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PARLIAMENTARY PUBLIC WORKS COMMITTEE  
EASTERN RAILWAY INQUIRY NO. 2

EVIDENCE ON BEHALF OF THE MELBOURNE  
AND METROPOLITAN TRAMWAYS BOARD

14 AUGUST 1974

In accordance with the revised terms of reference of this Inquiry, this evidence relates to the practicability of establishing some form of public transport system, other than a conventional railway, from the Central Business District to the City of Doncaster and Templestowe.

I wish to tender as an exhibit a report entitled "Melbourne - Doncaster and Templestowe, Public Transport Proposals". Much of what I will say is covered in more detail in the report and I will wish to refer to maps or illustrations which are included.

The types of transport discussed in this report have different operational characteristics to railways and therefore the routes chosen for consideration have been those which allow their particular advantages to be utilized.

Two public transport systems which would provide passenger collection and distribution services in the Doncaster and Templestowe area and in the Central Business District and use the median of the Eastern Freeway as part of a high speed route connecting these areas, have been studied in detail.

These are Scheme A - a high standard bus system and Scheme B - a light railway which would combine some of the advantages of tramway and conventional railway systems.

At this stage I should indicate that before either scheme could be implemented, further detailed investigation and design would need to be carried out and discussions with local Councils and other authorities would be necessary. This evidence concerns proposals, not finalized designs.

Both schemes provide for the construction of a high speed public transport route from the Central Business District via Nicholson Street and Alexandra Parade, then along the median strip of the Eastern Freeway to Bulleen Road and thence along the recommended railway route to Doncaster Road. Establishment of public transport right-of-way over this full section, and on some main roads in Doncaster would be required if travel times assumed are to be achieved. Without this priority of travel a reduced standard of service and higher operating costs would be caused by the congestion resulting from other road traffic.

After reaching Doncaster, the bus system, Scheme A, would diverge into a series of feeder routes serving the Doncaster and Templestowe Area. Figures 1 and 2 (pages 10 and 11) show the routes of this bus system. The Feeder route system shown has not been the subject of full operations planning and some detail change could be expected.

All buses would provide through travel to the Central Business District at peak periods, but some passenger interchange would be necessary during off-peak periods in order to economically provide acceptable headways.

On the longer collection-distribution routes, peak period buses would travel for part of the journey on a limited stop basis, stopping only to allow passengers to alight.

Bus routes would be provided in Doncaster and Templestowe with the objective of achieving a maximum walking distance of 500 metres (550 yards). An average traveller would therefore walk approximately 250 metres in 3 minutes to a bus route.

The collection and distribution of passengers within the CBD would be brought about by operation of the buses along Lonsdale Street, the only major east-west CBD street currently without public transport service.

From Lonsdale Street the bus route would continue along the existing tram tracks in Nicholson Street to Alexandra Parade. Exclusive right-of-way through this section would be provided by means of barrier kerbs adjacent to the outer rails of the tram tracks. Both the existing tram service and the buses would operate in the reserved right-of-way thus provided.

Along Alexandra Parade, from Nicholson Street to the Eastern Freeway, the bus right-of-way would be constructed in a central reservation with medians between the bus lanes and the road carriageways. This type of construction would continue along the entire length of the Freeway. The medians would be landscaped with trees and shrubs.

If the Freeway finishes at Bulleen Road, a busway would need to be constructed along the proposed Freeway alignment to Doncaster Road.

In Doncaster Road a central road reservation would be provided as far as Tram Road. The acquisition of a narrow strip of land along Doncaster Road would be desirable to establish a 40 metre road reserve while providing a separate bus reservation. This would ensure that present and future road traffic capacity would be maintained.



The separation of buses from motor vehicle congestion would be an essential part of the scheme. Failure to provide these facilities would result in very significantly lowered patronage and increased bus operating costs.

The capital cost of the facilities required for this proposal, excluding buses, is estimated to be \$16 million. Details of this estimate are given in Appendix I of the report.

If the scheme were to commence operation in 1977 it is estimated that 121 buses would be required at this time. This number would be increased to 184 by 1985. The total cost of 184 buses has been estimated to be \$7.4 million.

Bus operation in the Doncaster corridor would offer the following advantages :

- a) relatively low capital costs,
- b) convenient boarding and alighting locations resulting in low travel time to and from the service,
- c) no passenger interchange for many of the journeys,
- d) frequent service.

However, the addition of 127 buses per hour to the Nicholson Street tram services would have the disadvantage of creating some operational problems and could lead to congestion effects on traffic in the cross streets.

In Lonsdale Street, even with the proposed bus lanes, some congestion could occur at the main cross streets and, although Diesel buses do not create the same harmful pollution problems as petrol engines, they would add to the pollution level in this part of the city.

Scheme B, comprises a light railway service using large articulated vehicles operating over a similar route to Scheme A at least as far as the intersection of Doncaster Road and Tram Road. This scheme also includes the provision of an integrated system of feeder buses and the construction of some bus lanes in Doncaster. Figure 3 (page 12) shows the light railway route which forms part of this system. The feeder bus routes would be similar to those shown in Figure 2. Three modern modal interchange facilities form an integral part of the scheme.

The vehicles would operate in both Bourke and Collins Streets within the CBD and the loop necessary for single ended vehicles would be established via existing track in Spencer Street and a new track in Spring Street.

The main trunk route would again be via Nicholson Street, Alexandra Parade, the Eastern Freeway and Doncaster Road.

Barrier kerbs would be established along the existing tramway in Nicholson Street to provide exclusive right-of-way. The photograph of a tram operating in Amsterdam under these conditions (Figure 9, page 39) illustrates how separation from motor car congestion has been achieved in some overseas cities.

The provision of exclusive right-of-way for the light railway would enable the vehicles to achieve much higher operating speeds and better service reliability than is currently possible on most streets in Melbourne where motor vehicle congestion is resulting in lowered service standards and more costly tram operation.

Covered passenger interchange facilities would be provided at the terminal and it may be possible to integrate this terminal facility with the nearby Doncaster Shopping-town regional shopping centre which forms a major attraction for off-peak bus trips.

Modern electric trams, such as those used in some European cities are capable of economically providing high standard public transport service for a wide range of passenger volumes. They are in fact light railways. Figures 5 & 6 (pages 26 & 28) show modern European vehicles.

The type of vehicle proposed for this scheme would be articulated, up to 30 metres (100 feet) long and would provide seating for approximately 100 passengers. They would be designed to have a maximum speed of approximately 100 kilometres per hour and yet still be suitable to operate in city streets with the normal tram service.

The capital cost of the facilities required (excluding vehicles) has been estimated to be \$18 million. Details of this estimate are given in Appendix II of the report.

If this system commenced operation in 1977 it is estimated that 35 trams and 35 buses would be required at this time. By 1985 the number of vehicles required would increase to 48 articulated trams and 50 buses at an estimated total cost of \$16.4 million.

The advantages of light railway operation are :

- a) a high standard of passenger comfort,
- b) low crew to passenger ratio,

- c) high economic capacity,
- d) no atmospheric pollution,
- e) medium capital cost, because vehicles are able to operate on sharper curves and more severe grades than a conventional railway,
- f) efficient and economical collection and distribution of passengers in major centres, because the vehicles can travel in city streets,
- g) frequent service,
- h) convenient boarding and alighting locations.

The light railway could be combined with one of two bus distribution systems; either the conventional type of scheduled feeder bus operation, or a demand activated or "dial-a-bus" type system. Adoption of the light railway scheme would allow the most suitable of the two types of bus feeder services to be chosen at a later date.

#### Patronage.

The report includes a discussion of the likely patronage of the proposed systems.

Factors which would tend to increase overall public transport patronage over that estimated by MTC are :

- 1) reduced freeway construction,
- 2) likely greater costs of car operation and parking,
- 3) increased employment in central areas adjacent to the CBD, and
- 4) lower social cost of an average trip using either proposed system.

Factors which would tend to decrease overall patronage are :

- 1) reduced population in the catchment area,
- 2) reduced CBD employment.

It is anticipated that substantially full development of the area to be served by this transport service will be reached by 1985, and therefore maximum demand should also be reached about this time.

The MTC patronage estimates were that there would be 8,600 public transport passengers in this corridor during the peak two hour period.

As previously indicated there have been significant changes in the factors on which these predictions were based. However, the Board's studies indicate that patronage will still be in the range of 7,000 to 10,000 passengers per two hour peak and the MTC figures have therefore been used in the report as a basis for calculating the costs and benefits of both schemes.

Both schemes could operate satisfactorily over the range of patronage considered likely. However, in general terms, if the patronage were low, the bus case would improve in relation to the light railway and the reverse would apply if patronage figures were higher. If the patronage figures increased beyond 10,000 per two hour peak the Board considers the bus scheme would cause some quite difficult operational problems, but the light railway has sufficient capacity for a substantial increase in patronage beyond 10,000 per two hour peak.

The estimated total annual operating costs of the two schemes, at current cost levels and 1985 patronage levels, are discussed in Chapter 7 of the report.

In the case of Scheme A, the high standard bus proposal, the total operating cost has been estimated to be \$5.8 million per annum. This figure is made up of capital charges, at 8% - \$1.28 million per annum, vehicle replacement costs - \$430,000 per annum and vehicle operating costs (including fuelling, maintenance and traffic labour costs) - \$4.1 million per annum.

For Scheme B, the light railway proposal, the total operating cost has been estimated to be \$5.2 million per annum made up of capital charges - \$1.44 million per annum, vehicle replacement costs - \$584,000 per annum, and vehicle operating costs (at the same patronage level as for Scheme A) - \$3.2 million per annum.

On the basis of current fare levels, it is estimated that the system revenue would be approximately \$3.1 million per annum in 1985. This represents 97% of the estimated direct vehicle operating cost of Scheme B at this time. On the same basis, again at current costs and fare levels, revenue would only meet 75% of the direct operating costs of the bus scheme, Scheme A.

Both proposals have been analysed in social cost-benefit terms. Details are given in Chapter 9.

The benefits considered were :

- 1) lower trip times for people who would otherwise use the Board's existing bus system,
- 2) lower trip times for people who would otherwise travel to the Box Hill rail line,
- 3) lower travel costs for people who would be attracted from car travel by the higher level of service,
- 4) reduced road traffic congestion as a result of this patronage attraction,
- 5) provision of service to people who would not otherwise have travelled,
- 6) greater passenger comfort on light-rail vehicles,
- 7) cost savings in not continuing to operate part of the existing bus service.

The benefit cost ratios calculated, at the 10% discount rate, were 1.4 for Scheme A, and 1.6 for Scheme B. These ratios indicate that, while either proposal would be a worthwhile public investment, Scheme B would provide greater community benefits.

Both schemes would bring about significant environmental and social benefits. Scheme A, however would use oil fuel and add to the city air pollution.

Both schemes involve the use of the median of Alexandra Parade for a new public transport facility. The area is at present grassed with some sections having developed trees. Parts of the reserve are now used for children's recreational facilities. However, the road widening which is planned in connection with the Freeway construction, and the high traffic volumes which will be generated, are likely to effectively negate the usefulness of the area to the local community. It would seem that the provision of alternative public open space is warranted as a result of the road works. It is considered that the public transport systems proposed would not result in any further significant impact. The area on either side of the busway or light railway would be landscaped and planted.

Comparison of Schemes.

The Board believes that the light railway scheme would provide significant advantages over the bus scheme.

The more important of these are :

- 1) a saving in total operating costs of approximately \$600,000 per annum at current costs. If present trends continue this operating cost difference will increase significantly,
- 2) more comfortable and convenient service for passengers with better CBD distribution via Bourke and Collins Streets,
- 3) avoidance of pollution and traffic congestion associated with the operation of a large number of additional buses within the CBD,
- 4) significant operational advantages as a result of the lower number of vehicles operating within the CBD and avoidance of the necessity to load buses destined for a number of different routes in Doncaster and Templestowe from city stops. In the light rail case the separation of passengers according to ultimate destination would take place at covered passenger interchanges in Doncaster.