—one for railway traffic, and one for road traffic.

In January, 1888, a deputation waited upon the late Sir Henry Parkes to urge the construction of a bridge as an undertaking fitting to mark the Centenary of the Colony.

Public agitation continued, and in response thereto, in March, 1890, the Government appointed a Royal Commission to inquire into the proposed extension of the railway into the City and the North Sydney connection. Eight schemes were submitted for connecting North Sydney by bridge, whilst at least four witnesses favoured a tunnel. The Royal Commission reported “ that at present it was inexpedient to connect the North Shore with Sydney by means of a bridge or tunnel, but the Commission is of the opinion, upon the evidence before it, that, if it should be found necessary to connect North Shore with Sydney, it should be by means of a high-level bridge, and that if it were possible to throw a bridge across in one span, such plan should be adopted.



From 1896 to 1899, four Bills were introduced into Parliament with the object of securing the connection by private enterprise. Two of these Bills provided for a bridge connection, the promoters being Mr. B. C. Simpson, M.Inst.C.E., and Mr. William Kenwood respectively. The other two Bills for tunnel connection were promoted by Mr. John Sulman, F.R.I.B.A. No progress was made with any of these Bills, and none of them were adequate for even present-day requirements.

After two deputations had urged that the construction of a bridge be put in hand by the Government, or failing that, by private enterprise, the Hon. E. W. O'Sullivan, then Minister for Public Works, on the 4th January, 1900, called for competitive designs and tenders. None of the designs received were considered satisfactory.

Mr. O'Sullivan, on 25th March, 1901, appointed an Advisory Board but, before the Board had submitted their final report on 25th November, 1903, the Cabinet, in which he was Minister for Works, went out of office. This Advisory Board had called for competitive designs and tenders throughout the world for a bridge from Dawes Point to McMahon's Point, and after mature consideration recommended the acceptance of the tender of J. Stewart & Co., at a total cost, including approaches, of £1,940,050. The incoming Government did not accept the tender recommended.

The next move was made in 1908, when a Royal Commission was appointed to report on the best practical method of establishing communication between Sydney and North Sydney. The Commission reported in favour of separate subways for railway, tramway, and vehicular traffic, based on a depth of water of 40 feet above the subways at low-water, fixed after consultation with the Harbour Trust, as against the bridge recommended by the Advisory Board. The bridge recommended by the Public Works Committee, and for which tenders have now been called, had not at that time been proposed.

After a deputation from the Master Carriers' Association had waited on the Acting Premier, asking that a bridge should be constructed for the vehicular traffic, the Honorable Arthur Griffith, Minister for Public Works, announced in Parliament on 19th July, 1911, that "Cabinet had that day decided that a definite proposal for a bridge to carry tramway, vehicular, and pedestrian traffic, but not a railway, should be submitted immediately to the Public Works Committee, and concurrently with that, a proposal for a subway to connect the North Sydney railway system with the City system."

In pursuance of that announcement, on 30th November, 1911, the Minister for Public Works moved:—

- (a) That it be referred to the Parliamentary Standing Committee on Public Works to consider and report upon the expediency of connecting Sydney and North Sydney by means of a bridge.

The bridge and approaches from Dawes Point to McMahon's Point, as recommended by the Advisory Board, were to carry tramway, vehicular, and pedestrian traffic only; provision for railway traffic was omitted.

- (b) That it be referred to the Parliamentary Standing Committee on Public Works to consider and report upon the expediency of constructing a subway from Circular Quay, *via* Fort Macquarie and Kirribilli Point, to Lavender Bay, for the purpose of affording railway communication between Sydney and North Sydney.

In



In giving evidence before the Public Works Committee in 1911 and 1912 Mr. Bradfield emphasised the fact that the depth of water above the subways, viz., 40 feet, decided upon by the Royal Commission, was much too little, and would block the development of the Harbour shipping, and gave, *inter alia*, the following evidence in support thereof:—

“The top of the railway subway would be above the bed of the Harbour for more than one-third of its length—in places, 15 feet above the bed. The tops of the tramway and roadway subways would be above the bed of the Harbour for nearly the full distance across, and in places would be 27 feet above the bed. Silting and scour would inevitably be caused thereby.”

“The average dimensions of the twenty largest steamships afloat for each decade since 1851 show the rapid increase in the size of ships.” The figures for 1921 are the latest available.

	1851.	1861.	1871.	1881.	1891.	1901.	1911.	1921.
Length—feet ... ..	245	310	365	460	507	599	740	903·6*
Beam— „ ... ..	37	41	44	45	54	65	84	97*
Draught—(loaded) ... ..	19	22	24	24	27	32	34	35*
Tonnage—tons ... ..	1,700	3,000	4,200	4,900	6,980	14,150	29,000	49,800*
Speed—knots ... ..	9·2	10	12	15	17	19	20	.....

(\*Average of five boats.)

Name.	Year built.	Owners.	Length.	Breadth.	Gross Tonnage.	Draught.
			feet.	feet.	tons.	ft. in.
<i>Majestic</i> ... ..	1921	White Star ... ..	920	100	56,000	37 1
<i>Leviathan</i> ... ..	1914	U.S. Shipping B. ... ..	908	100	51,000	36 0
<i>Imperator</i> ... ..	1912	Shipping Controller ... ..	905	98	50,000	35 0
<i>Aquitania</i> ... ..	1914	Cunard ... ..	902	97	47,000	35 4
<i>Olympic</i> ... ..	1911	White Star ... ..	883	92	45,000	34 6
Average ... ..			903·6	97·4	49,800	35 7

“To increase the draught of vessels beyond 36 feet would necessitate extensive alterations to many existing harbours: still it is certain that the draught of vessels will increase in the future, as in the past; and, as circumstances required the draught to be increased, so the depth of harbours will have to be increased accordingly.”

“In the Culebra Cut in the Panama Canal the depth of water is 45 feet. The tops of the tunnels constructed under the Hudson River, New York, are 70 feet below mean sea-level, whilst those under the East River, New York, are 79 feet below mean sea-level.”

“The Suez Canal has largely controlled the draught of vessels trading to Sydney, but, with the advent of boats trading *via* the Cape, the draught of vessels has increased. In 1912 the deepest laden merchant vessel left Sydney with a draught of 29 feet; the *Ceramic* has a loaded draught of 34 feet 6 inches, the *Nestor* of 32 feet 10 inches, and larger boats are now being built to trade to Sydney.”

“A



"A vessel with a certain draught when stationary has a greater draught when under way: this difference in draught is called the "squat." Forty observations made on the *Mauretania* gave an observed draught of 34 feet 9 inches when lying at the pier in New York, but when under way the aft draught was 39 feet 5 inches at a speed of 18·4 statutory miles per hour, with 15 feet of water under her keel, *i.e.*, the "squat" was 4 feet 8 inches. When a ship is near the bottom the amount of "squat" is roughly one-fifth of the speed in statute miles per hour."

Allowing for "squat" when under way, and 3 feet of water under the keel, a depth of 40 feet would limit the draught of vessels to 36 feet at low-water.

"The size of merchant ships is determined by the inexorable laws of commerce, trade, economy of transportation, and the demands of passengers for room and comfort; and, as it is impossible to forecast what the draught of vessels will be in the future, it would certainly not be advisable to construct a concrete steel bar across the Harbour, thus limiting the depth of water to 40 feet at low-water for all time, for this is what the construction of these subways really means. The Harbour can be deepened to 60 feet and over right up from the Heads. A depth of 50 feet at least is advisable, preferably more, for it is possible that vessels which could pass over the subway with 40 feet of water in normal conditions might require to be taken up to the docks and repair shops when disabled and partly sunken, and would require a greater depth than 40 feet."

"The Panama Canal provides for a depth of 45 feet at the lock entrances, as does also the Kiel Canal.

The Port of London Authority decided that the entrance locks of the enlargements proposed shall be as follows:—

South Albert Dock—48 feet deep on the sills.

North Albert Dock—1,000 feet long, 120 feet wide, and 52 feet deep on the sills.

Tilbury Docks—1,050 feet long, 130 feet wide, and 55 feet deep on the sills, with means of extending the lock to take vessels 1,250 feet long, by the use of a caisson at the inner end."

The Harbour Trust were opposed to the location of the Bridge proposed by the Advisory Board because the southern pier would render valueless some very necessary and important wharves at Dawes Point, whilst the northern pier right in the fairway would always have been a menace to navigation.

The then Chief Commissioner, Mr. T. R. Johnston, was strongly opposed to the tramway subway recommended by the Royal Commission in 1909, holding that the trams should not be brought across the Harbour, but that North Sydney, Mosman, Manly, and the Shire of Warringah should be connected to the City by means of fast electric railway service; the present Chief Commissioner holds the same view. Anyone who travels to the Eastern Suburbs or to Central Station by tram during the morning and evening rush hours will appreciate Mr. Johnston's and Mr. Fraser's objections. Mr. Johnston urged connection by bridge providing for four lines of electric railway, and Mr. Fraser requires four lines of railway but no tramway tracks across the bridge.

The following is an extract from the *Railway Gazette*, London, 28th May, 1909, relating to the tramway and vehicular subways, recommended by the Royal Commission in 1909:—

"It is very questionable if the outlay to connect the electric tram service under the Harbour can be justified, even if an efficient crossing could be made. Owing, however, to the start on the North Shore side being necessarily



necessarily at a high elevation, and the necessity of quickly coming to the surface at the City side, long gradients of 1 in 17 cannot be avoided. In Sydney, the electric cars are run on easy grades at a pace which would make the hairs of the members of that archæological society, the British authorities, stand on end, but with such lengthy heavy grades as those proposed, about 35 chains on one side, and 52 chains on the other, the present speed would be slow indeed. *We believe, therefore, that it would be necessary actually to take the strong measure of making the ferry service illegal, to prevent the tramway travelling public using it instead of such a substitute.* Change from one conveyance to another, as in the ferry connection, is objectionable and productive of delay in this busy age, but there is little use in spending half-a-million of money in substituting one form of delay for another, especially when the attractions of a pleasure trip are thrown in on one side of the scale. Another point is the objection of intruding a balloon-loop terminus at the City end, at a point which is already greatly crowded with the terminal business of the City tramways and that of the approach to ocean steamer and other general traffic.

“What has been said of the tramway subway grades applies to the subway recommended for vehicular traffic. Besides ordinary maintenance, this tunnel would have to be lighted practically continuously for about a mile and a quarter; and the Commission hesitate, in the body of the report, as to the expenditure on such a scheme, apparently preferring a rearrangement of the existing vehicular ferries.”

The roadway subway provided just sufficient width for two lines of vehicular traffic; one to and one from North Sydney. Under the Harbour the surface of the roadway would have been 66 feet below high-water level with a grade of 1 in 17 for over half a mile on the North Sydney approach. There would be no possibility of a fast motor vehicle passing another vehicle in the subway, and, consequently, the slowest vehicle in the line would limit the speed of all traffic, and a single breakdown would quickly block all motion.

Anyone who gives the subject any thought must quickly arrive at the conclusion that the motion of traffic in any roadway subway must be restricted to one direction only and the subway must be sufficiently wide to provide for two lines of traffic in the same direction, so that the fast traffic can pass the slower-moving traffic, and in the event of a breakdown all traffic would not be blocked.

Many scientists and engineers hold that it is absolutely unsafe to run motor traffic through a long tunnel, because of the exceedingly poisonous carbon-monoxide given forth during combustion.

It is a difficult and costly matter to even partially ventilate subways with steep grades on either side. Medical men of the highest standing state that the action of carbon-monoxide upon the human system is cumulative, and it may prove difficult, expensive, and even totally impracticable—to quote Professor J. A. L. Waddell—to dilute the poison to such an extent as to make the atmosphere in a tube perfectly safe for breathing, especially by people of feeble constitution. All normal people prefer fresh air and sunlight, and driving over a bridge is much to be preferred to driving through a tunnel, whilst walking through a tunnel is so unpleasant that it would not be worth while to make provision for pedestrian travel therein. Imagine the Devonshire-street Subway dropped 80 feet below water level, with the steep climb on either side of the Harbour! Who would use it?

Every



Every noise in a subway reverberates along its whole length. Every subway yet constructed under water leaks; a roadway subway is also very difficult to ventilate efficiently, and is by no means healthy, and electric energy when transformed into mechanical energy as in the driving of trains is almost wholly dissipated as heat; so in a climate such as Sydney, the advantages of an open-air location for our electric railway system is obvious.

Whilst the Public Works Committee were conducting their inquiries, Mr. David Hay, M.Inst.C.E., of the firm of Mott and Hay, London, came to Sydney, at the request of the Government, to report on the Traffic Problems of Sydney, and the best method of constructing a railway subway under the Harbour, in which form of construction Mr. Hay was an expert. After fully investigating the conditions Mr. Hay recommended the bridge from Dawes Point to Milson's Point without piers in the fairway as the proper solution of the problem.

The following is an extract from an article, dated 13th May, 1913, which appeared in the well-known British magazine *Engineering*, published in London—one of the world's leading technical journals:—

“As regards the Harbour crossing, Mr. Hay agrees with the view expressed in our former article, that the bridge rather than the tunnel project should be adopted, principally for the reason, also referred to by us, that the configuration of the ground on either side of the Harbour is most suited to a high-level crossing. In fact, owing to this and the extra distance involved by the tunnel, Mr. Hay states that the additional cost of electric current to work a tunnel line, as compared with a bridge line, would amount to 15 per cent. at least over the section of the line affected. That would be a serious addition to the working expenses of a very heavy passenger traffic. The objection to the tunnel scheme—which, it must be remembered, has, like the bridge, to accommodate road vehicular traffic as well as the railway—is emphasised by Mr. Hay, who refers to the Blackwall and Rotherhithe tunnels under the Thames. In connection with these he draws attention to the noise made by the traffic, the difficulty in effecting ventilation, and in supplying artificial light and drainage. Mr. Hay might have supported his recommendation by pointing to the discomfort which would be caused by burying twice daily during the hot weather a large suburban population of business men in tunnels of so considerable a length as would be necessary, not merely for the subaqueous portion, but in addition for the lengthy approaches.”

“Between twenty and thirty million journeys are made yearly across the Harbour. At present these passengers travel by rail or tram to the water's edge, then by fast ferry steamers of over 1,000 passengers capacity across the Harbour in six minutes. If the tunnel were built with a view to relieving this traffic, a large number of the passengers would still prefer to travel under the more pleasant conditions of the ferry-boat journey, and the Government would lose a considerable amount of the revenue which they rely on for the interest on the cost and the working expenses of their costly alternative. With the bridge, only those living close to the shore will probably continue to use the boats. Even in London, where climatic conditions are less enjoyable, many, as we know, prefer outdoor travel by motor omnibuses to that underground by railway, notwithstanding the superior speed and the frequency of service by the latter.”

“With respect to the bridge, a recommendation was made in 1903 that the design should be that of the cantilever type. It was to be constructed from



from Dawes Point on the City side to McMahon's Point on the North Sydney shore. The clear headway was to be 170 feet or about 25 feet higher than that of the Forth Bridge. As to accommodation, the extreme width of the bridge was to be 118 feet, made up of 25 feet for railway tracks, 26 feet for tramways, 35 feet roadway, and two 12-feet footpaths. In place of this, Mr. Hay prefers, however, an alternative design by Mr. Bradfield, M.Inst.C.E., of the Public Works Department. This design is for a bridge constructed from Dawes Point to Milson's Point, of one span, and, therefore less obstructive to navigation and probably less costly as regards foundations."

Maintenance of subways would be more costly than the maintenance of a bridge. Up to 1914 the Forth Bridge had averaged only £4,000 per annum for upkeep.

In designing the system of Metropolitan Electric Railways, a decision had to be made whether the railways in the City and immediate suburbs were to be wholly underground, deep down, and served by lifts and escalators, or whether the railways should be located just below the surface, reaching the open air in places, *i.e.*, partly sub-surface and partly elevated.

The Harbour crossing was largely the deciding factor—was it to be bridge or tunnel to North Sydney? If bridge, the location of the metropolitan railways would be for the most part in the open air, if tunnel for the most part underground. An impartial study of the question made it quite apparent that the Northern Suburbs could only be efficiently developed by the construction of a bridge. Subways would not only be more costly to construct in the first instance, but would be more costly to maintain and operate, than a bridge would be, whilst in addition, there would be the continual cost of artificial light, drainage—every subway yet constructed leaks—and ventilation, all highly detrimental factors.

Underground railways in the City and immediate suburbs served by escalators and lifts would have been more costly to construct, maintain, and operate, than a system partly sub-surface and partly in the open air, and much less convenient for the passengers, whilst there would have been a greater annual cost for lighting and ventilation.

Economy and efficiency were greatly in favour of a location in the City proper, of a system partly sub-surface and partly in the open air. In the suburbs, where land values are not nearly as high as in the City, an open-air location was the cheapest and best. With the location determined on passengers will enjoy the maximum of fresh air and sunlight.

There are objections to the location of electric railways underground from the point of view of health, *viz.*, the deleterious effect of heat, humidity, and dust on the travelling public.

Of all the electric energy generated at the power stations, 85 per cent. is dissipated in the form of heat—in the stopping of trains, in the action of the friction of the brake-shoes upon the wheels, the pounding of the wheels on the rails, the working of the motors and other such mechanical evidences of heat, all of which are supplemented by the heat from the electric lights, and the body heat of passengers, &c.

With 1,000 trains per day operating on the City Railway, the conversion of electric energy to mechanical energy on the two sections underground, *viz.*, from Liverpool-street to Harrington-street on the west, and Liverpool-street to Macquarie-street on the east, would approximate the heat liberated by burning 10 tons of coal each day. The body heat of passengers must also be taken into account. If eight hours of the  
twenty-



twenty-four are spent in complete rest, the heat produced by the average worker in twenty-four hours, is equivalent to the heating value of 1 lb. of coal. Although each passenger will only be travelling for a comparatively short period of time each day, the system will ultimately transport several million passengers daily, so the body heat of passengers is a factor in the heating of the air in subways.

In London, New York, and elsewhere, the temperature of the underground railway varies with the season, but increases regularly year by year. On the Bakerloo railway, London, temperature readings are taken at 8 p.m. at the various stations—Baker-street, Regent's Park, Oxford Circus, Piccadilly, Trafalgar Square, Embankment, Waterloo, Westminster Bridge Road, and Elephant and Castle. Over a period of six years, the mean average temperature increased by 7.2 degrees Fahrenheit, because heat is generated in the subways by the traffic faster than the lining of the subway and the surrounding soil can conduct it away.

The same would happen in Sydney, but to a greater extent, as the summer is hotter, and Sydney never experiences the low temperatures which prevail in London in the winter, and which counteract to some extent the tendency of the subways to become hotter each year. More particularly in summer weather, the air in the subways of New York, London, and elsewhere, is objectionable on account of the heat; the air has a peculiar odour, and for this reason people prefer to travel in the open air when possible. In New York in summer time, the traffic on the elevated railways materially increases, because passengers prefer the slower open-air railway to the underground, although the time of journey on the underground is made in much less time than by the elevated.

In London, where climatic conditions are less enjoyable than Sydney, many people prefer outdoor travel by motor omnibuses to that underground by railway, notwithstanding the superior speed and frequency of service of the latter.

Humidity is a very important factor in ventilation, as the disagreeable odours in enclosed spaces are always more or less noticeable in a humid atmosphere. The odours in subways are largely due to operating conditions, the oil and grease used in lubrication, the motors, hot-boxes, hot brake-shoes, and fuses, all contributing to render the tunnel atmosphere far less agreeable than the open air. Sydney is nearer the equator than any city operating underground electric railways; its summer and winter temperature is higher, whilst its humidity is as great, and in these cities, according to public opinion based on the testimony of the senses, the air in the subways is unsatisfactory, especially during the summer months.

And now a few words about dust. A peculiar kind of black metallic dust exists in all subways operated by electric traction, and is undoubtedly due largely to wear and tear of the machinery of the trains. The amount varies in different roads, according to the number and speed of the trains, and other circumstances, but is always present in easily detectable quantities. The abrasion of the ballast under the sleepers also forms dust.

In the Paris subway the average quantity of dust produced is 1,400 lb. per mile of subway per month, and in some parts of the system it is sometimes in excess of this amount. An effort is made everywhere to remove the dust, for it is regarded as disfiguring the linings of the subways, and, more important still, is injurious to health, and is inflammable. It has caused difficulty with electric insulations both in London and Paris. The dust is generally removed from the walls by hand. One of the objects of sprinkling the platforms is to lay this dust.

In



In the New York subways the loss in brake-shoes has amounted to one ton per mile per month. The iron, so ground up into powder, and so deposited, obviously either remains in suspension, or is too heavy, and falls to the floor of the subway, there to remain until the train sets it in motion. When examined microscopically, the dust is found to be comprised of particles of many substances, conspicuous among which are flat pieces of iron. By comparison, it has been found in the New York subways that magnets hung up in the subway collected more iron than magnets of the same size and strength hung up in an iron foundry, or a dry-polishing and grindery establishment. In the New York subways there is 50 per cent. more dust than in the outside air. The rapid passage of trains raises up the dust from the ballast and side walls.

Another aspect, viz., the vulnerability of bridge and subway may be considered. It is sometimes affirmed by those who have no conception whatever of the details of construction, that the bridge could be destroyed by hostile aircraft or gunfire whereas subways would be immune. Owing to that well-known property of water, its incompressibility, a subway is much more liable to destruction by explosive force than a bridge. Subways have little or no side stiffness; every subway yet constructed leaks under water pressure, more particularly at the joints.

A direct hit is not needed to render a subway useless, as a depth bomb dropped many feet away would, owing to the incompressibility of water, displace any subway above the bed of the Harbour and put it out of action, opening the joints and allowing it to fill with water. That such would be as the result of an explosion deep down in the water was proved time and again during the war, when depth bombs were successfully used to combat the submarine menace, direct hits were not necessary to either disable a submarine or destroy the morale of its crew.

Scores of bombs could explode on the bridge without doing it any material injury; they would certainly make holes in the deck, but these could readily be repaired. The vital portions, such as the upper chords, can be protected with sandbags.

The Forth Bridge was not even injured during the war; the naval base at Rosyth would have been rendered useless for a time had the Forth Bridge been destroyed. Could the Allies have destroyed the bridges across the Rhine, the enemy's very efficient railway communications would have been broken and made ineffective.

After completing their inquiry, the recommendation of the Public Works Committee is given in the following extract from their minutes of proceedings:—

Mr. Hurley (with concurrence) moved:—"That, in the opinion of the Committee, it is expedient to connect Sydney and North Sydney by means of a bridge, and they recommend the adoption of the scheme submitted by Mr. J. J. C. Bradfield, Chief Engineer, Metropolitan Railway Construction, for the construction of a cantilever bridge from Dawes Point to Milson's Point, carrying four lines of railway, one roadway 35 feet wide, one motor roadway 17 feet 6 inches wide, and one footway 15 feet wide, at an estimated cost of £2,750,000."

The motion was seconded by Mr. Donaldson, and passed unanimously.

Since the Public Works Committee reported on this question, Lord Pirrie, when submitting a memorandum to the Dominion Commission during the war, emphasised the need for pushing forward the work of deepening the harbours of the Empire so as to provide for longer and deeper vessels. Lord Pirrie was of opinion that the minimum depth of the ports of the Empire should be at least 45 feet.



Sir John Biles, of the Institute of Naval Architects, also submitted a memorandum to that Commission in which he predicted that within twenty years a harbour depth of 60 feet would be profitably employed.

*The Harbour Trust have this year stated in interdepartmental correspondence that to meet the commercial requirements of the Port of Sydney a minimum depth of 55 feet of water is required over any subway, so the objections raised by Mr. Bradfield in 1911-12 that the subways recommended by the Royal Commission having a depth of 40 feet of water only above them would have obstructed the fairway by limiting the draught of vessels to 36 feet for all time, have since been amply verified.*

The Hon. J. H. Cann twice introduced a Bill in the Assembly for the construction of the Bridge, embodying similar financial arrangements to those outlined hereafter, the difference being that the tax proposed on the unimproved capital value of the lands benefited, on account of the increased cost of the work, will now be  $\frac{1}{2}$ d. in the £ in lieu of  $\frac{3}{4}$ d. in the previous Bill; whilst at the request of the deputation which waited on the late Hon. J. Storey in August, 1920, the tax was to be imposed in 1922, instead of upon the completion of the bridge as in the former Bills. This course will very much reduce the total amount of tax to be paid by the Shires and Municipalities, as will be explained under the financial proposals.

This Bill twice passed through all its stages in the Legislative Assembly in 1916. In the Legislative Council the Bill was rejected once at the second reading, and once at the third reading stage, by three votes. In 1921, the Bill was again passed in the Assembly, and stood for its second reading in the Council when Parliament dissolved.

#### POPULATION AND TRAFFIC STATISTICS.

Certain population and traffic statistics, as given hereafter, will make clear that the development of the Northern Suburbs has been retarded by indirect and inadequate means of communication.

In 1881, before the first train or tram was in operation on the northern side of the Harbour, the population of the Northern Suburbs was 10,437. By the next census in 1891 the figures increased to 23,753; then to 40,688 in 1901; to 95,878 in 1911; and, at the end of 1920, the figures stood at 151,110. On the other side we see that the population of the City of Sydney and suburbs on the southern side of the Harbour developed as indicated:—

In 1881, 222,934; 1891, 379,047; 1901, 475,874; 1911, 580,913; and, at the end of December, 1920, the figures stood at 782,800.

It will be seen that the population of the Southern Suburbs, with direct rail and tram connection to the City proper, increased very much more rapidly than that of the Northern Suburbs, although the lands of the northern side of the Harbour have a much greater altitude, and are more attractive from every point of view for residential purposes, which surely is clear evidence that the means of intercommunication have not kept pace with, but are actually hampering the development of the district. In spite of the great natural advantages of the Northern Suburbs, the population of the City and Southern Municipalities (extending to Parramatta) is over five times that of the Northern Suburbs.

The location of Sydney prevents expansion in an easterly or westerly direction on the main peninsular, and as many thousands of workers wish to live as close as possible to where they are employed, we find that going south out of the City past the Central Station there is a very dense population. With the expansion of our industrial life, without adequate provision being made for housing, or for rapid and cheap transport, the population density on the southern area has, during recent years, increased with great rapidity, until to-day the number of persons per acre in some of the municipalities



rival the densely populated cities of the old world. Darlington, for example, has a population density of 89 people per acre; Paddington, 66; Newtown, 65; Redfern, 58; Erskineville, 47; and Glebe, 44 per acre.

On the northern side of the Harbour the population density of North Sydney is 21 per acre; Mosman, 9; Manly, 6.5; and Hornsby, 0.13. The average population density of the Northern Suburbs is 0.64 per acre, and of the City and Southern Suburbs 6.57 per acre: or, in other words, the density ratio of Southern to Northern is  $10\frac{1}{4}$  to 1. When the Harbour Bridge is completed there will be a natural and uninterrupted flow of traffic, and one of the first changes to be noticed will be great improvements in what may be called the front entrance of North Sydney. With direct train service from the City through North Sydney, the fine blocks of business premises we see on the southern side will be repeated on the north. Trade will follow the train, and the development of the northern side of the Harbour will certainly hold its own with the development of the southern side.

Another important matter which is often overlooked is the fact that on the northern side there are many thousands of acres of land well adapted for small holdings and workers' settlements. If adequate transit and other facilities were afforded, there is every reason for believing that the methods of intensive culture of small holdings as practised in France and in many parts of England could be applied to these areas, and the holders would have practically an unlimited market right at hand—served by a fast electric railway service.

Reviewing briefly the development of the Railway Service on the northern side. On 1st January, 1890, the railway from Hornsby to St. Leonards was opened for traffic, and, by 1892, the service provided to deal with the railway traffic was four trains up, and four trains down each day, with an extra Saturday afternoon train in each direction, but no trains on Sundays. In 1893, the railway was completed to Milson's Point. During the past eleven years this railway traffic—from Milson's Point to Waitara—has increased from 5,189,178 passenger journeys in 1910 to 13,136,013 passenger journeys in 1921. Counting the traffic on Sunday as equivalent to half that on a week-day for the year ended 30th June, 1921, the daily average number of passenger journeys was 38,750. This enormous increase in the railway traffic on the northern side has come about in spite of the lack of railway transit facilities between the Central Station and Milson's Point. When a tender has been accepted for the Bridge there is bound to be an accelerated increase in the rate of population expansion on the northern side of the Harbour, and it would be very difficult for anyone to forecast what the development of the railway traffic will be during the years when the Bridge is in course of erection, and still more difficult to estimate the great expansion that will inevitably take place during the ten years subsequent to the opening of the Bridge, when adequate railway facilities will be operating, without any breaks or dead-end terminals which at present hinder the natural flow of the traffic.

It is quite evident that the present service, broken by the Harbour, is quite inadequate to cope with the requirements of this district, and that the time has now arrived when it becomes imperative to adopt the modern method of passenger transport—an electric railway service—and for such a service to give the maximum efficiency there must be no dead-end terminals as at present. The natural flow of traffic can only be obtained by the construction of a bridge over the waterway.

The first tramway in North Sydney—the old cable tram from Milson's Point to Ridge-street—was opened for traffic in 1886, at a cost of £71,519. The length of the line was  $1\frac{1}{2}$  miles, the rolling stock—consisting of “dummies” and “trailers”—numbering 16 in all.

The development that has taken place in the number of passenger journeys on the Northern Suburbs Tramways is as follows:—In 1891 the number of passenger



journeys was 1,479,168 and in 1901 the figures stood at 6,420,420. Notwithstanding the five years of war, the number of passenger journeys increased from 14,280,999 in 1910 to 31,050,625 in 1921, an increase of nearly 17 million passenger journeys in eleven years.

In the City of Sydney and suburbs on the southern side of the Harbour, the number of tramway passenger journeys increased from 173,897,034 in 1910, to 277,687,038 in 1921, an increase of 103 $\frac{3}{4}$  million journeys. Counting Sunday as a half-day the average number of passengers carried daily on the tramways of Sydney for the year ending 30th June, 1921, was 910,730.

The great development of the ferry traffic in Sydney Harbour since 1901 indicates that during the past twenty years the passenger journeys have increased from 16 $\frac{1}{2}$  millions to 40 $\frac{1}{2}$  millions per annum, an expansion of 145 per cent. for the period.

These figures for the railway, tramway, and ferry services indicate not only an enormous increase in each service, but also, taken together, indicate that there has been a very large growth in what may be called the "riding habit." The figures show that the people of Sydney and Suburbs ride more frequently in these civic services than do the people of any other great city of the world. It has been found in all large cities that the number of rides per head of population per annum increases more rapidly than the population increases. Improved facilities also tend to increase this growth of the riding habit, and in making provision for an electric service to serve Sydney and Suburbs these facts have to be considered.

The rides per head of population—Sydney and Suburbs—in 1901 was 266; in 1910 the figures increased to 473, and in 1920 to 523. These figures are duplicated because travellers must change from the train to the ferry or tram, but the character of the people, and the climate and attractions of Sydney, lend themselves to travelling more so than in most cities, and this no doubt explains the large figures per head as compared with cities of other countries.

This affords further evidence of rapid growth in City and Suburban traffic figures during a comparatively short period, and again emphasises the necessity for prompt action for the purpose of meeting and overcoming the congested and in the case of ferry traffic—very particularly on foggy mornings—dangerous conditions which obtain.

### THE FINANCIAL ASPECT.

The estimated cost of the Sydney Harbour Bridge is £6,000,000 sterling, of which two-thirds or £4,000,000—the cost of providing four lines of railway across the Bridge, including the approaches from Bay Road Station to Wynyard Square Station is the railway portion of the cost, and is to be added to the Railway Capital Debt—whilst the remaining one-third, viz., £2,000,000—the cost of providing the main roadway, motor roadway, and footway, is the Municipal portion of the cost—and is to be defrayed by a tax of one half-penny in the £, imposed on the unimproved capital value of the lands situated in the City of Sydney, in the Municipalities of North Sydney, Mosman, Manly, Lane Cove, and Willoughby, in the Shires of Ku-ring-gai and Warringah, and in that portion of the Shire of Hornsby directly served by the railway system.

The figures shown in the following tables were computed on the assumption that the tax would be imposed in 1922. If, instead, it be imposed in 1923, the figures will be advanced one year. The alteration will be favourable, as the revenue derived from the tax will be slightly in advance of that shown, due to the increasing unimproved capital value, and the surplus will be correspondingly increased. Moreover, as the steel markets of the world are at present low, it is estimated by Mr. Bradfield that there



there will be a substantial saving, £500,000 or over, as compared with the estimate prepared in 1920.

The estimated yearly expenditure as then set down was as follows :—

Year.	Expenditure.		
	Total.	Municipal Portion.	Railway Portion.
	£	£	£
1st July, 1921–30th June, 1922 ... ..	10,000	3,333	6,667
„ 1922 „ „ 1923 ... ..	10,000	3,334	6,666
„ 1923 „ „ 1924 ... ..	280,000	93,333	186,667
„ 1924 „ „ 1925 ... ..	800,000	266,667	533,333
„ 1925 „ „ 1926 ... ..	800,000	266,666	533,334
„ 1926 „ „ 1927 ... ..	800,000	266,667	533,333
„ 1927 „ „ 1928 ... ..	850,000	283,333	566,667
„ 1928 „ „ 1929 ... ..	850,000	283,333	566,667
„ 1929 „ „ 1930 ... ..	900,000	300,000	600,000
„ 1930 „ „ 1931 ... ..	700,000	233,334	466,666
TOTAL ... ..	£ 6,000,000	2,000,000	4,000,000

Assuming the railway can be opened for traffic on 1st January, 1931, the Chief Railway Commissioner estimates that, after paying interest at  $5\frac{1}{2}$  per cent. on £4,000,000 and all working expenses and maintenance, the revenue derived from the passenger traffic across the Bridge for the first twelve months would yield a surplus of £262,826, charging a fare of 3d. for the run from Kirribilli Station to Wynyard Square Station, a distance of over  $1\frac{1}{2}$  miles.

At present for this distance, allowing the passenger to walk 18 chains to the boat on the North Sydney side, the fare is by tram 2d., by ferry  $1\frac{1}{3}$ d., season ticket, or 2d. ordinary fare, making the total fare either  $3\frac{1}{3}$ d. or 4d., whilst the time of journey will be reduced by at least twelve minutes.

As seen by the table below, accrued interest over the same period on the railway portion during the years the Bridge is being constructed, will amount at  $5\frac{1}{2}$  per cent. to £1,000,000, making the total charge to the Railway Department £5,000,000 sterling, so the net estimated surplus will be £207,826, a very handsome profit on the first year's working.

Year. 1st July to 30th June.	Total Estimated Expenditure.	Railway Portion, two-thirds.	Interest at $5\frac{1}{2}$ per cent. each year.	Total, including Interest.
	£	£	£	£
1921–22 ... ..	10,000	6,667	367	7,034
1922–23 ... ..	10,000	6,666	754	14,454
1923–24 ... ..	280,000	186,667	11,062	212,183
1924–25 ... ..	800,000	533,333	41,003	786,519
1925–26 ... ..	800,000	533,334	72,592	1,392,445
1926–27 ... ..	800,000	533,333	105,918	2,031,696
1927–28 ... ..	850,000	566,667	142,910	2,741,273
1928–29 ... ..	850,000	566,667	181,937	3,489,877
1929–30 ... ..	900,000	600,000	224,943	4,314,820
1930–31 ... ..	700,000	466,666	262,982	5,044,468
TOTAL ... ..	£ 6,000,000	4,000,000	1,044,468	5,044,468



The Bill provides for the Municipal portion of £2,000,000 to be defrayed by a tax on the unimproved capital value of the land in the City of Sydney, and the Shires and Municipalities on the northern side of the Harbour, viz., part of the Shire of Hornsby, and the Shires of Ku-ring-gai and Warringah, the Municipalities of North Sydney, Mosman, Manly, Lane Cove, and Willoughby. The tax is to be imposed next year and paid to a special account. This account will be credited or debited with interest, as the case may be, at the average rate of interest paid by the State for Loan money that year.

In 1901, the unimproved capital value of the City of Sydney was £20,207,812; in 1911, £23,940,030; and in 1921, £35,887,376. For the twenty-year period 1901-1921 the unimproved capital value increased at the rate of 2·92 per cent. per annum, and for the ten-year period 1911-1921 at the rate of 4·19 per cent. per annum.

In 1901 the unimproved capital value of the Shires and Municipalities on the northern side of the Harbour enumerated above, stood at £4,701,742; in 1911, at £7,247,436; and in 1921, at £16,523,208. For the twenty-year period 1901-1921 the unimproved capital value increased at the rate of 6·49 per cent. per annum, and for the ten-year period 1911-1921 at the rate of 8·59 per cent. per annum.

It has been shown by the experience of other countries that a very much greater increase may be anticipated with the construction of the Bridge.

The Rapid Transit Commissioner for Philadelphia in his Report of 1913 pointed out that while it is very difficult to estimate the exact amount of enhancement due to Metropolitan Railway Construction, the available figures for American cities show remarkable results. The accelerated increase in the land values of the section containing One Hundred and Thirty-fifth Street, New York, was about six times the cost of construction through this District. The assessed value of unimproved property in the 46th Ward, West Philadelphia, increased 546 per cent. during the 12 years following upon the construction of the Market-street Subway Elevated Line.

“This shows the enormous enhancement of value of land only, in outlying districts, due in large part to the Rapid Transit Lines, amounting in twelve years in this Ward to over 500 per cent. to the great benefit of the owners, also of the City in point of increased assessable values and tax returns.”

The report of the Special Sub-committee on the Passenger Transportation Problem of Manchester (1914) states, *inter alia* :—

“An enlightened policy as regards the carrying out of street improvements and improved transit facilities brings considerable benefits to the city in the shape of increased ratable values. As an illustration, the Whitworth-street improvements may be cited. After the completion of the works, the ratable value of the property in the immediate vicinity showed an increase of 245 per cent.”



### UNIMPROVED CAPITAL VALUES AND LAND TAX.

The unimproved capital values of the City of Sydney, and of the Shires and Municipalities on the northern side of the Harbour for the years 1911 to 1921, and the unimproved capital values estimated as increasing at the rate of 4 per cent. per annum for the City, and 8 per cent. per annum for the Northern Suburbs, for the years 1922 to 1936, inclusive, is given in the table below; also the total capital value, and the revenue that a land tax of  $\frac{1}{2}$ d. in the £ would produce each year from 1922 onwards.

TABLE 1.

Year.	Sydney.	Northern Suburbs.	Total.	Revenue from tax of $\frac{1}{2}$ d. in £.
	£	£	£	£
1911	23,940,030	7,247,436	31,187,466	.....
1912	23,988,480	7,464,606	31,453,086	.....
1913	23,837,157	7,985,721	31,822,878	.....
1914	27,395,826	9,419,685	36,815,511	.....
1915	27,226,283	9,817,613	37,043,896	.....
1916	31,168,904	10,199,789	41,368,693	.....
1917	31,130,368	10,902,430	42,032,798	.....
1918	31,880,295	11,976,579	43,856,874	.....
1919	31,831,054	12,182,080	44,013,134	.....
1920	33,077,620	14,369,474	47,447,094	.....
1921	35,887,376	16,523,208	52,410,584	.....
1922	37,322,871	17,845,065	55,167,936	114,933
1923	38,815,786	19,272,670	58,088,456	121,018
1924	40,368,417	20,814,484	61,182,901	127,464
1925	41,983,154	22,479,643	64,462,797	134,297
1926	43,662,480	24,278,014	67,940,494	141,543
1927	45,408,979	26,220,255	71,629,234	149,228
1928	47,225,338	28,317,875	75,543,213	157,382
1929	49,114,351	30,583,305	79,697,656	166,037
1930	51,078,925	33,029,969	84,108,894	175,227
1931	53,122,082	35,672,367	88,794,449	184,988
1932	55,246,965	38,526,156	93,773,121	195,361
1933	57,456,843	41,608,248	99,065,091	206,386
1934	59,755,117	44,936,908	104,692,025	218,108
1935	62,145,321	48,531,861	110,677,182	230,578
1936	64,631,134	52,414,410	117,045,544	243,845

Fifteen instalments of the tax if first imposed in 1922 would yield £2,566,395, which would liquidate the Municipal moiety and all interest charges, also lighting and maintenance for the first five years after the Bridge is completed, leaving a balance in hand, as seen by the next table, of about £337,000, the interest on which would defray the upkeep, maintenance, and lighting of the Bridge for all time.



# **SYDNEY HARBOUR BRIDGE—MUNICIPAL PORTION.**

Financial Statement showing Liquidation of Municipal Portion and the creation of a Sinking Fund by fifteen annual payments of Tax. Interest taken at  $5\frac{1}{2}$  per cent.

Year, 1st July to 30th June.	Total Yearly Estimated Expenditure.	Municipal Portion one-third of Total.	Estimated Revenue from Tax see Table 1.	Bridge Construction Fund.							
				Credit.				Debit.			
				R = Total Revenue. E = Total Expenditure.	Balance after meeting Expenditure.	Interest receivable on Balance.	Balance plus Interest.	E = Total Expenditure. R = Total Revenue.	Fund overdrawn to the extent of.	Interest payable on the Overdraft.	Overdraft plus Interest.
	£	£	£	£	£	£	£	£	£	£	£
1921-22	10,000	3,333	.....	.....	.....	.....	.....	.....	3,333	183	3,516
1922-23	10,000	3,334	114,933	R 114,933 E 6,850	108,083	5,944	114,027	.....	.....	.....	.....
1923-24	280,000	93,333	121,018	R 235,045 E 93,333	141,712	7,794	149,506	.....	.....	.....	.....
1924-25	800,000	266,667	127,464	R 276,970 E 236,637	10,303	566	10,869	.....	.....	.....	.....
1925-26	800,000	266,636	131,297	.....	.....	.....	.....	E 266,666 R 145,166	121,500	6,682	128,182
1926-27	800,000	266,667	141,543	.....	.....	.....	.....	E 394,849 R 141,543	253,306	13,932	267,238
1927-28	850,000	283,333	149,228	.....	.....	.....	.....	E 550,571 R 149,228	401,343	22,074	423,417
1928-29	850,000	283,333	157,382	.....	.....	.....	.....	E 706,750 R 157,382	549,368	30,215	579,583
1929-30	900,000	300,000	163,037	.....	.....	.....	.....	E 879,583 R 166,037	713,546	39,245	752,791
1930-31	700,000	233,334	175,227	.....	.....	.....	.....	E 986,125 R 175,227	810,898	44,599	855,497
				R = Revenue. O = Overdraft.				O = Overdraft. R = Revenue.			
	6,000,000	2,000,000	1,287,129	.....	.....	14,304	.....	.....	.....	156,930	855,497
1931-32	.....	.....	184,988	.....	.....	.....	.....	O 855,497 R 184,988	670,509	36,878	707,387
1932-33	.....	.....	195,361	.....	.....	.....	.....	O 707,387 R 195,361	512,026	28,161	540,187
1933-34	.....	.....	206,386	.....	.....	.....	.....	O 540,187 R 206,386	333,801	18,359	352,160
1934-35	.....	.....	218,103	.....	.....	.....	.....	O 352,160 R 218,108	134,052	7,373	141,425
1935-36	.....	.....	230,578	R 230,578 O 141,425	89,153	4,903 Carried to Maintenance Account.	94,056	.....	.....	.....	.....
1936-37	.....	.....	243,845	R 243,845 O 94,056	337,901		337,901	.....	.....	.....	.....
	6,000,000	2,000,000	2,566,395	.....	.....	19,207	337,901	.....	Interest payable	£247,701	
		Less Surplus	337,901				Surplus.		Interest receivable	19,207	
			£2,228,494						Net Interest payable	£228,494	



For the three years the estimated expenditure on the Bridge will be £300,000. It will be approximately six months before a tender could be accepted, assuming a suitable offer be received on 1st September next year, and the specified contract time for the erection of the Bridge is seven years from the date of notification of acceptance of tender. The money raised during the first three years after the tax is imposed will amount to £363,415, or £63,000 over and above commitments, so that no loan money will be required until over three years from date.

If the tax be not imposed until after the Bridge shall have been opened for traffic, accrued interest during construction, £522,234, would have to be liquidated as well as the Municipal portion of £2,000,000. In addition, during the years the portion of £2,522,234 was being paid off, the upkeep and lighting of the Bridge would have to be provided for, and for all time afterwards, and the taxpayers would be called upon to find £3,823,975, or £1,257,580 more than if the tax was first imposed next year. It is clearly to the advantage of the taxpayers to impose the tax next year instead of waiting until the Bridge is opened for traffic, whilst the tax so raised will materially assist in financing the Bridge during the next three years.

From this brief review it will be seen that the Sydney Harbour Bridge is a sound financial proposition. The users of the Bridge by railway, and the landholders who would benefit by its construction, would pay for the Bridge, whilst the revenue of the State would benefit by upwards of £200,000 the first year the Bridge was opened for traffic.

The cost will be wholly defrayed by the City of Sydney proper and three Shires and five Municipalities on the northern side of the Harbour; the Southern Suburbs of Sydney and the State as a whole will not be called upon to bear any of the cost of the Bridge.

All passengers travelling from any station on the railway system north of Hornsby *via* the Bridge to the General Post Office, as the centre of Sydney, would save  $7\frac{1}{4}$  miles in distance and the corresponding reduction in fares.

The Bridge will enable the Railway Department to reap the benefit of the railways and tramways, which now bring the traffic to the water's edge on both sides of the Harbour. The travelling public will have cheaper and much quicker transit, without the present dangerous conditions which now obtain on the ferries, especially on foggy mornings.

When required, 120 trains per hour can cross the Bridge in either direction, having a capacity in the rush hours of at least 1,500 passengers per train—*i.e.*, 180,000 passengers per hour in or out of the City. The average daily passenger traffic in or out of the City would then be 1,200,000, and would represent a population of 1,250,000 residing in the Shires and Municipalities on the northern side of the Harbour, or eight times the present population.

During the fourth financial year after commencing, and from thence onwards for seven years, a sum averaging about £800,000 per annum would be required in addition to the land tax, to meet the cost of construction, plus accrued interest. After fifteen payments of the land tax the municipal moiety would be liquidated, leaving a sufficient surplus in hand, the interest on which would defray the upkeep, lighting, and maintenance of the Bridge for all time.

A meeting of the Parliamentary and Municipal representatives held at North Sydney in 1920 was unanimously in favour of the Bridge being constructed on the lines indicated.

**RECENT**



## RECENT REPORT BY RAILWAY COMMISSIONERS AS TO URGENCY.

In view of the position of matters when the present Government assumed office, by direction a report was sought from the Railway Commissioners as to the urgency of the work from their standpoint. Under date 17th May, 1922, they furnished a statement showing the tram, rail and ferry journeys for the different years, with percentage increase per annum for the decade 1911-21 and the position in 1931, assuming that the percentage increase is the same as follows :—

	Passenger Journeys.			Population of Northern Suburbs.
	Tramways.	Railways.	Ferries.	
1891 ... ..	1,479,168	86,962	.....	23,753
1901 ... ..	6,420,420	1,608,522	16,500,000	40,688
1911 ... ..	17,103,492	5,679,960	28,250,000	95,878
1921 ... ..	31,050,625	13,136,013	40,679,700	166,854
Percentage increase per annum for past 10 years, 1911-1921 ... ..	6.14	8.75	3.71	5.70
Passenger journeys for year 1931, assuming same percentage increase per annum. }	56,345,000	30,392,000	58,558,000	{ Population in 1931 290,460

The initial decade covers the war period, and it is held, therefore, that such is on the low side. Continuing, the report states :—

“ The present means of transportation to and from the Northern Suburbs does not adequately meet the requirements of the growing population of that district, and it is considered that the modern method of passenger transportation, namely, an electric railway service with no dead-end or terminals should be adopted at the earliest possible date.

The congestion of both the passenger and vehicular traffic on the northern side of the Harbour has at the present time reached saturation point, and it can only be relieved by the immediate construction of the Bridge which will also open up the Northern Suburbs and give them direct railway communication with the City and Eastern and Southern Suburbs. Milson's Point Railway Station, which has only three platforms and a dead-end, can be dispensed with.

The Sydney Harbour Bridge is an integral part of the City Railway Scheme, and its construction will considerably relieve the congested traffic which must obtain at the Central Station until its completion.

Assuming that the Bridge, if started upon, could be opened for traffic in eight years, it would be difficult to find a stronger reason for the urgency of its completion than the figures shown in the above statement relating to the northern side of the Harbour only, and in view of all the facts the Commissioners are of opinion that the Bridge should be proceeded with at the earliest possible date.”

## DESCRIPTION



### DESCRIPTION OF BRIDGE.

The Bridge will now be described in more detail. The main bridge consists of steel cantilevers spaced 98 feet 6 inches apart centre to centre, with shore and harbour arms, each 500 feet long; the harbour arms supporting a central span 600 feet long. The clear span from centre to centre of main piers is 1,600 feet, the three approach spans on either side of the main span are each about 200 feet long; the remainder of the approaches will consist of concrete arches masonry faced.

The main piers, located on Dawes Point and Milson's Point, will be founded on solid rock about 20 feet below mean sea-level, the Harbour being crossed in one clear span without any pier in the fairway, so that for all time navigation will be as free and unrestricted as at present.

A headway for shipping of 170 feet above high-water is provided under the centre 600 feet of bridge; this headway being 12 feet less at the piers. The headway is 20 feet greater than that provided by the Forth Bridge or the Quebec Bridge, and 35 feet greater than that provided under the four bridges across the East River, New York, and is ample to meet present and future requirements.

The railway connects with the Milson's Point railway on the south-eastern side of Bay Road Station immediately after leaving that station, and, passing under the Church of England Grammar School Grounds, and Blue's Point road by tunnel, will reach the first station—North Sydney—between Miller-street and Walker-street, where there will be a large passenger and goods station. After passing North Sydney Station the railway will be carried on viaduct from Walker-street to the main bridge. There will be a second station—Kirribilli—in front of the Town Hall, North Sydney, with access from Burton-street. The four lines of railway then traverse the bridge, and junction with the City railway at Wynyard Square Station. The roadway approaches begin at Grosvenor-street on the City side, a fine avenue 120 feet wide being constructed up to the arched viaduct. This will necessitate a remodelling of Princes-street and Upper Fort-street. An area of land about half an acre will be added to the Girls' High School Grounds, the Observatory Park being kept intact. Watson-road will be continued to the main avenue, thus affording direct access for vehicular and pedestrian traffic from Miller's Point to the Bridge. Between the railway viaduct and Trinity Avenue there is a piece of land 48 feet below the railway and 27 feet above the street level of an area of 1 acre, including the space under the arches. It is proposed to give access to this area by steps, and convert it into a children's playground.

Between the eastern side of the arched viaduct and York-street North there is an area of ground where the high bank now is, which will be trimmed off and formed into a park. After traversing the Bridge, the roadway approaches will be continued to the corner of Blue-street and Walker-street, the existing surface will be reached at Alfred-street. As on the southern side, remodelling will take place, and the whole character of the district will be changed from a residential to a business area. All the trains which arrive at the upper level of Wynyard Square Station *via* Strathfield, or from the Illawarra and Bankstown railways, will be taken across the bridge to North Sydney Station, and either terminate there or serve the Milson's Point railway or the railways projected to Mosman, Manly, Narrabeen, &c.

Goods traffic will be provided for between Blue's Point road and Alfred-street, and the goods delivered by rail 150 feet above the present terminal at Milson's Point, thus saving the severe haul up from Milson's Point as is at present necessary.

Shops



Shops will be provided under the goods siding—which will be on viaduct—and it will be possible to unload direct from the trucks to the shops below. As the railways open up to serve Mosman, Cremorne, Athol, Manly, Narrabeen, Pittwater, &c., there will be similar goods stations in suitable centres, and passenger transit and the distribution of goods will be revolutionised and expedited.

Manly, for example, with a non-stop train, would be within 18 minutes of the General Post Office, Narrabeen *via* Northbridge within 30 minutes.

Eastwood and the stations beyond *via* the proposed Eastwood-St. Leonards Railway will be 2 miles nearer the General Post Office *via* the bridge than *via* Central Station, whilst Hornsby and all stations beyond will be  $7\frac{3}{4}$  miles nearer the projected station at Wynyard Square *via* the Bridge.

### EXPLANATION OF BILL.

The Bill is divided into three parts.

Part I.—Works authorised—which defines the work and authorises the Minister for Works to construct the Bridge within the meaning of the Public Works Act of 1912.

Part II.—Financial—which defines the capital cost and allocates two-thirds to the Railway Capital Debt and one-third to be borne by the City of Sydney and the Shires and Municipalities on the northern side of the Harbour as defined in the Second Schedule, to be defrayed by a tax of one-halfpenny in the pound on the unimproved capital value of land in these districts.

Provision is made to impose the tax next year and for each subsequent year until the capital cost of the Municipal portion has been defrayed, together with interest, lighting, and all maintenance charges. When the special fund to which the tax is to be paid has defrayed all these charges, and there is a sufficient sum available, the interest on which will meet the cost of maintenance year by year, the Governor shall declare the tax to cease to be imposed.

Maintenance of the railway tracks and a proportion of the main structure is to be defrayed by the Railway Commissioners.

Part III.—Miscellaneous—amends the Public Works Act in various particulars which have already received the assent of the Legislature in the City and Suburban Electric Railways Act, 1915. Under this Bill no power is sought which has not already been given in that Act.

### TENDERS.

On the design recommended by the Public Works Committee, Plans and Specifications have been prepared, and world-wide tenders have been called for the Bridge, returnable on 1st September, 1923.



IN view of the statement issued to Members of the Legislative Council on the authority of the Lord Mayor, I have obtained from my Colleague, the Minister for Works, a further review on the financial provisions of the Bill in regard to the taxation to be imposed.

The Lord Mayor has admitted that his statement mentioned was based on incomplete and, in some particulars, erroneous assumptions. In order that Members of the Council may have the fullest possible information the accompanying copy of the review furnished me by Mr. Ball, after the matter had been the subject of a conference between the City Council Representatives and Mr. Bradfield, is now made available.

J. H. CARRUTHERS.







## SYDNEY HARBOUR BRIDGE ACT.

### THE FINANCIAL CLAUSES.

#### Estimated Cost.

THE estimated cost of the work is £5,500,000; land resumptions and compensations, £250,000; or a total of £5,750,000, of which one-third, or £1,916,566, will be the debit against the Shires and Municipalities.

#### Estimated Yearly Expenditure.

If the Act receives the assent of Parliament the financial position will operate as from 1st July, last. Tenders have been called, which close on 1st September, 1923, and under the most favourable circumstances a contract can hardly be signed before 30th June, 1924, thereafter the payments will be distributed over a period of seven years. For the two years ending 30th June, 1924, the commitments will not exceed £9,000 per annum, and for the first year after the contract is let the Government will not be called upon to find more than about £282,000 or £300,000 in all for the first three years from 1st July, last. For the ensuing six years beginning 1st July, 1925, an amount of £5,450,000 would have to be met, viz., £950,000 for the year 1925-26 and £900,000 per annum for the subsequent five years. One-third of these amounts would be the municipal debit from year to year, as set forth below.

Year.	Estimated Cost of Bridge and Land Resumption.	Municipal Portion of Cost.
	£	£
First year.....	9,000	3,000
Second year.....	9,000	3,000
Third year.....	282,000	94,000
Fourth year.....	950,000	316,667
Fifth year.....	900,000	300,000
Sixth year.....	900,000	300,000
Seventh year.....	900,000	300,000
Eighth year.....	900,000	300,000
Ninth year.....	900,000	300,000
Total .....	£ 5,750,000	1,916,667

#### The Unimproved Capital Value and Rate.

In 1901 the Unimproved Capital Value of the City of Sydney was £20,207,812; in 1911, £23,940,030; and in 1921, £35,887,376. For the twenty-year period—1901-1921—the Unimproved Capital Value increased at the rate of 2·92 per cent. per annum, and for the ten-year period—1911-1921—at the rate of 4·19 per cent. per annum.

In 1901 the Unimproved Capital Value of the Shires and Municipalities on the northern side of the Harbour enumerated above stood at £4,701,742; in 1911, at £7,247,436; and in 1921 at £16,523,208. For the twenty-year period—1901-1921—the Unimproved Capital Value increased at the rate of 6·49 per cent. per annum; and for the ten-year period—1911-1921—at the rate of 8·59 per cent. per annum.



Any attempt to forecast the expansion which will take place in the Unimproved Capital Values of the City of Sydney and the Northern Suburbs during the next twenty years can only be an expression of opinion based on the experience of the past.

In order that the number of years during which the rate will be levied may be ascertained as nearly as possible, three Schedules are prepared as under, No. 1 being on the basis agreed upon by the City Treasurer and Mr. Bradfield.

1. Unimproved Capital Values in City remaining constant for three-year periods and increasing 5 per cent. for each successive triennial period, Northern Suburbs similarly increasing 20 per cent. at the end of each triennium.—Table 1, Schedule 1.
2. Unimproved Capital Values in City increasing at the rate of 3 per cent. per annum, and the Northern Suburbs at the rate of 6 per cent. per annum. These are the normal rates which have taken place during the past twenty years.—Table 2, Schedule 2.
3. Unimproved Capital Values in City increasing at the rate of 4 per cent. per annum, and the Northern Suburbs at the rate of 8 per cent. per annum. These are the normal rates which have taken place during the past ten years.—Table 3, Schedule 3.

#### Improvements in the Metropolitan Area contemplated or being carried out.

During the next fifteen years many improvements will have taken place in the Metropolitan Area. The Cataract and Cordeaux Dams will have been completed, and possibly the great Warragamba Dam commenced. The Northern Suburbs Outfall Sewer will have reached Parramatta, and probably Wentworthville, and Rosehill. Many improvements on the harbour foreshores and new wharfage accommodation will have been made by the Harbour Trust; the Municipal and Shire Councils will have improved and extended the roads and streets under their jurisdiction, and many areas of land will be opened up; the existing suburban railways of Sydney will have been electrified; the City Railway, the Eastern Suburbs Railway, the Western Suburbs Railway, and the North Shore Bridge should have been constructed, likewise probably the St. Leonards to Eastwood Railway, and probably a bridge across Middle Harbour, and a railway extending to Manly and Narrabeen.

All these works must increase the unimproved capital value of the lands situated in the City of Sydney and the Northern Suburbs, and it is considered that the normal rate of increase which has taken place during the past decade of 4 per cent. per annum in the City, and of 8 per cent. per annum in the Northern Suburbs will continue for the next fifteen years.

Having in mind the large increases which have taken place in the immediate past, at first it may appear as if, perhaps in the City itself, and in portion of the Northern Suburbs, property has nearly reached the limit of its commercial value, that rents cannot be raised, and to forecast that expansion will take place at the same rate in the future as in the past, is somewhat optimistic. It has been shown by the experiences of other countries, however, that even an accelerated expansion is by no means uncommon.

The Rapid Transit Commissioner for Philadelphia in his report of 1913 pointed out that while it is very difficult to estimate the exact amount of enhancement due to metropolitan railway construction, the available figures for American cities show remarkable results.

The accelerated increase in the land values of the section containing One Hundred and Thirty-fifth Street, New York, was about *six times the cost of construction through this district*. The assessed value of unimproved property in the 46th Ward, West Philadelphia, increased 546 per cent. during the twelve years following upon the construction of the Market-street subway elevated line.

“This shows the enormous enhancement of value of land only in outlying districts, due in large part to the Rapid Transit Lines, amounting in twelve years in this ward to over 500 per cent., to the great benefit of the owners, and also of the City, in point of increased assessable values and tax returns.”

The report of the special sub-committee on the passenger transportation problem of Manchester (1914) states, *inter alia*:—“An enlightened policy as regards the carrying out of street improvements and improved transit facilities brings considerable benefits to the city in the shape of increased ratable values. As an illustration, the Whitworth-street improvements may be cited. After the completion of the works the ratable value of the property in the immediate vicinity show an increase of 245 per cent.”



TABLE 1.

Year.	City of Sydney. 5 per cent. every 3 years.		Northern Suburbs. 20 per cent. every 3 years.		Sydney and Northern Suburbs.	
	Unimproved Capital Value.	Tax at $\frac{1}{2}$ d. in £.	Unimproved Capital Value.	Tax at $\frac{1}{2}$ d. in £.	Unimproved Capital Values.	Total Tax at $\frac{1}{2}$ d. in £.
	£	£	£	£	£	£
1921	35,887,376	74,765	16,523,208	34,423	52,410,584	109,188
1922	.....	74,765	.....	34,423	.....	109,188
1923	.....	74,765	.....	34,423	.....	109,188
1924	37,681,744	78,504	19,827,850	41,308	57,509,594	119,812
1925	.....	78,504	.....	41,308	.....	119,812
1926	.....	78,504	.....	41,308	.....	119,812
1927	39,565,831	82,429	23,793,420	49,570	63,359,251	131,999
1928	.....	82,429	.....	49,570	.....	131,999
1929	.....	82,429	.....	49,570	.....	131,999
1930	41,544,123	86,550	28,552,104	59,484	70,096,227	146,634
1931	.....	86,550	.....	59,484	.....	146,634
1932	.....	86,550	.....	59,484	.....	146,634
1933	43,621,329	90,878	34,262,525	71,380	77,883,854	162,258
1934	.....	90,878	.....	71,380	.....	162,258
1935	.....	90,878	.....	71,380	.....	162,258
1936	45,802,395	95,422	41,115,030	85,656	86,917,425	181,078
1937	.....	95,422	.....	85,656	.....	181,078
1938	.....	95,422	.....	85,656	.....	181,078
1939	48,092,515	100,193	49,338,036	102,788	97,430,551	202,981
1940	48,092,515	100,193	49,338,036	102,788	97,430,551	202,981

Amount paid by City of Sydney in seventeen years .....	£1,430,222
Amount paid by Northern Suburbs in seventeen years .....	939,807
Total.....	<u>£2,370,029</u>

## SCHEDULE 1.

Following the method outlined in the Lord Mayor's Schedule, but basing the financial statement on the estimated cost as set forth in the Act, on the probable expenditure during construction over a period of nine years from 1st July last, and allowing the Unimproved Capital Value to remain constant for three-year periods at the rate of 5 per cent. for the City and 20 per cent. for the Northern Suburbs.

First Year—	£
Contribution from rates .....	109,188
Less Expenditure for year .....	3,000
	<u>106,188</u>
Add Interest at $5\frac{1}{2}$ per cent. ....	5,840
Credit Balance.....	<u>112,028</u>
Second Year—	
Contribution from rates .....	109,188
	<u>221,216</u>
Less expenditure for year.....	3,000
	<u>218,216</u>
Add interest at $5\frac{1}{2}$ per cent.....	12,002
Credit Balance.....	<u>£230,218</u>
Third Year—	
Contribution from rates .....	109,188
	<u>339,406</u>
Less expenditure for year.....	94,000
	<u>245,406</u>
Add interest at $5\frac{1}{2}$ per cent.. ..	13,497
Credit Balance.....	<u>258,903</u>
Credit Balance—Carried forward .....	<u>£258,903</u>



		£
	Credit Balance—Brought forward .....	258,903
Fourth Year—		
	Contribution from rates .....	119,812
	Credit.....	378,715
	Less Expenditure for year .....	316,667
	Credit .....	62,048
	Add interest at 5½ per cent. ....	3,413
	Credit Balance.....	65,461
Fifth Year—		
	Contribution from rates .....	119,812
	Credit.....	185,273
	Less Expenditure for year .....	300,000
	Debit.....	114,727
	Add interest at 5½ per cent. ....	6,310
	Debit Balance.....	121,037
Sixth Year—		
	Contribution from rates .....	119,812
	Debit.....	1,225
	Add expenditure for year .....	300,000
	Debit.....	301,225
	Add interest at 5½ per cent. ....	16,567
	Debit Balance.....	317,792
Seventh Year—		
	Contribution from rates .....	131,999
	Debit.....	185,793
	Add expenditure for year .....	300,000
	Debit.....	485,793
	Add interest at 5½ per cent. ....	36,718
	Debit Balance..	£512,511
Eighth Year—		
	Contribution from rates .....	131,999
	Debit.....	380,512
	Add Expenditure for year .....	300,000
	Debit.....	680,512
	Add interest at 5½ per cent. ....	37,428
	Debit Balance.....	717,940
Ninth Year—		
	Contribution from rates .....	131,999
	Debit.....	585,941
	Add Expenditure for year .....	300,000
	Debit.....	885,941
	Add interest at 5½ per cent. ....	48,727
	Debit Balance.....	934,668
Tenth Year—		
	Contribution from rates .....	146,034
	Debit.....	788,634
	Add interest at 5½ per cent. ....	43,375
	Debit Balance.....	832,009
Eleventh Year—		
	Contribution from rates .....	146,034
	Debit.....	685,975
	Add interest at 5½ per cent. ....	37,729
	Debit Balance.....	723,704
	Debit Balance—Carried forward .....	£ 723,704



	Debit Balance—Brought forward.....	£ 723,704
Twelfth Year—		
Contribution from rates .....		146,034
	Debit.....	577,670
Add interest at 5½ per cent. ....		31,772
	Debit Balance.....	609,442
Thirteenth Year—		
Contribution from rates .....		162,258
	Debit.....	447,184
Add interest at 5½ per cent. ....		24,595
	Debit Balance.....	471,779
Fourteenth Year—		
Contribution from rates .....		162,258
	Debit.....	309,521
Add interest at 5½ per cent. ....		17,024
	Debit Balance.....	326,545
Fifteenth Year—		
Contribution from rates .....		162,258
	Debit.....	164,287
Add interest at 5½ per cent. ....		9,036
	Debit Balance.....	173,323
Sixteenth Year—		
Contribution from rates .....		181,078
	Credit.....	7,755
Add interest at 5½ per cent. ....		417
	Credit Balance .....	£8,172
Seventeenth Year—		
Contribution from rates .....		181,078
	Credit.....	189,250
Add interest at 5½ per cent. ....		10,409
	Credit Balance.....	£199,659

This Schedule shows that the maximum debit of £934,668 occurs at the end of the ninth year, and after paying rates for seventeen years there is a credit balance of £199,659, the interest on which, at 5½ per cent., would amount to £10,981, which would meet maintenance charges for all time.

TABLE 2.

Year.	City of Sydney, 3 per cent. per annum.		Northern Suburbs 6 per cent. per annum.		Sydney and Northern Suburbs.	
	Unimproved Capital Value.	Rate at ½d. in the £.	Unimproved Capital Value.	Rate at ½d. in the £.	Unimproved Capital Value.	Rate at ½d. in the £.
	£	£	£	£	£	£
1921	35,887,376	.....	16,523,208	.....	52,410,584	.....
1922	36,963,997	77,008	17,514,600	36,489	54,478,597	113,497
1923	38,072,917	79,319	18,565,476	38,678	56,638,393	117,997
1924	39,215,105	81,698	19,679,404	40,999	58,894,509	122,697
1925	40,391,558	84,149	20,860,168	43,459	61,251,726	127,608
1926	41,603,305	86,674	22,111,778	46,066	63,715,083	132,740
1927	42,851,404	89,274	23,438,485	48,830	66,289,889	138,104
1928	44,136,946	91,952	24,844,794	51,760	68,981,740	143,712
1929	45,461,054	94,711	26,335,482	54,866	71,796,536	149,577
1930	46,824,886	97,552	27,915,611	58,158	74,740,497	155,710
1931	48,229,633	100,478	29,590,548	61,647	77,820,181	162,125
1932	49,676,522	103,493	31,365,981	65,346	81,042,503	168,839
1933	51,166,818	106,598	33,247,940	69,266	84,414,758	175,864
1934	52,701,823	109,795	35,242,816	73,423	87,944,639	183,218
1935	54,282,877	113,089	37,357,385	77,828	91,640,262	190,917
1936	55,911,363	116,482	39,598,828	82,498	95,510,191	198,980
1937	57,588,704	119,976	41,974,758	87,447	99,563,462	207,423
1938	59,316,365	123,576	44,493,243	92,694	103,809,608	216,270
	£1,675,824			£1,029,454		£2,705,278

Amount paid by City of Sydney in fifteen years ..... £1,432,272  
Amount paid by Northern Suburbs in fifteen years ..... 849,313

Total ..... £2,281,585



## SCHEDULE 2.

Following the method outlined in the Lord Mayor's Schedule, but basing the financial statement on the estimated cost, as set forth in the Act, on the probable expenditure during construction, over a period of nine years from 1st July last, and allowing the Unimproved Capital Value to increase annually at the average normal rate at which the capital values have increased during the past twenty years, viz.:—Three per cent. for the City of Sydney and 6 per cent. for the Northern Suburbs.

	£
First Year—	
Contribution from rates .....	113,497
Less Expenditure for year .....	3,000
	<hr/>
	Credit.....
	110,497
Add interest at 5½ per cent.....	6,077
	<hr/>
Credit Balance.....	116,574
Second Year—	
Contribution from rates .....	117,997
	<hr/>
	Credit.....
	234,571
Less Expenditure for year .....	3,000
	<hr/>
	Credit.....
	231,571
Add interest at 5½ per cent. ....	12,736
	<hr/>
Credit Balance.....	244,307
Third Year—	
Contribution from rates .....	122,697
	<hr/>
	Credit.....
	367,004
Less Expenditure for year .....	94,000
	<hr/>
	Credit.....
	273,004
Add interest at 5½ per cent. ....	15,015
	<hr/>
Credit Balance.....	288,019
Fourth Year—	
Contribution from rates .....	127,608
	<hr/>
	Credit.....
	415,627
Less Expenditure for year .....	316,667
	<hr/>
	Credit.....
	98,960
Add interest at 5½ per cent. ....	5,443
	<hr/>
Credit Balance.....	104,403
Fifth Year—	
Contribution from rates .....	132,740
	<hr/>
	Credit.....
	237,143
Less Expenditure for year .....	300,000
	<hr/>
	Debit.....
	62,857
Add interest at 5½ per cent. ....	3,457
	<hr/>
Debit Balance.....	66,314
Sixth Year—	
Contribution from rates .....	138,104
	<hr/>
	Credit.....
	71,790
Less Expenditure for year .....	300,000
	<hr/>
	Debit.....
	228,210
Add interest at 5½ per cent. ....	12,552
	<hr/>
Debit Balance.....	240,762
Seventh Year—	
Contribution from rates .....	143,712
	<hr/>
	Debit.....
	97,050
Add expenditure for year.....	300,000
	<hr/>
	Debit.....
	397,050
Add interest at 5½ per cent. ....	21,838
	<hr/>
Debit Balance.....	418,888
Debit Balance—Carried forward.....	£418,888



	£
Eighth Year—	
Debit Balance --Brought forward .....	418,888
Contribution from rates .....	149,577
Add expenditure for year.....	Debit..... 269,311
	300,000
Add interest at $5\frac{1}{2}$ per cent.....	Debit..... 569,311
	31,312
	Debit Balance..... 600,623
Ninth Year—	
Contribution from rates .....	155,710
Add Expenditure for year .....	Debit..... 444,913
	300,000
Add interest at $5\frac{1}{2}$ per cent. ....	Debit..... 744,913
	40,970
	Debit Balance..... 785,883
Tenth Year—	
Contribution from rates .....	162,125
Add interest at $5\frac{1}{2}$ per cent. ....	Debit..... 623,758
	34,307
	Debit Balance..... 658,065
Eleventh Year—	
Contribution from rates ... ..	168,839
Add interest at $5\frac{1}{2}$ per cent. ....	Debit..... 489,226
	26,907
	Debit Balance..... 516,133
Twelfth Year—	
Contribution from rates ... ..	175,864
Add interest at $5\frac{1}{2}$ per cent. ....	Debit..... 340,269
	18,714
	Debit Balance..... 358,983
Thirteenth Year—	
Contribution from rates.....	183,218
Add interest at $5\frac{1}{2}$ per cent. . . . .	Debit..... 175,765
	9,667
	Debit Balance..... 185,432
Fourteenth Year—	
Contribution from rates. ....	190,917
Add interest at $5\frac{1}{2}$ per cent.....	Credit..... 5,485
	301
	Credit Balance..... 5,786
Fifteenth Year—	
Contribution from rates.....	198,980
Add interest at $5\frac{1}{2}$ per cent. ....	Credit..... 204,766
	11,261
	Credit Balance..... £216,027

#### SCHEDULE 2.

This Schedule shows that the maximum debit of £785,883 occurs at the end of the ninth year, and that after paying rates for fifteen years there is a credit balance of £216,027, the interest on which at  $5\frac{1}{2}$  per cent. would amount to £11,881 annually, which would meet maintenance charges for all time.



TABLE 3.

Year.	City of Sydney, 4 per cent. per annum increase.		Northern Suburbs, 8 per cent. per annum increase.		Sydney and Northern Suburbs.
	Unimproved Capital Value.	at $\frac{1}{4}$ d. in the £.	Unimproved Capital Value.	at $\frac{1}{4}$ d. in the £.	Total Tax at $\frac{1}{4}$ d. in the £.
	£	£	£	£	£
1921 .....	35,887,376	.....	16,523,208	.....	.....
1922 .....	37,322,871	77,756	17,845,065	37,177	114,933
1923 .....	38,815,786	80,866	19,272,670	40,151	121,017
1924 .....	40,368,417	84,101	20,814,484	43,363	127,464
1925 .....	41,983,154	87,465	22,479,643	46,833	134,298
1926 .....	43,662,480	90,964	24,278,014	50,579	141,543
1927 .....	45,408,979	94,602	26,220,255	54,626	149,228
1928 .....	47,225,338	98,386	28,317,875	58,996	157,382
1929 .....	49,114,352	102,322	30,583,305	63,715	166,037
1930 .....	51,078,926	106,414	33,029,969	68,812	175,226
1931 .....	53,122,083	110,671	35,672,367	74,317	184,988
1932 .....	55,246,966	115,098	38,526,156	80,263	195,361
1933 .....	57,456,845	119,702	41,608,248	86,684	206,386
1934 .....	59,755,119	124,490	44,936,908	93,619	218,109
1935 .....	62,135,324	129,449	48,531,861	101,108	230,557
1936 .....	64,620,737	134,626	52,414,410	109,197	243,823
1937 .....	67,205,566	140,012	56,607,563	117,932	257,944
1938 .....	69,893,789	145,612	61,136,168	127,367	272,979
1939 .....	72,689,541	151,436	66,027,061	137,556	288,992
1940 .....	75,597,123	157,494	71,309,226	148,561	306,055
1941 .....	78,621,008	163,794	77,013,964	160,446	324,240
.....	.....	2,315,270	.....	1,701,302	4,016,562

Amount paid by City of Sydney in fourteen years ..... £1,422,286  
Amount paid by Northern Suburbs in fourteen years ..... 900,243

£2,322,529

## SCHEDULE 3.

Following the method outlined in the Lord Mayor's Schedule, but basing the financial statement on the estimated cost as set forth in the Act on the probable expenditure during construction over a period of nine years from 1st July last, and allowing the Unimproved Capital Value to increase annually at the average normal rate for the past ten years, viz., 4 per cent. for the City of Sydney and 8 per cent. for the Northern Suburbs.

First Year—		£
Contribution from rates .....		114,933
Less Expenditure for year .....		3,000
	Credit.....	111,933
Add interest at $5\frac{1}{2}$ per cent. ....		6,156
	Credit Balance.....	118,089
Second Year—		
Contribution from rates .....		121,017
	Credit.....	239,106
Less Expenditure for year .....		3,000
	Credit.....	236,106
Add interest at $5\frac{1}{2}$ per cent. ....		12,986
	Credit Balance.....	249,092
Third Year—		
Contribution from rates .....		127,464
	Credit.....	376,556
Less Expenditure for year .....		94,000
	Credit.....	282,556
Add interest at $5\frac{1}{2}$ per cent. ....		15,540
	Credit Balance.....	298,096
Credit Balance—Carried forward .....		£298,096



		£
Fourth Year—	Credit Balance—Brought forward.....	298,096
Contributions from rates .....		134,298
	Credit.....	432,394
Less Expenditure for year .....		316,667
	Credit.....	115,727
Add interest at $5\frac{1}{2}$ per cent. ....		6,365
	Credit Balance .....	122,092
Fifth Year—		
Contribution from rates .....		141,543
	Credit.....	263,635
Less expenditure for year.....		300,000
	Debit.....	36,365
Add interest at $5\frac{1}{2}$ per cent. ....		2,000
	Debit Balance.....	38,365
Sixth Year—		
Contribution from rates .....		149,228
	Credit.....	110,863
Less expenditure for year .....		300,000
	Debit .....	189,137
Add interest at $5\frac{1}{2}$ per cent. ....		10,403
	Debit Balance.....	£199,540
Seventh Year—		
Contribution from rates.....		157,382
	Debit.....	42,158
Add Expenditure for year .....		300,000
	Debit.....	342,158
Add interest at $5\frac{1}{2}$ per cent. ....		18,819
	Debit Balance.....	360,977
Eighth Year—		
Contribution from rates .....		166,037
	Debit.....	194,940
Add Expenditure for year .....		300,000
	Debit.....	494,940
Add interest at $5\frac{1}{2}$ per cent. ....		27,222
	Debit Balance.....	522,162
Ninth Year—		
Contribution from rates .....		175,226
	Debit.....	346,936
Add expenditure for year .....		300,000
	Debit.....	646,936
Add interest at $5\frac{1}{2}$ per cent. ....		35,581
	Debit Balance.....	682,517
Tenth Year—		
Contribution from rates .....		184,988
	Debit.....	497,529
Add interest at $5\frac{1}{2}$ per cent. ....		27,364
	Debit Balance.....	524,893
Eleventh Year—		
Contribution from rates .....		195,361
	Debit.....	329,532
Add interest at $5\frac{1}{2}$ per cent.....		18,124
	Debit Balance .....	347,656
	Debit Balance—Carried forward.....	£347,656



		£
	Brought forward Debit Balance.....	347,656
Twelfth Year—		
Contribution from rates .....		206,386
	Debit.....	141,270
Add interest at $5\frac{1}{2}$ per cent. ....		7,770
	Debit Balance .....	149,040
Thirteenth Year—		
Contribution from rates .....		218,109
	Credit.....	69,069
Add interest at $5\frac{1}{2}$ per cent. ....		3,799
	Credit Balance.....	72,868
Fourteenth Year—		
Contribution from rates .....		230,557
	Credit.....	303,425
Add interest at $5\frac{1}{2}$ per cent. ....		16,689
	Credit Balance.....	£320,114

### SCHEDULE 3.

This Schedule shows that the maximum debit of £682,517 occurs at the end of the ninth year, and that after paying rates for fourteen years there is a credit balance of £320,114, the interest on which at  $5\frac{1}{2}$  per cent. would amount to £17,606 annually, which would meet maintenance charges for all time.

### The Schedule accompanying the Lord Mayor's Report.

The Schedule purports to set forth the financial position, but based, as it is, on wrong premises, the figures are not only misleading, but useless. It is in error in that,—

- (a) The amount of the municipal debit is taken as being nearly £300,000 in excess of the true amount ;
- (b) The estimated yearly expenditure as set forth is too large, whilst the expenditure will be incurred over a longer and different period of years than therein stated ;
- (c) No allowance is made for the amount derived from the land tax to increase as the unimproved capital value increased, year by year.

The Lord Mayor's deduction that the municipal debit of £2,200,000 will have to be raised in six equal loans commencing next year is very wide of the mark, as it will be five years hence before any loan money is required to finance the municipal third of the cost of the bridge, as the land tax will provide for all outgoing until then.

Consequent on these incorrect and exaggerated assumptions, the statement issued by the Lord Mayor, that after operating for thirty-five years, the fund would have only a credit of £1,575,795, and still fall short of one-third of the capital cost by an amount of £624,235 is not correct.

This period in Schedule 1 is shown to be seventeen years only, and a substantial sum is then in hand to provide for maintenance charges thereafter.

### SUMMARY.

#### Schedule No. 1.

(As agreed with the City Council's Representative).

Unimproved Capital Values in City remaining constant for three-year periods and increasing 5 per cent. for each successive triennial period, Northern Suburbs similarly increasing, 20 per cent at the end of each triennium.

This estimate indicates that the tax would be levied for a period of seventeen years, at the end of which time there would be a credit balance of £199,659, the interest on which would meet maintenance charges thereafter.



*Schedule No. 2.*

Unimproved Capital Values in City increasing at the rate of 3 per cent. per annum, and the Northern Suburbs at the rate of 6 per cent. per annum. These are the normal rates which have taken place during the past twenty years.

This estimate indicates that the tax would be levied for a period of fifteen years, at the end of which time there would be a credit balance of £216,027, the interest on which would meet maintenance charges thereafter.

*Schedule No. 3.*

Unimproved capital values in City increasing at the rate of 4 per cent. per annum and the Northern Suburbs at the rate of 8 per cent. per annum; these are the normal rates which have taken place during the past ten years.

This estimate indicates that the tax would be levied for a period of fourteen years, at the end of which time there would be a credit balance of £320,114, the interest on which would meet maintenance charges thereafter, any balance to be returned to the Municipalities and Shires.







*This PUBLIC BILL originated in the LEGISLATIVE ASSEMBLY,  
and, having this day passed, is now ready for presentation to the  
LEGISLATIVE COUNCIL for its concurrence.*

*W. S. MOWLE,  
Clerk of the Legislative Assembly.  
Legislative Assembly Chamber,  
Sydney, 1 November, 1922.*

## New South Wales.



ANNO TERTIO DECIMO

## GEORGII V REGIS.

\*\*\*\*\*

Act No. , 1922.

An Act to sanction the construction of a high-level cantilever or arch bridge across Sydney Harbour by connecting Dawes Point with Milson's Point, together with the necessary approaches, railway connections, and other works connected therewith ; to provide for the use of such works by the Constructing Authority and other persons ; to provide for the cost of the said works and other expenses connected therewith ; to impose a rate on certain lands in relation to such works ; to amend the Public Works Act, 1912, and certain other Acts ; and for purposes connected therewith.



*Sydney Harbour Bridge.*

**B**E it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows:—

**1.** This Act may be cited as the "Sydney Harbour Bridge Act, 1922," and is divided into Parts as follows:—

PART I.—WORKS AUTHORISED—ss. 2-6.

10 PART II.—FINANCIAL—ss. 7-14.

PART III.—MISCELLANEOUS—ss. 15-22.

PART I.

WORKS AUTHORISED.

**2.** The carrying out of the works described in the First Schedule (in this Act referred to as "the said works") is hereby sanctioned; and the Secretary for Public Works is empowered to carry out the said works. Works sanctioned.

**3.** The plan of the said works is the plan marked "Sydney Harbour Bridge," signed by the said Secretary and countersigned by the chief engineer, Sydney Harbour Bridge, and deposited in the public office of the said Secretary. The plan.

**4.** The estimated cost of the said works, inclusive of land resumptions, is the sum of five million seven hundred and fifty thousand pounds, which shall not be exceeded by more than ten per centum. Estimated cost of works.

**5.** The lines of railway and cables for the transmission of power referred to in the First Schedule may be constructed under, over, along, or by the side of any public road, street, or highway, or any public place. Lines may be constructed on road.

**6.**



*Sydney Harbour Bridge.*

**6.** The constructing authority, and any persons authorised by him, may use the said lines of railway, or any part thereof, before they are transferred to the Railway Commissioners for New South Wales, and for that purpose may run thereon any carriages or waggons propelled or drawn by any motive power, and the net receipts therefrom shall be paid into the Treasury.

## PART II.

## FINANCIAL.

**7.** (1) In this Part the capital cost of the works shall be deemed to be the total amount expended on the construction of the said works together with the cost of land resumptions, costs, compensations, and all other incidental outgoings whatsoever, and together also with interest on the moneys expended for such purposes from time to time until the completion of the said works, such interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

(2) The date of the completion of the said works shall be determined by the Governor, and the date so determined shall be notified in the Gazette.

**8.** (1) Two-thirds of the capital cost of the works shall be debited to the Railway Commissioners for New South Wales.

(2) One-third of the capital cost of the works shall be paid out of the proceeds of the rate hereinafter provided for.

**9.** (1) There is hereby imposed for the year one thousand nine hundred and twenty-three, and for each year thereafter, as from the first day of January in each of the said years, a rate of one-half of a penny in the pound upon the unimproved value of all land which is



*Sydney Harbour Bridge.*

is within the city of Sydney and is ratable under the Sydney Corporation Act, 1902, or any Act amending the same, or which is within the area of any municipality or shire referred to in the Second Schedule (except  
5 the shire of Hornsby), and is ratable under the Local Government Act, 1919, or any Act amending the same, and of all land which is within the area of the shire of Hornsby and is situate within the boundaries described in the said schedule and ratable as aforesaid.

10 (2) Such unimproved value shall be ascertained in accordance with the provisions of the law relating to the determination of the unimproved value of land for the purposes of the Sydney Corporation Act, 1902, or the Local Government Act, 1919, or any Acts  
15 amending the same as the case may require.

(3) The provisions of the Local Government Act, 1919, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate  
20 outside the city of Sydney; and the provisions of the Sydney Corporation Act, 1902, and any Act amending the same shall, where not inconsistent with this Act or any regulation made thereunder, apply to the rate imposed on land situate within the said city: Provided  
25 that the amount of the rate shall not be included in calculating the maximum amount that may be levied as rates under the Local Government Act, 1919, or the Sydney Corporation Act, 1902, or any Acts amending the same.

30 **10.** (1) The Municipal Council of Sydney and the councils of the municipalities and shires referred to in the Second Schedule (hereinafter called "the said councils") shall and they are hereby authorised, empowered, and required to collect each year the rate  
35 imposed by this Act.

(2) The proceeds of such rate after deducting such proportion thereof for the expense of collection as the said Secretary may from time to time in each case approve shall within such period as may be prescribed  
40 by regulations made under this Act be paid by the said councils to a special account in the Treasury.



*Sydney Harbour Bridge.*

**11.** The proceeds of such rate when paid to such special account shall be credited with interest to be calculated for each financial year at the rate of interest certified by the Colonial Treasurer to be the average rate of interest paid by the Government on loan moneys.

Application  
of proceeds  
of rate.

**12.** (1) The moneys standing to the credit of such special account shall be applied by the Colonial Treasurer as follows:—

Application  
of money in  
special  
account.

- (i) During the construction of the said works in payment of the cost of and incidental to the carrying out of the said works.
- (ii) After the completion of the said works in payment of—
  - (a) interest at a rate to be determined by the Governor from time to time and notified in the Gazette on so much of the one-third part of the capital cost of the works payable out of the proceeds of the said rate as shall not have already been defrayed from such moneys;
  - (b) the cost of the maintenance and lighting of the roadways and footway on the cantilever or arch bridge, including the piers (hereinafter referred to as "the main bridge");
  - (c) the cost of the maintenance and lighting of the roadway and footway approaches to the main bridge; and
  - (d) one-third of the cost of the maintenance of the main bridge, exclusive of the railway tracks.

Any balance of such moneys, after making such payments, shall be applied in payment of the said one-third of the capital cost of the works, which is payable out of the proceeds of the said rate.

(2) The cost of the maintenance of the railway approaches to the main bridge and of the maintenance of the railway tracks on such approaches and bridge, together with two-thirds of the cost of maintenance of the main bridge other than the cost of the maintenance and



*Sydney Harbour Bridge.*

and lighting of the roadways and footway on such bridge, shall be paid by the Railway Commissioners for New South Wales.

- 13.** (1) When one-third of the capital cost of the works, when completed, has been paid out of the proceeds of the said rate, and there is standing to the credit of the said special account an additional sum of money which if invested at a rate to be fixed by the Governor will provide an annual income sufficient to pay for the costs referred to in paragraphs (b), (c), and (d) of subsection one of the last preceding section, the Governor shall declare by notification in the Gazette that upon a date to be stated in such notification the said rate shall cease to be imposed, but the publication of such notification shall not release any person from any liability in respect of any rate, or relieve any of the said councils from the obligation to account for the proceeds of such rate or affect the remedies hereinafter provided against defaulting councils:
- 20 Provided that the date stated in such notification may be retrospective, and a rate shall not be imposed, or if imposed shall not be payable, in respect of any period after the date stated in such notification.

When rate shall cease to be imposed.

- The costs referred to in the said paragraphs (b), (c), and (d) shall be the average annual amount of such costs during the three completed years immediately preceding the date on which one-third of the capital cost of the works has been paid out of the proceeds of the said rate.

- 14.** (2) Any surplus moneys standing to the credit of the said special account after the investment of the additional sum of money referred to in subsection one of this section shall be refunded to the said councils in the proportion in which they contributed to the same respectively, and shall be dealt with by them as general rates.

- 14.** (1) If the council of any municipality or shire makes default in collecting the said rate or in paying the proceeds less such deductions as aforesaid into the special account in the Treasury such municipality or shire shall be deemed to be a defaulting area within the meaning and for the purposes of the Local Government Act, 1919, or any Act amending the same.

Default by council.



*Sydney Harbour Bridge.*

(2) If any such default is made by the Municipal Council of Sydney, the city of Sydney shall be deemed to be a defaulting area within the meaning and for the purposes of Part VIII of the Local Government Act, 1919, and the provisions of the said Part shall apply to the said council and the said city.

PART III.

MISCELLANEOUS.

**15.** For the purposes of this Act, but not otherwise, the following amendments and additions shall be made in the Public Works Act, 1912, that is to say:—

Amendments  
of Public  
Works Act,  
1912.

(1) The following section is inserted next after section four:—

15 4A. The provisions of this Act relating to the acquisition of land shall also apply to the acquisition of an easement or right to use the subsoil or the under-surface of land, whether such easement or right is acquired separately from or together with any land.

Acquisition  
of an  
easement.

20 (2) Section eighty-two is amended by omitting in subsection one the words "and (b) not being a garden, orchard, or plantation attached or belonging to a house, nor a park, planted walk, avenue, or ground ornamentally planted; and  
25 (c) not being nearer to the dwelling-house of the owner of any such lands than a distance of five hundred yards."

Sec. 82.

(3) Section ninety-eight is amended as follows:—

Sec. 98.

30 (a) At the end of subsection one insert the following:—

Land may be superfluous within the meaning of this section although the subsoil or under-surface of the land is used or required for the purposes of the work,

In



*Sydney Harbour Bridge.*

In any sale of superfluous land the constructing authority may reserve an easement or a right of using any part of the land.

- 5 (b) In subsection three, before "public works" insert "authorised works or" and omit the words "not exceeding fifty years."
- 10 (4) Section one hundred and twenty-four is Sec. 124. amended by omitting the words "at the time notice was given, or notification published, as the case may be" and substituting therefor the words "at the date of the passing of the Sydney Harbour Bridge Act, 1922."
- 15 (5) Section one hundred and twenty-six is amended Sec. 126. by inserting at the end of subsection two the following proviso:—
- 20     Provided that such interest shall not be paid for any period during which delay in fixing the amount of compensation or in completing title has been caused without reasonable excuse by the act or default of the person to whom such compensation is payable.
- 25 (6) Sections eighty-six, eighty-seven, eighty-eight, Secs. 86, 87, 88, 89, 90, 91, 92, 95, 97, 126, and eighty-nine, ninety, ninety-one, ninety-two, ninety-five, ninety-seven, subsection three of Part IX. section one hundred and twenty-six, and Part IX are repealed.
- 30 **16.** All private rights of way over any lands which Right of way. may under the powers of this Act be acquired s. 18, London compulsorily shall from the date of such acquisition be Electric extinguished: Railway Act. Provided that the constructing authority shall make full compensation to all parties interested in respect of any such rights, and such compensation shall be settled in manner provided for the assessment of compensation by reason of the compulsory acquisition
- 35 of land.
- 17.** The constructing authority shall not be required Accommoda- to make any accommodation works for the convenience tion works of persons of whose lands he may have taken possession, not required. or for the convenience of persons using any road,
- 40 street, or lane under or over which the said railway may be



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be carried, or which may be closed or partly closed for the purpose of constructing the works hereby authorised, or any works to be carried out in connection therewith. But the constructing authority may carry out such accommodation works as he may think reasonable or desirable under the circumstances, and shall in constructing the said works cause as little inconvenience as may reasonably be, having regard to the circumstances.

**18.** Notwithstanding any provision in any Act to the contrary, it shall be necessary for the constructing authority to give notice of his intention to blast any rock. No injunction shall be issued to restrain him from causing or continuing to cause any nuisance by such blasting or by any other operation necessary or proper in connection with the construction of the works authorised by this Act.

Notices required.  
No liability for nuisances in carrying out work.

**19.** (1) Any action for damage or injury caused by the carrying out of any work or the doing of anything under the authority of this Act (not being an action for compensation in respect of any land taken under the said authority) shall be heard and determined, when the amount claimed in such action exceeds one thousand pounds, by a judge of the Supreme Court without a jury, and when such amount does not exceed one thousand pounds by a judge of the said court or the judge of a district court without a jury.

Certain actions to be determined by judge without jury.

(2) No such action may be brought unless a claim in writing setting out the nature of the damage or injury complained of has been served upon the constructing authority within twelve months after the carrying out of the work or the doing of the thing by reason of which the damage or injury complained of is alleged to have arisen, or within such further time as a judge of the Supreme Court or of a district court shall allow.

(3) If the constructing authority does not admit such claim or is unable to agree with the claimant as to the amount of compensation to be paid, he may by notice in writing require the claimant to bring an action for the prosecution of such claim, and such action shall be commenced within twelve months from the date of such notice.



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**20.** The constructing authority or any person authorised by him in writing may at any reasonable hour in the daytime enter any land or building along or near to the line of the said works and inspect the same <sup>Constructing authority may enter land, building, &c.</sup> and make measurements and drawings and take photographs thereof, and take such other measures as he may think necessary to ascertain the construction and condition of any such building :

Provided that notice shall be given to the person in occupation of such land or building at least twenty-four hours before such entry.

**21.** The works authorised shall as far as practicable be constructed of materials produced and manufactured in Australia at the date of closing of tenders. The constructing authority shall afford full opportunity to local industries to manufacture or arrange for the manufacture and supply from Australian industries or production in fair competition with imported materials. <sup>Materials to be used.</sup>

**22.** (1) The Governor may make regulations for carrying this Act into effect, and may in such regulations impose any penalty not exceeding twenty pounds for any breach thereof. Any such penalty may be recovered before a stipendiary or police magistrate or any two justices in petty sessions. <sup>Regulations.</sup>

(2) Such regulations shall be published in the Gazette and shall come into force upon publication and shall be laid before both Houses of Parliament within fourteen days after publication, if Parliament is then in session, and if Parliament is not then in session within fourteen days after the commencement of the next session. If either House of Parliament passes a resolution, of which notice has been given within fifteen sitting days after such regulations have been laid before such House, disallowing any regulation or part thereof, such regulation or part shall thereupon cease to have effect.

## SCHEDULES.



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## SCHEDULES.

## FIRST SCHEDULE.

THE works provided for are as follow :—

- 5 A bridge of the cantilever or arch type across Sydney Harbour from Dawes Point to Milson's Point designed, in common with the approaches thereto, to carry four lines of railway, one main roadway, one motor roadway, and one footway.

The necessary approaches to the bridge.

- 10 The construction of electric railway lines connecting the respective ends of the approaches with the proposed city railway station at Wynyard-square on the southern side and with the existing Milson's Point railway near Bay-road Station on the northern side.

Cables for the transmission of electric power and all other necessary works incidental to the before-mentioned works.

- 15 Subject to such deviations and modifications as may be considered desirable by the constructing authority.

## SECOND SCHEDULE.

City of Sydney. (Boundaries to be the same as constituted at the date of the passing of this Act.)

- 20 Municipality of Manly.  
Municipality of Mosman.  
Municipality of Lane Cove.  
Municipality of North Sydney.  
Municipality of Willoughby.

- 25 Shire of Warringah.  
Shire of Ku-ring-gai.

- The shire of Hornsby as to so much thereof as is bounded as follows :  
Commencing at Flint and Steel Point ; by a line towards Juno Head to the channel of the Hawkesbury River (being the line of greatest  
30 depth as per soundings shown on chart catalogued Misc. 144) ; thence upwards along the channel to meet the northerly prolongation of a line along the centre of Berowra Creek ; by that prolongation and line generally southerly to its intersection with the southerly prolongation of the eastern boundary of portion 164, parish of North Colah ; by that  
35 prolongation and boundary northerly ; by the northern boundaries of that portion and portion 139 westerly, part of the eastern boundary of portion 55 and a line northerly ; part of the southern boundary of  
portion



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portion 107 and the southern boundaries of portions 7, 6, and 5,  
westerly; by the western boundaries of portions 108 and 44 southerly;  
by the southern boundary of the latter portion easterly; by eastern  
and northern boundaries of portion 133 southerly, easterly, and again  
5 southerly; the southern boundary of that portion westerly; the  
eastern boundary of portion 141 southerly; by Cabbage Tree  
Hollow upwards; the western boundaries of portions 134 and 128  
southerly; by Carter's Gully downwards; the western and southern  
boundaries of portion 174 southerly and easterly; the eastern  
10 boundary of portion 172 southerly; the southern boundary of  
that portion and part of the southern boundary of portion 192  
westerly; the eastern boundaries of portion 171, parish of North  
Colah, 62, 63, and 67, parish of South Colah, southerly; the north-  
eastern boundaries of portions 25 and 114; the north-eastern and  
15 south-eastern boundaries of portions 26, 32, and 80 generally  
southerly; part of the northern boundary of portion 110 easterly; the  
eastern boundary of that portion and of portion 111 and the western  
side of Hull-road southerly; the northern and north-western boundaries  
of section 1, as shown on deposit plan 1,879 in Registrar-General's  
20 office, and the northern boundary of public school land at Pennant  
Hills, south-westerly and westerly; by a line west to the boundary of  
Hornsby Shire; thence by part of the western boundary, the southern  
boundary, and the eastern boundary of Hornsby Shire, to the point of  
commencement.