

DEMONSTRATION PROJECT

**EAST PRESTON
TRAM ROUTE
UPGRADING**

September 1976



M. & M.T.B.

Melbourne & Metropolitan Tramways Board

616 Little Collins Street, Melbourne, Victoria 3000

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INTRODUCTION.

Increasing road traffic congestion has significantly reduced the quality of service the Board is able to provide on its tram and bus routes.

Delays caused by motor traffic congestion and traffic signals have reduced vehicle operating speeds and caused service irregularities, thereby disbenefiting passengers and increasing the Board's operating costs.

As a result of slow operating speeds and the "bunching" of public transport vehicles (which results from trams or buses being delayed and becoming more heavily loaded and falling further behind schedule), passengers experience increased waiting times, longer journey times, unnecessary over-crowding and a loss of confidence in the regularity and reliability of the services. Consequently the Board's ability to hold existing patronage and attract new patronage is being severely limited by factors beyond its control.

At the same time operating costs are increased since these delays force the Board to operate more vehicles than should be required to maintain a given frequency of service.

This report considers the means by which these problems could be overcome on one route, the City - East Preston tram service.

A comprehensive proposal for upgrading this service, as a demonstration project, is considered in terms of costs, benefits to tram travellers and effect on road users and the community. This initial investigation has been carried out with the assistance of the State and Commonwealth governments under the terms of the Transport (Planning and Research) Act.

The proposals contained in this report are, by their nature, preliminary. They could only be implemented after detailed discussion with road authorities and municipal councils.

It would be desirable that the project proceed as a demonstration project and that "after" studies should be carried out at appropriate stages during the implementation of the upgrading to investigate the validity of the theoretical analysis contained in the report.

SUMMARY.

1. The existing East Preston tram route helps cater for the transport needs of people in a large catchment area. The route traverses a highly developed area containing residential, industrial, commercial and educational establishments. The service provided is frequent and the route is well patronised. Approximately 38,000 trips are made along the route each weekday, including 12,000 trips within the CBD. Of the remaining 26,000 trips less than one-third commence or finish within the CBD.

2. Traffic congestion along the route has the effect of reducing service standards and increasing operating costs. Peak period travel from terminus to terminus currently takes up to 55 minutes. New trams operating without delays caused by road traffic would be able to make this journey in 33 minutes.

3. The means by which this could be achieved are principally
 - traffic signal priority systems,
 - provision of physical barriers between trams and road traffic, where possible, and
 - amendment of the Road Traffic Regulations to prohibit motor traffic impeding trams when travelling in the peak direction and while a clearway is in operation.

4. The upgrading proposals have been divided into two stages -

Stage I.

The first stage would establish tram separation and priority systems necessary to provide the projected operational and passenger benefits.

Initial works would involve roadmarking, priority signalization, minor improvements to intersections, safety zones and passenger shelters. The major works would be the installation of concrete barrier kerbs, the relocation of medians in Queens Parade, and the widening of Merri Creek bridge and the adjacent rail underpass.

Amendment of the Road Traffic Regulations would be required at this stage and this with the Stage I works would bring about the projected operational and passenger benefits. The legislative measures proposed would separate peak period tram travellers from road users travelling in the peak direction. Each group would effectively travel in a separate lane.

The estimated cost of Stage I is \$1.7 million.

Stage II.

The second stage would largely re-establish road traffic capacities to their pre-upgrading levels by widening a number of major intersections.

The estimated cost of Stage II (including compensation payments) is \$2.8 million.

5. After completion of the upgrading, public transport travel would be made more attractive because of :

- reduced on-vehicle travel time,
- more even headways which would result in reduced average waiting time and substantially increased passenger comfort (over-crowding would be greatly reduced).

It is estimated that these improvements would increase patronage by approximately 700,000 passengers per annum.

Conclusions.

The East Preston route upgrading study is largely an investigation into the allocation of road space between private and public transport.

On the evidence assembled in this report, the provision of priority to trams to create optimum operating conditions would be a worthwhile project using both social and economic criteria. Although the study is based largely on theoretical research into the likely affects of the upgrading proposals on public and private transport, sufficient evidence has been assembled to warrant the provision of this priority as a demonstration project.

The question of allocation of road space between private and public transport is important in both stages of the project. In Stage I of the upgrading the motor vehicle capacities of the narrow sections of the route would be reduced. Motorists currently using these routes would have to either experience longer travel times along the route or choose alternative routes (and possibly still have longer travel times).

The social benefit-cost analysis of Stage I indicates that, with a benefit-cost ratio of 4.8 at a 10% discount rate, the project would be a worthwhile social investment. The benefits to existing and new passengers would be significant and would be far greater than any disbenefits experienced by motorists.

Stage II essentially involves the re-establishment of vehicle capacities to their pre-Stage I levels and for this reason has been deliberately segregated from the Stage I proposals. Whether or not the programme of intersection widening should be undertaken is a question which could only be partially answered in this report. Although the benefit-cost analysis results were favourable for this programme, the analysis was not definitive in that it was difficult to weigh the advantage to motorists in terms of reduced travel times against the necessary social disruption that would be caused by the demolition of several properties along the route.

This problem did not arise in the analysis of Stage I since this analysis largely involved a trade-off between shorter travel times for tram passengers against longer travel times for motorists.

The more direct economic consequences of providing tram priority would be significant.

- (i) Operating costs would be drastically reduced, mainly because the faster operating speeds would allow for a 20% reduction in the number of trams needed to operate the service (currently - 36 trams; after upgrading - 29 trams).
- (ii) Revenue from the service would increase by approximately \$170,000 per annum, based on the conservative estimate that patronage along the route would increase by 7% after upgrading.

As a result the route would generate a financial surplus of approximately \$100,000 per annum.

It is important to note that the benefits that the upgrading would provide could be achieved for relatively little capital outlay. At a time of increasing demands upon a limited supply of capital funds, this project presents a rare low cost opportunity to improve a public transport service and provide a real alternative to the motor car for many trips. Generally transport projects (both road and public transport) require large capital outlays over long time spans. Consequently the number of projects that can be undertaken at any time are limited and so the rate of improvement in the total transport system is necessarily slow. This project is a significant departure from this pattern.

The upgrading should result in the tram service becoming a more competitive mode, compared with the private car, for many trips. By increasing tram speeds, evening out headways and removing cars from the tram tracks during peak periods, travel along the route would become faster and more comfortable. By also operating the new Z class trams along the route the Board would be able to demonstrate the type of tram services it could operate in Melbourne.

The Board considers that there is a need for a tram route to be upgraded in the manner described in this report in order to physically demonstrate the effects of reservation and preferential treatment upon tram operation.