

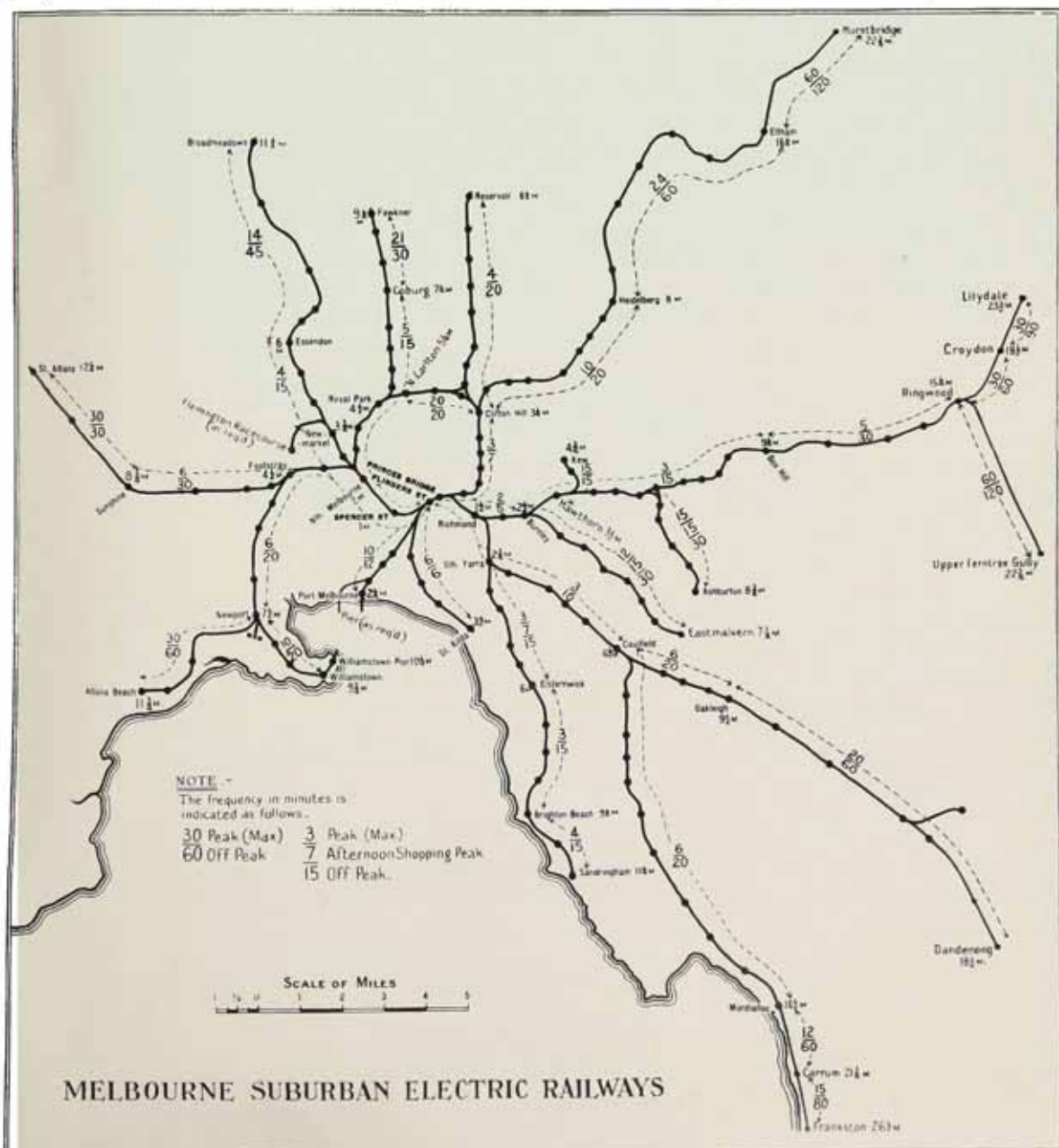
RAILWAYS.

The metropolitan railway system, including certain isolated tramways, is operated as a State concern by the Victorian Railways Commissioners. Commencing in 1854 by the opening of the Melbourne to Port Melbourne line (which was then owned and operated by a private company), the suburban system has developed remarkably. There are now 179 miles of electrified suburban railway, whilst the passengers carried during the year 1928-29 were 152,840,373. Practically the whole of the suburban services are now electrified, the main portion of this great work having been completed in April, 1923, although certain outlying extensions have been added since. It is one of the largest electrified suburban services converted from steam operation in the world.

Nothing has influenced the trend of suburban development in this metropolis to a greater degree during the last half century than the railway system. Maps Nos. 1 and 6 herein illustrate how suburban development has spread and increased in density along the various routes, leaving sparse or less thickly peopled areas in between.

Map No. 3 (page 44) shows graphically the time zones of the metropolitan area, illustrating the travelling time occupied between all suburbs and the city by means of public transportation services. This map, especially in its relation to the more distant areas, is mainly based upon the railway system. As suburban development is influenced more by travelling time than distance, a comparison of Maps Nos. 1 and 6 with Map No. 3 will show the relationship of the railway services to the existing housing conditions.

A diagrammatic plan of the Melbourne suburban electric railways is below. It gives details of the mileages of the various terminal and junction stations from the Flinders-street and Prince's-bridge Stations, and also shows frequency of train services during peak and ordinary hours.



Diagrammatic plan of Melbourne Suburban Electric Railways, showing all lines, train frequency, and mileages.

FLINDERS-STREET-PRINCE'S-BRIDGE STATION.

These stations, which join each other, are regarded as one. They comprise the hub of the suburban railway system. The heavy concentration of people at this station is shown by the following figures supplied by the Railway Department of the numbers of passengers passing through the gates daily :—

1922	..	..	..	..	241,139
1923	..	..	..	..	265,000
1924	..	..	..	..	282,851
1927	..	..	..	..	317,322

Nearly one half of the daily traffic at this station is dealt with in four hours only. A recent calculation by the Department shows that the average numbers of trains, &c., that pass through the station daily (24 hours) is as follows :—

1,912	suburban passenger trains.
28	country passenger trains.
102	goods trains and pilots.
30	light engines.
16	parcel coaches.
<hr/>	
2,088	Averaging 87 per hour over 24 hours.
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The busiest hour is from 5 p.m. to 6 p.m., when 116 suburban passenger trains alone depart from this station. The Commission supplied many statistics in its First Report, pages 12 to 15, in regard to the traffic at this station and its effect upon city traffic and development. In analysing the figures in their relation to future expansion, the Commission concluded that future improvements to facilitate train traffic were dependent upon the capacity of the streets and footpaths in its vicinity to accommodate such masses of people with safety and comfort and with a minimum of interference with the easy movement of all other road traffic. It is evident that, as the population grows and the metropolis expands, increasing congestion must be caused in this station, but more noticeably in the approaches to it. A stage will be reached when greater facilities must be given for railway users, or when intending passengers will revert to other means of travel.

The Commission considers that the most suitable way of overcoming the present pedestrian congestion in the vicinity of the Flinders-street Station, and as a means of avoiding much more acute conditions of congestion in this area, is by the construction of further city stations which will encourage a distribution of the pedestrian traffic, not only in the vicinity of the stations themselves, but also on the footpaths in the whole of the city area.

NORTHERN CITY RAILWAY.

On page 15 of the Commission's First Report a recommendation was made for a new railway system to the north of the city as an effective solution of the difficulties caused by this enormous pedestrian traffic which crowds all thoroughfares giving access to the Flinders-street Station. It is considered that Melbourne has a unique opportunity to overcome the present disabilities caused by the existing location of the Flinders-street and Prince's-bridge Stations, and at a cost which would be very small in comparison with what other cities have had to incur to obtain a lesser degree of relief.

The scheme suggested is shown diagrammatically on the plan opposite, and aims at the provision of an alternative route for trains through the north of the city proper, in addition to those lines using the southern loop via the Flinders-street viaduct. The route suggested as suitable for the proposed loop is as follows :—

From Jolimont yards where the loop lines would parallel, and pass under the existing lines to a subway under and following the line of Exhibition street, thence continuing underground via a curve of suitable radius, and along the line of Victoria-street as far as a station at the intersection of Peel and Victoria streets, from which point the underground line would continue to North Melbourne Station, where interchange of traffic on proposed northern and southern loops would be possible.

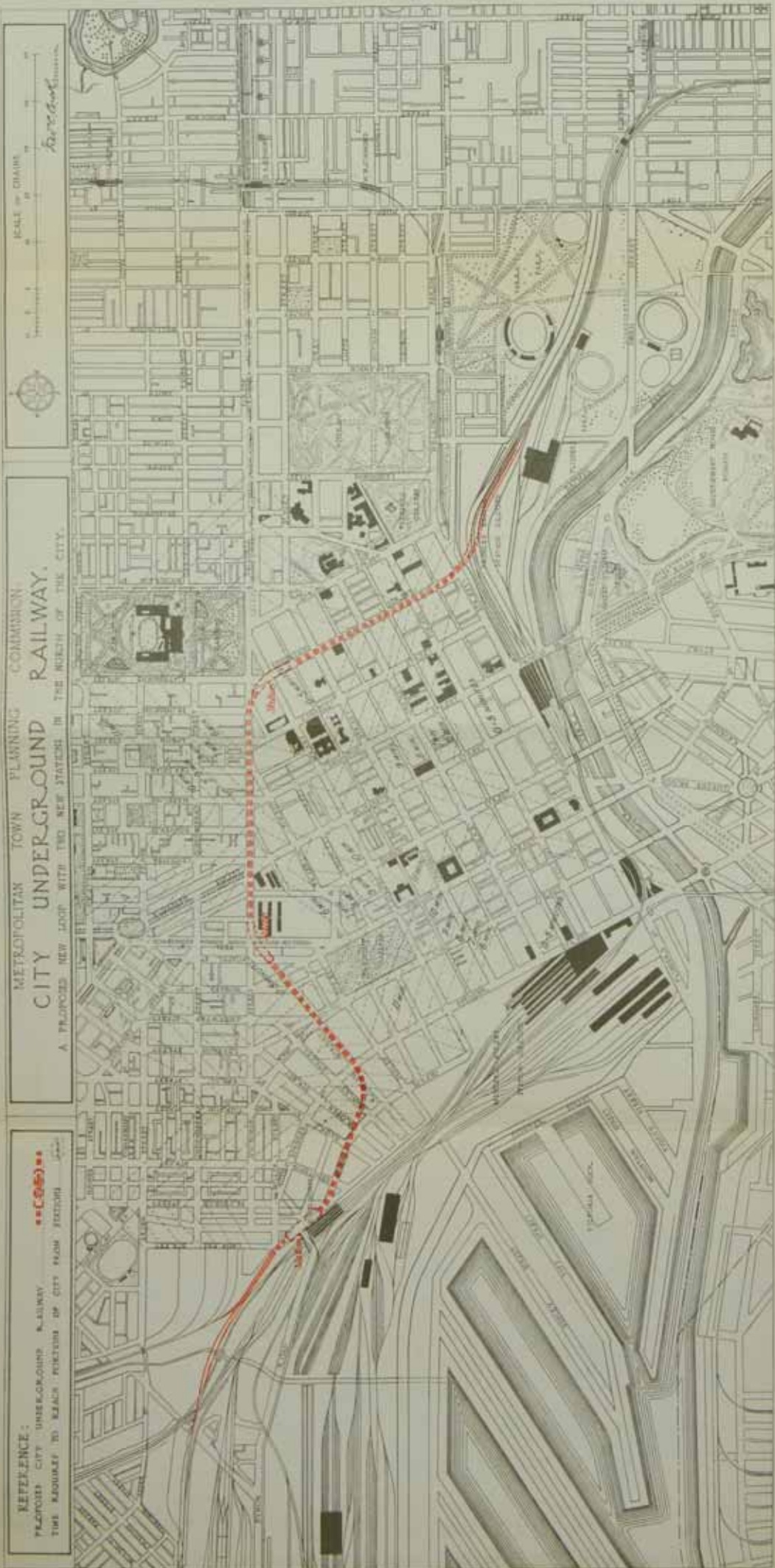
METROPOLITAN TOWN PLANNING COMMISION
CITY UNDERGROUND RAILWAY.
PROPOSED NEW LOOP WITH TWO NEW STATIONS IN THE NORTH THE CITY.

REFERENCE:

PLANOON CTF UNDERGROUND RAILWAY

TIME REQUIRED TO REACH POINTING IN CITY FROM STATION

== (2005) ==



The construction of the loop, as recommended, would not involve grades steeper than 1 in 60, and a considerable portion of line would pass under existing streets where the cut and cover method of construction could be employed.

It is suggested that stations at the intersection of Lonsdale-street and Exhibition-street, and at Peel-street, would serve the city area efficiently for many years after the construction of the railway, as all points within the proposed northern and the existing southern loop would thus be within twelve minutes' walking distance of some city railway station. Additional stations may be required and could be provided in the distant future.

Stations at the points indicated would cater for all traffic within the zones shown on the plan, which denote the walking time to the respective stations. As the city's commercial and business area is gradually extending northwards, it is reasonable to expect that the traffic which would be attracted to the northern city stations would continue to increase. The proposed new stations have been suitably located in regard to street passenger services, so that considerable interchange between underground and surface systems of transport would be possible. Richmond and North Melbourne would be common stations to both the northern and southern loops. Since a doubling of the metropolitan population may be confidently anticipated to create an increase greater than 100 per cent. in the railway passengers, it is obvious that Flinders-street Station will not be able to handle this additional traffic with facility. Moreover, as the peak traffic will require a proportionately greater number of trains to convey the crowds, it is probable that the existing number of trains which use Flinders-street will not be materially reduced, but rather will the excess trains or desirable number be diverted according to schedule, around the northern loop.

While the scheme as suggested would cater for any increase in passengers for a number of years, it would also allow of future extension in many directions, especially in regard to the possible linking up with the Heidelberg and Reservoir lines by a new line through Fitzroy and the provision of a probable future circular railway which would surround the city business area, and of which the proposed northern loop and southern route over the viaduct would form part. The construction of this loop railway would have the same effect as a duplication of the railway viaduct between Flinders and Spencer streets Stations.

Quite irrespective of whether the construction of a new railway on the lines suggested herein is justified, from a railway point of view, the Commission maintains that so long as Flinders-street Station continues to attract the huge and increasing pedestrian traffic, the precincts of the station will become increasingly more congested, and the footways and roadways, for a considerable distance in its vicinity, will be overloaded beyond their comfortable capacity. **The Commission believes that the permanent solution lies in the distribution of the traffic over a wider area, and there is little doubt that this would be accomplished if stations, as suggested, were constructed reasonably close to the business centre of the city, and which would offer facilities for travel equal to that of the existing stations.**

The Commission considers that this scheme should be referred to the Parliamentary Standing Committee on Railways to give the matter a more detailed consideration than this Commission has been able to do, so that future railway works may be carried out in full knowledge of a definite proposal for a new line and stations in the north of the city.

DARLING TO GLEN WAVERLEY RAILWAY.

Authority was given by Parliament in 1926 for the suburban railway then terminating at Darling to be continued to Springvale-road at Glen Waverley, and the Commission was requested by the Government of the day to supply a special report making detailed recommendations for the preplanning of the area to be served. Under date 6th May, 1927, a Special Report was supplied to the Government and issued to all concerned, in which the Commission's recommendations were set down. It is not considered necessary to repeat in this Report the description of that comprehensive scheme, which dealt with an area of 11,700 acres of outer suburban lands. The plans, Sheets Nos. 10, 11, 14, and 15, published herewith, incorporate the proposals outlined in the Special Report, and on page 260 the Commission gives some details of the extremely successful results achieved.

There are, however, two matters particularly affecting the railway aspect of this scheme which might be mentioned here. In its Special Report, the Commission submitted plans and details supporting a recommendation that a slight deviation should be made in the adopted route

of the railway. This was done in order to permit a much improved replanning of certain subdivided, but unbuilt on, land to be effected. As a result of subsequent negotiations, the Government approved of the deviation as recommended by the Commission. It is now only necessary to secure the passage through Parliament of the town planning legislation which has been asked for so frequently in order that a re-subdivision of the land adjacent to the line may be carried out, thus avoiding the very undesirable conditions which will otherwise be created.

Another recommendation contained in that Report referred to the probable future continuation of the line beyond Glen Waverley, as was indicated in the Report of the Parliamentary Standing Committee on Railways. The Commission urged that any such probable extension should be determined forthwith. This would permit any works or subdivisions of land in the area beyond the proposed present terminus to conform with the route which any later extension of the railway would follow. Such action should result in the setting apart, when subdivision takes place, of a considerable proportion of the land necessary for a railway reserve free of cost to the Department, or to the Railway Construction Trust.

PROPOSED KEW TO DONCASTER RAILWAY.

Various proposals for the construction of a railway from the present terminus at Kew to Doncaster and beyond have been before Parliament on several occasions. By letter, dated 20th July, 1928, from the Parliamentary Standing Committee on Railways this Commission was invited to give evidence on a defined route for this line. The Surveyor to the Commission was instructed to comply with the request. In the evidence given it was pointed out that—

- (a) The proposed railway would serve a large area, capable of first class residential development.
- (b) It would not overlap any existing service.

This was demonstrated by the production of the Time Zones Map similar to Map No. 3 herein. It was pointed out that the map showed that it takes the same time to travel the 13 miles from Mitcham to the city as it takes to travel from a point in Kew only 4 miles from the city, under the existing public transportation facilities.

- (c) It would be undesirable to compel all transportation from a large area of potential dense development to have only the roadways available for communication to and from the city and other suburbs.

In illustration of this it was shown that between 1924 and 1926 the population of the metropolis had increased about 10 per cent., whilst the traffic had increased 35 per cent., and that this proportion had been maintained in the eastern suburbs traffic. The population in the areas east of the Yarra normally served by Victoria-street and Studley Park-road is about 30,000, whilst there is sufficient space in the area for 310,000 people housed under the best conditions. As no service caters so effectively for mass transportation as the electric railway, the effect which would be produced on the streets nearer the city in providing facilities for such ultimate development, if a railway were not provided, would be obvious. Probably the cost of widenings and new streets would far exceed any costs involved in supplying railway facilities. The railways at present transport about 45 per cent. of the total passengers entering and leaving the city alone.

- (d) Certain existing subdivisions along the new line would need to be replanned.
- (e) Slight adjustments in the route of the line were desirable to avoid the creation of unsatisfactory development adjacent to it.
- (f) All public authorities concerned in such a work as this should be given power authorizing the resumption of lands in excess of that required for the particular work.

This would enable those concerned to combine remnants of allotments not required for railway purposes to form saleable allotments of correct sizes with desirable aspects. Incidentally these resales would assist in defraying the costs of other resumptions.

- (g) If the line were recommended by the Committee the route of it should be definitely defined.

- (h) The definition of a probable extension of the line beyond any adopted terminus for the present should be laid down, for reasons stated in connexion with the Darling to Glen Waverley railway.

The present difficulties associated with the extension of the line at the existing Kew terminus are sufficient proof of the necessity for preserving the route of probable extensions.

- (i) In the event of the Railways Standing Committee, for financial reasons, being able to recommend only part of the line at the present time, a definite complete route should be laid down.
- (j) Consideration should be given to a proposal to remove the present Kew Station, at least as far as passenger traffic is concerned, closer to the High-street shopping area.

It would also facilitate a greater interchange between railway and tramway passengers, and might well be made part of the projected High-street widening scheme.

- (k) The principle of betterment rating as a means of defraying the cost of this public improvement had the endorsement of the Commission.

The Report of the Railways Standing Committee was presented to Parliament on 13th December, 1928, and the construction of a line from Kew to Doncaster was recommended under certain betterment rating conditions. The route selected for the line is shown in detail on the plans, Sheets Nos. 3 and 9. Parliament has not yet passed the necessary Act to permit of the work being carried out. When Parliament passes an enabling Act, a Railway Construction Trust is set up composed of the municipal councillors representing the wards or areas directly affected by the line. This Trust is responsible for the acquisition of the necessary land for the railway reserve, as certified by the Chief Engineer for Railway Construction.

Consequent upon this definite recommendation by the Railways Standing Committee, the Commission has anticipated Parliamentary approval and included in its proposals the necessary planning and replanning of the adjacent areas to conform with the projected route of the line. From the commencement of the line at Kew Station as far as Burke-road, at the boundaries of the municipalities of Kew and Camberwell, the land is too densely built on to allow of any economical scheme of general remodelling.

A definite scheme of planning for the area in the municipality of Camberwell, east of Burke-road, where the land is either unsubdivided or unbuilt on, is submitted herein (see plan on page 134), and it offers opportunities for successful preplanning at least equal to those on the Darling to Glen Waverley line. The route of the railway as approved by the Railways Standing Committee has been practically adopted. Slight deviations only were made, after consultation with the Chief Engineer of Railway Construction and after ascertaining that the constructional costs of the deviation would be no greater than in the original location.

Proposal "A" shows the line as proposed and recommended by the Railways Standing Committee, and the white areas along it comprise the railway reserve which would be acquired under the present method. It will be noted that the land to be resumed is nearly all part of existing subdivisions. The present limited powers of acquisition have unsatisfactory features, as the plan shows. The railway reserve is irregularly shaped, being unnecessarily wide in places, and in other parts it is undesirably contracted. The back yards of numerous allotments will be visible to train passengers. The approaches to the stations are devious and bad, and many dead-end streets are created.

Proposal "B" is the scheme recommended by the Commission, and shows the conditions which would obtain after providing for the railway reserve and the necessary replanning. It is free from the objections to Proposal "A," whilst the general layout of the whole area must increase the values of property. The area treated by resumption and replanning is greater, and is shown by a blue border, outside which the existing subdivisions remain unaltered.

Proposal "A" involves the resumption of 163 allotments for railway reserves, whilst 36 additional allotments are partly affected, probably entailing compensation equal to the value of the whole of them, making a total of 199 allotments.

Proposal "B" makes provision within the area of resumptions for the railway reserve, and for access roads 50 feet wide on either side of this reserve, whilst new connecting streets supply

improved access to the stations, and through the area. The remaining land may then be subdivided into 369 residential and 181 shop allotments, making a total of 550 allotments available for resale or re-allocation, as against a total of 523 resumptions; $8\frac{1}{2}$ acres of unsubdivided land are also included in this proposal.

Instead of resuming 199 allotments and creating undesirable conditions, Proposal "B" would permit the sale of 27 allotments more than those resumed, and yield more return by reason of the enhanced value under that scheme. Some small park areas are also provided. The shopping sites are correctly located and strictly in accordance with the ratio decided upon for this type of residential area. Doncaster-road, between Koonung Creek and Balwyn-road, would be widened from 66 to 100 feet.

Financially, the scheme is satisfactory. By assuming the pre-railway value of the allotments at an average of £150 each, the figures are—

Proposal "A" (Original Railway Scheme)—

<i>Resumptions</i> —199 lots at £150 each	£29,850
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Proposal "B" (Replanning Scheme)—

Resumptions—

523 lots at £150 ..	£78,450
8.5 acres of unsubdivided land at £400	3,400
	<hr/>
	£81,850

Resales and Re-allocations—

369 residential lots at £150 ..	£55,350
181 shop lots at £200 ..	36,200
	<hr/>
	£91,550

Cost of Proposal "A"	£29,850
Profit on Proposal "B"	9,700
	<hr/>
Difference in favour of "B"	£39,550

It will be noted that the resale of re-allocated value of the residential allotments in Proposal "B" is taken at the same value as that of the acquisition, although their actual sale value would be increased both by the presence of the railway and the better conditions arising from the replanning.

In the portions of the line east of Koonung Creek, in the Shire of Doncaster and Templestowe, the unsubdivided condition of the land permits of the acquisition of a regular railway reserve, as shown on the plan, Sheet No. 9.

The Commission has urged, at every opportunity, that with legislation authorizing the construction of such railway lines as this, the necessary powers to permit of a replanning of the adjacent areas should be incorporated. The results that can be secured, as shown in the foregoing pages, should be ample warrant for giving the authorities concerned such powers. It is essential, however, for the assured success of a scheme, that the authority carrying out the replanning, rendered necessary by the construction of the railway, should have the same privileges for resuming land at its pre-railway value as is already possessed by the Railway Construction Trusts. It is believed that, if this policy were adopted, a system of wholesale exchanges between owners of reconstituted allotments could be made. This would avoid raising large loans for compensation for payment to owners dispossessed. It would also relieve the authority carrying out the work of the responsibility of selling the surplus lands.

PORT MELBOURNE AND ST. KILDA LINES.

In the Commission's First Report, 1925, a scheme was submitted (page 35) for the deviation of the Port Melbourne Railway so that the present railway reserve, together with the streets and gardens parallel to it, could be transformed into a park highway, thus providing a fitting approach from the overseas passenger piers to the City. The value of this boulevard approach from the Port to the City was stressed in the First Report, and further dealt with on page 62 of this Report.

METROPOLITAN TOWN PLANNING COMMISSION
 DONCASTER
 CAMBERWELL SECTION

PRESENT METHOD — CONDITIONS REMAINING AFTER ACQUISITION OF RAILWAY ESTATE.
 RECOMMENDED METHOD — CONDITIONS AFTER REVISION OF RAILWAY ESTATE AND NECESSARY LULUATING.



PICORIAL A



PICORIAL B

The scheme also affects that section of the St. Kilda line which parallels the Port Melbourne line between Flinders-street Station and Clarendon-street. In any consideration of this scheme by interested authorities, the Commission maintains that due prominence should be given to the necessity for an improved approach from the Port to the City as a scheme of City improvement, instead of it being regarded merely as a railway diversion.

A further strong reason for the recommendation that these lines be taken across the Yarra alongside the new Batman-bridge was given in the First Report. It would allow of the southerly continuation across the Yarra of King, William, and Queen streets from the City and of a re-arrangement of the street system on the south side of the river, at a very much lesser cost, and with much greater facility than would be possible whilst the embankment remains.

While the Railways Commissioners are in sympathy with the scheme from a town planning aspect, they point out that the cost of diversion would further increase railway expenditure, and at the same time would deflect traffic from the railways. Therefore, it is claimed that for financial considerations the scheme could not be undertaken as a railway work. The Commission, when recommending this scheme, never intended that the necessary railway alterations should be carried out at the cost of the Railway Department, but that such works should be taken as a part of a metropolitan improvement scheme. It was also pointed out that the present Port Melbourne railway has several roadway level crossings which may have to be abolished in the future, and if the present location is maintained the station buildings, &c., will need to be rebuilt, and probably much other expenditure will be entailed to bring this line up to the stage of efficiency that would be given by a new line.

While financial stringency may prohibit a scheme such as this being put into operation at the present time, there appears little doubt that in the near future Melbourne will demand some far-reaching improvement of this description. The distance from Flinders-street to Port Melbourne is only 2 miles, and the Commission has doubts as to the efficacy of railways for passenger transport in areas so close to the City and where street passenger services are very frequent. That this doubt is justified appears reasonable when it is known that, although the whole of the metropolitan tramway electrification and construction scheme has not yet been completed, the passenger traffic on the St. Kilda and Port Melbourne railway lines decreased by 14·4 per cent. and 13·4 per cent. respectively between 1924 and 1928, although metropolitan population increased 13·6 per cent. in the same period. The Commission considers that, as street passenger services increase and improve, the railway passenger traffic on the Port Melbourne line will decrease. The goods traffic will no doubt be great, and the proposed direct linking of these lines with Spencer-street would be in consonance with the proposals of the Railway Department.

The original recommendation provided for the diversion of these lines into Spencer-street Station. In the event of this causing undue hardship to travellers, the connexion to Flinders-street could be maintained by increasing the width of the present viaduct from the vicinity of Batman-bridge to the Flinders-street Station. This alternative scheme should meet the Railway Department's objections as to the convenience of travellers, whilst supplying the desired town planning alterations.

The Commission therefore desires to urge that this proposal shall be viewed in the light of its advantage to the metropolis and State, and that future development along the route proposed for the railway diversions, and expenditure on the present Port Melbourne railway, should be regulated, so that the cost of carrying out the proposals in the future shall not be increased.

FISHERMAN'S BEND RAILWAY CONNEXIONS.

The scheme for the development of the Fisherman's Bend lands as submitted by the Commission in its First Report, which has been considerably advanced on the lines recommended, included suggestions for new railway connexions. The removal to a more westerly location of the existing Port Melbourne line was incorporated in this scheme.

The general scheme of development for Fisherman's Bend makes provision for 220 acres of industrial area which could be given direct railway connexions. Sufficient land was included in the railway reserves planned to allow for yards and connexions which might become necessary. A continuous railway loop around the whole area is planned, and a proposed connexion westerly under or across the Yarra from this area and Port Melbourne to join the existing services at Newport, would enable goods to and from Williamstown, Geelong and beyond, Ballarat, Bendigo and all northern and north-eastern lines, and the Tottenham yards, to have direct access to this terminal area without passing through Footscray, the Melbourne yards, and Spencer-street.

CONNEXIONS WITH LIVE-STOCK SALE-YARDS, ETC.

The Railway Department has experienced great difficulty for many years in giving satisfactory service to the metropolitan live-stock sale-yards at Newmarket, and the congestion caused on other lines in the vicinity has handicapped railway operations, particularly on the Essendon line and in the Melbourne yards. The matters associated with the existing location in populous areas and the removal elsewhere of the sale-yards and other allied industries have been amongst the most contentious and frequently debated for many years. By Government direction, this Commission has made several inquiries into this matter, and comprehensive special reports, memoranda, and pamphlets have been issued from time to time. The Commission recommended, in accordance with strong representations made by all sections of the community, as well as by the Railways Commissioners, that these activities be removed outside the built-up parts of the metropolis, and a site of 3,420 acres was selected south-west of Sunshine, as shown on Map No. 1.

This site and the Reports generally have not yet been adopted, but the Commission considers that a site in the immediate vicinity of that recommended (known as Derrimut) will ultimately be chosen. Any new site will necessitate new railway connexions.

The detailed layout of railways to serve the site would depend upon the layout of the various activities within the area. The Commission ascertained, at the time, the practicability of connecting the site selected with all main lines and with the Tottenham marshalling yards, and these connexions were diagrammatically shown on the plans accompanying the Sale-yards Report.

RAILWAY LEVEL CROSSINGS.

In outlining the relationship of level crossings to the general roads scheme on page 92, the Commission explained the means adopted in its planning proposals to render more effective those roads which cross railway lines by existing bridges or subways, and also, how the proposed new roads would render unnecessary the use of level crossings of railway lines by large volumes of present or future traffic, which at present have no alternative.

Within that portion of the metropolitan area dealt with by the Commission there are 155 level crossings. The main roads, as planned by the Commission, and which would give reasonably direct access between all parts of the metropolitan area, necessitate the use of 55 level crossings, and in addition eleven occur on tram-line streets not in the main roads schedule. Therefore, in any systematic scheme of railway level crossings abolition, it appears to be desirable to concentrate on the 66 crossings which would be on main traffic or tram-line streets.

FINANCING THE ABOLITION OF LEVEL CROSSINGS.—The Railway Department for the five years 1923–27 expended £177,000 on level crossings abolition. Approximately 75 per cent. of this amount was spent in the metropolitan area, and is therefore equivalent to an annual expenditure of over £26,000. The amounts contributed by other authorities have not been ascertained, but it is expected that they would at least equal the average annual expenditure by the Railway Department. The total amount that would be available might therefore be set down at £50,000 annually, the capitalized value of which at a rate of $5\frac{1}{2}$ per cent. would enable a loan of over £900,000 to be devoted to this work, the repayment of which should be spread over 20, 30, or more years. Sums from £1,000,000 to £2,000,000 have been mentioned by the Railway Department as the probable cost of the abolition of the 290 level crossings in the metropolitan electrified area. The Commission's scheme would obviously require much less expenditure, as only 66 crossings would be involved to free the defined main roads and tramway routes from the delays and dangers that are brought about where the roads and railways cross each other on the same level.

ALLOCATION OF COSTS.—The question of the allocation of the costs and contributions is no doubt the most vital aspect of this very difficult problem. Authorities have claimed that as the Railway Department has had the preferential right over the level crossings for many years, the accumulated value of the savings in original construction warrants placing the responsibility of abolition almost wholly upon the Railway Department. Conversely, the Department has claimed that if the local governing authorities were offered at the time of construction the choice between no railway or a line containing level crossings, they would gladly have chosen the latter. Another point of view is that it is only since the extraordinary growth of motor transport that a condition of things which previously was more or less satisfactory to both parties has now become such a nuisance and a hazard. A study of official opinions and decisions abroad shows the same divergence of views.

Except where extensive regradings become essential from the point of view of railway working, it is unreasonable to throw the whole responsibility on to the Railways Commissioners for the abolition of nearly 300 crossings. Several of them will cost in the vicinity of £100,000 each. The electrification of the lines has rendered any improvement in the grades of the lines less necessary, whilst the cost of regrading in conjunction with a maintenance of frequent services makes any such wholesale proposition financially impracticable.

In its Special Report to the Minister of Railways, supplied at his request, in regard to the abolition of the Clifton Hill level crossing on Heidelberg-road, the following opinions were given in reference to the allocation of cost:—

- “ 23. The Commission considers that the principal party concerned in all level crossings is the Railways Commissioners, and that theirs is the greater financial responsibility for the abolition of them. It is the Commission's opinion that, although the Railway Department should not have to bear the whole cost, it certainly should be required to contribute substantially.
- 24. The Heidelberg-road and the other roads converging at this point are all arterial in character, and consequently the municipality in which the crossing is located should not be called upon to meet an undue proportion of the cost of providing an improved thoroughfare which obviously will be used by traffic foreign to Collingwood in a much greater degree than that which can be regarded as local.
- 26. As the roads will be used almost wholly by motor vehicles it is recommended that a substantial contribution towards the cost should be made from the motor registration fees, which are now devoted almost wholly to country roads.”

It is recommended that a single Transport Authority, as advocated on page 143, would have this matter of level crossings referred to it for decision as to the allocation of costs. The Melbourne and Metropolitan Tramways Board and any other public authority directly concerned in a particular crossing should be assessed for a just share. The wide distribution of the costs suggested should be the means of expediting the abolition of the most urgent of these crossings.

POLICY AT PRESENT IN FORCE.—Wherever the Railway Department has undertaken the construction of new metropolitan lines during recent years, or has been engaged on extensive remodellings, it has endeavoured to avoid level crossings. The Railway Department is to be highly commended for the expense it has incurred, and the installations it has made in a variety of ways, with a view to making these crossings safe for all but the most reckless people.

ORDER OF ABOLITION.—The order of abolition of the 66 level crossings should necessarily be determined by their urgency, and it is suggested that a factor which combines the number and classification of vehicles with the duration of delays at crossings should be used in deciding the precedence. It is believed that the adoption of a systematic scheme dealing with this important problem would enable the diversion of traffic into these crossings of the railways with separated grades, and probably permit of the closing of the least important level ones.

The Commission's schemes for roads in the area to be served by the Darling to Glen Waverley and Doncaster lines illustrate how a greater use can be made of fewer crossings of the line, while at the same time preserving reasonable access between lands on each side of it.

AMENDED LEGISLATION REQUIRED.—One of the factors that has contributed to the large number of level crossings in existence is the fact that the Railway Department possesses inadequate powers for the acquisition of land. It is considered that if the Department had power, subject to any necessary safeguards to acquire more land than is immediately necessary for railway purposes, it would be enabled in many instances to provide one crossing which would serve two or more cross streets by the diversion of certain streets at suitable places, with consequent saving in cost. The Commission is convinced that, by judicious planning and adequate legislative powers, it should be possible to reduce the number of level crossings, the abolition of which would require heavy expenditure in the construction of subways or bridges.

LEVEL CROSSING—HEIDELBERG-ROAD, CLIFTON HILL.

On 13th June, 1927, the Minister of Railways requested the Commission to supply him with a report and recommendation as to the best way of abolishing the level crossing on Heidelberg-road at Clifton Hill. The Special Report and plans were supplied under the date 14th October, 1927, and copies were furnished to all authorities concerned, and it is not considered necessary to report the details of the proposals herein.

The crossing is on an arterial road which feeds other arterial and main routes, and is one of those most urgently needing abolition. The scheme recommended by the Commission was as follows :—

- (a) Heidelberg-road to be taken beneath the railway lines, the latter to be raised $2\frac{1}{2}$ feet from their present level.
- (b) The subway to have a grade of 1 in 20 and be 66 feet wide.
- (c) The estimated cost is £77,700.
- (d) Turnbull-street (gazetted width 66 feet) to be widened to 84 feet on Mayor's Park side, so as to provide for a north-south electric tram line, the route of which from Hoddle-street would be via Turnbull-street and directly across Queen's-parade and the property between the parade and McKean-street, to join the latter in line with Turnbull-street, thence into Rushall-crescent, &c.
- (e) That portion of Hoddle-street north of the entrance to Clifton Hill Station to be added to Mayor's Park, as well as the portion of Heidelberg-road between Mayor's Park and the proposed subway.
- (f) The portions of Hoddle-street and Heidelberg-road gazetted as road, but now included as park, to revert to road use.
- (g) The cross-sections of Queen's-parade and Heidelberg-road to be altered to conform with that laid down for arterial roads of their width.

TRAMWAYS.

The first tramway laid in this metropolis was the cable line from the City to Richmond—in 1885. Tramway extensions followed in quick succession, and as the routes increased in number, so did the authorities controlling them. The first electric tramway was opened in 1906, the route being between North Melbourne and Essendon. Eventually, in 1918, Parliament passed the Melbourne and Metropolitan Tramways Act under which the present controlling Board of seven members, appointed by the Governor in Council, was subsequently constituted. The Board controls the whole system of street tramway passenger services operating in the metropolis to-day, excepting the St. Kilda to Brighton Beach and Sandringham to Beaumaris lines, which are operated by the Victorian Railways Commissioners. One of the first tasks undertaken by the new Board was the planning of a comprehensive general tramway scheme for the metropolis, incorporating the gradual conversion of the cable lines to electric traction. The general scheme received the approval of the Parliamentary Standing Committee on Railways in 1923, and steady progress has since been made towards its achievement. The Melbourne and Metropolitan Tramways Board now controls nearly 109 route miles of electric lines, and 30 miles of remaining cable route miles, the latter being in process of conversion.

The passengers carried on the tramways for the last financial year amounted to 211,762,137—a figure which frequently causes surprise, because of the popular belief that the railways do the greater business in metropolitan passenger services. The metropolitan population directly served by tramways exceeds 800,000.

COMMUNITY SERVICES RENDERED.

There are several features about the Melbourne tramways system, in the community services it renders, which are worthy of mention, apart from the excellence of the equipment and of the high standard of the Board's transportation organization. Under the Tramways Acts, the Board pays into the State Consolidated Revenue each year a sum of money equal to the payments made by the Government to the Metropolitan Fire Brigades Board, the Queen's Memorial Infectious Diseases Hospital, and the Licences Equivalent Fund. During recent years this has exceeded £100,000 per annum. This tax is a levy on gross earnings and the first charge upon the Board's revenue. The institutions referred to have no relation whatever to the tramway passenger, and this large extortion means that either the passenger must pay more for his transport than its cost, or the Board is prevented from expending these earnings in new development. The Commission desires to endorse the recommendation of the Parliamentary Public Accounts Committee that the Board be freed from such payments. There is a strong and almost unanimous support for the removal of this anomaly, but successive Governments have shirked the responsibility.

The Board lays and maintains that portion of the street between the tramway rails and for 18 inches outside the rails. The municipalities concerned are thus saved the expense of constructing and maintaining an average of 19 feet in width of roadway, relieving them of a capital outlay of £1,500,000 in road construction and £250,000 annual charges for maintenance, renewals, interest, and sinking fund. In addition the Tramways Board pays rates to municipalities amounting to £15,000 a year.

The Tramways Board provides lighting on 80 miles of streets at a cost of £9,000 annually.

The cost of the erection of bridges, abolition of level crossings, street widenings, &c., have all been contributed to by the Board, in some instances very substantially.

THE TRAM CAR AS AN ECONOMICAL UNIT.

In Melbourne, as almost everywhere else, during recent years the advances made by motor transport have caused incursions into the public systems of street and railway transportation, and for a very long time the advocates of both trams and motor buses urged their conflicting points of view. When public attention was focussed on the relative merits of tram cars and motor buses, the Commission issued its First Report, wherein much attention was given to the subject. The Commission emphasized its view that the tram car running on steel rails was the most efficient and economical street passenger unit (see also page 54). It was urged that unnecessary duplication of services was unwarranted and prejudicial to the public interest. At the same time it was claimed that there was ample warrant for the use of motor buses as an auxiliary service to the railways and tramways. The Government set up an authority with powers to regulate motor bus transportation, so as to avoid the duplication of services such as was then occurring. Subsequent experience has strengthened the views of the Commission as previously expressed.

TRAMWAYS GENERAL SCHEME.

The tramway routes, as indicated on Map No. 4, which shows the transportation system, are largely based upon the general scheme prepared by the Melbourne and Metropolitan Tramways Board and approved by the Parliamentary Standing Committee on Railways in 1923. The original scheme has been advanced considerably towards completion. The conversion of the principal cable lines south of the Yarra, and of considerable portions elsewhere, has been completed, with consequent appreciable improvement to the service generally. As funds permit, this work will be continued until all cable lines have been replaced by electric traction. Several new electric lines and extensions and connecting links, as laid down in the Board's general scheme, have been completed.

In studying the original scheme, it must be remembered that it was based upon the then existing street system. Certain of the major proposals of the Commission for new roads and roads of increased width, if carried out, would offer considerably greater facility for a more effective location of some of the tramways which are included in the Board's general scheme. By way of illustration, it might be stated that the arterial road across Fisherman's Bend and its proposed extensions and branches through western suburbs, by reason of their greater width and directness of travel, will allow and encourage an amendment of the proposals included in the Board's general scheme for this area. Again, certain roads planned in the northern suburbs, if carried into effect, would supply more direct extensions of the tramway system and a cheaper construction in "parked" formation.

The amendments which it is considered could be brought about with advantage to the Board's general scheme by the improved road facilities as planned are indicated on Map No. 4. Although they are indicated as proposed tramways, these routes could be used for motor bus services in the initial stages until settlement is sufficient to warrant the laying down of tramways.

Recommendations were made elsewhere in regard to the advisability of locating tramways in street reserves (see page 53), whilst the recommended cross-sections of tramway streets are given diagrammatically on page 61.

PORT AND HARBOUR FACILITIES.

The Port of Melbourne is controlled by the Melbourne Harbor Trust Commissioners, and the present system of management has operated since the passing of the *Melbourne Harbor Trust Act 1912*. The Trust is constituted of a full-time Chairman appointed by the Government, and four others nominated to represent the interests of ship-owners, exporters, importers, and primary producers.

The various port authorities that have exercised control are to be commended for the remarkable progress made in the development of harbour facilities, which permit almost any ship afloat to berth in the port. The following figures give a clearer indication of the extent of the harbour and its present trade :—

Berthage accommodation (over $9\frac{1}{2}$ miles)	..	..	50,453 feet
Wharfage space	..	..	68 acres
Depth of water available at Port Melbourne piers	..	..	37 feet

Year 1928 trade (not a record year)—

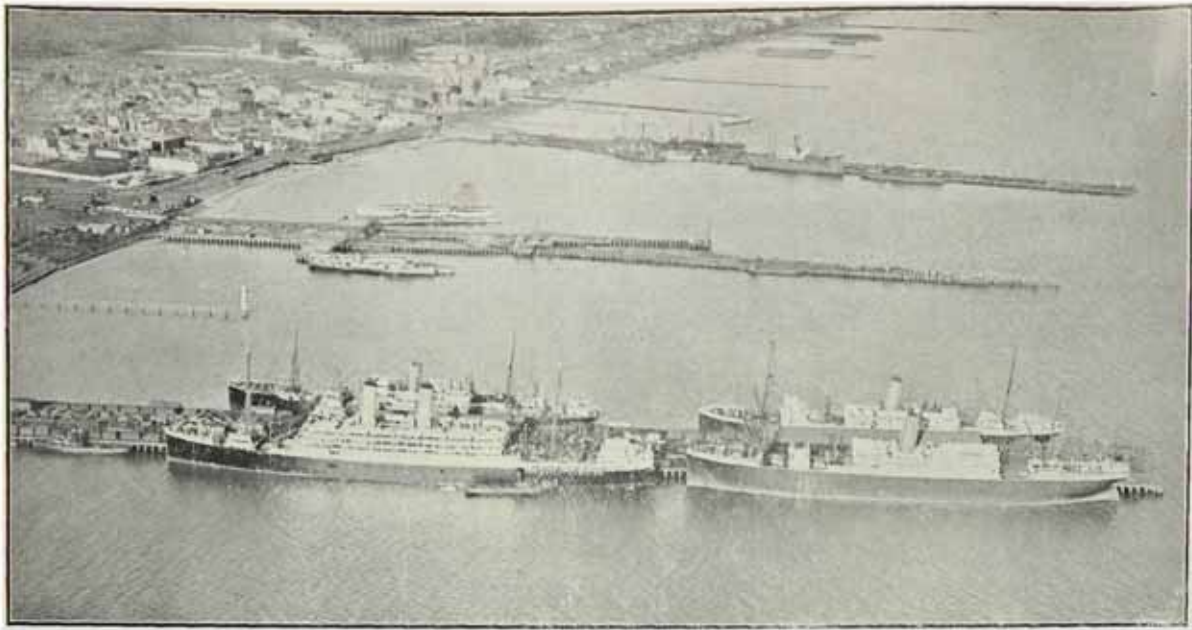
Imports	..	..	..	..	..	3,399,701 tons
Exports	..	..	..	..	..	1,331,049 ..
Gross tonnage of shipping	..	..	..	..	..	11,713,340
Vessels	..	..	..	..	..	3,712

The Act of Parliament under which the present Trust operates requires the port authority to contribute one-fifth of its gross income to the Consolidated Revenue of the State. In 1927 this amounted to £148,282. In addition, all goods consigned to Government departments, including the Railways Commissioners, are exempt from wharfage dues. The average loss to the Trust's revenue as a result of this exemption has been over £20,000 per annum for the last ten years.



Aerial view of shipping at Victoria Dock and in River Yarra.

By "Airsby".]



Aerial view of Port Melbourne Piers, showing ships loading and discharging.
The Station Pier has since been completed.

By "Airsy".]

In the First Report of the Commission reference was made (page 46) to the plans of future development of the Melbourne Harbor Trust Commissioners, and Map No. 5 therein gave details of the scheme which it was claimed would serve for the next 50 years. The plan is included in the Commission's plans for general metropolitan development.

The Trust is gradually extending the berthage facilities and improving the port as necessity demands, and it is fortunate that a large area of unused and low-lying land is available in the vicinity of the Lower Yarra for this purpose.

The Commission is of opinion that if it is necessary to supply additional berthage facilities, after the plans outlined herein have been completed, this can be provided by extensions and additional piers at Port Melbourne and Williamstown.



Aerial view of shipping accommodation at Williamstown.

By "Airsy".]

ONE TRANSPORT AUTHORITY.

In its First Report (page 21) the Commission concluded its comments on transportation matters as follows :—

“ The Commission recommends that the determination of the scope of the various systems of transport and the regulation and preservation of their growth on proper lines should be governed by a central public authority which, whilst preserving the integrity of each system, would prevent wasteful competition and aim at the creation of a more efficient transport service.”

The intervening period has emphasized the desirability of giving effect to this recommendation, and a Bill has been announced for submission to Parliament, which is stated to contain provisions for the creation of a Ministry of Transport.

Various Ministers and private members of Parliament have advocated, during recent years, the abolition of unco-ordinated control in transportation matters. The report of the Outer Ports Commission of 30th September, 1925, issued shortly after the First Report of this Commission, drew attention to “ disorganized and unhealthy rivalry in all branches of State transportation,” and it was urged that a State Department should be created to deal with the problem. The Report of the Victorian Railways Commissioners for the year ending 30th June, 1924, contains an expression “ of opinion that there is an imperative need for regulation, in order to ensure that extravagant competition is not carried on to the benefit of a limited section and to the detriment of the majority of the taxpayers.” The 1928 Annual Report of the Parliamentary Standing Committee on Railways and the Railways Royal Commission Report, issued in the same year, both urge the appointment of a central controlling body. The City Engineer of South Melbourne, in a report on his trip abroad in 1927, states—“ Complete co-ordination of transport services under one control is absolutely necessary. If all systems were geared under one comprehensive system, congestion would be reduced.” Many other recommendations, both local and elsewhere, could be quoted to support the compelling need for a single transport authority.

The Commission recommends that the central transport authority should be required to study and bring into effect the best methods of organizing, systematizing, and co-ordinating all forms of transport by rail, road, water, and air.

It would be desirable to divide the administration into at least two branches—State and metropolitan. The Country Roads Board, the Railways Commissioners, the Outer Ports authorities, the Civil Aviation Department (a), the country municipalities, and the Motor Registration Branch would no doubt be linked together as State transport activities. So far as the metropolitan area is concerned, the Railway Department, the Tramways Board, the proposed roads and bridges authority, the municipalities, the Melbourne Harbor Trust Commissioners, and the Police Traffic Control Branch should form the main body of combined activities.

The operation of a Town Planning Act, as outlined elsewhere, would materially assist future transport. The municipalities and other authorities involved in such an Act would lay down the basis of development of their areas, and as these schemes, when approved, would automatically become law, the transport authority would have definite guidance in its deliberations. The necessary co-operation with the town planning authority would thus be established through the medium of the adopted municipal development schemes.

Although the Commission does not desire to set down the details of matters which should be the prerogative of the transport authority, there are several matters referred to elsewhere in this Report which need to be reiterated.

The arterial and main roads and future tramway routes, as defined in this Report, are suggested as a basis of any definition and study of future metropolitan road transportation. This would also supply a basis for the consideration of such matters as level crossings of railways. The standardizing of road design and construction could be simplified by the acceptance of the recommendations in this regard as a basis. The regulation and control of road traffic must be handled by a central body, and it seems but natural that this proposed authority should be recognized as the most suitable means of achieving uniformity and proper administration of these matters. The collection of motor registration fees, drivers' licences, &c., and the allocation of funds derived therefrom, are regarded as matters properly belonging to a central transport organization.

(a) Although it is recognized that the air services are subject to Commonwealth jurisdiction at present, and should be developed as a Commonwealth activity, there appears to be no reason why advisory State Committees, acting in conjunction with the Ministry of Transport, would not lend itself to a co-ordination of air with other State services.