

Review of Tramway Operations.

6th October, 1954.

Tramways.

Copy for

DEPARTMENTAL TRAMWAYS SUPERINTENDENT

ENGINEER AND MANAGER

6th October, 1954.

REVIEW OF TRAMWAY OPERATIONS:

This review has reference to the practicability of reducing branch operation costs and has concern to

- (a) reductions in the frequency of the service
- (b) extensions of one-man operation
- (c) reduction in service hours and days
- (d) abandonment of routes
- (e) fares and charges

These items to a certain extent are closely related, since headways affect the individual loadings and the loadings in turn affect the fare collection system, similarly also the fare collection system is affected by simplicity or otherwise of the fare structure. Our agreements with the municipal authorities provide that the average speed of trams shall be not less than eight miles an hour including stops, between the termini, so that there is ostensibly a limit to the time allowance that can be made to one-man car operators to perform the dual duties of driving and fare collection. This is mentioned because the obstruction to one-man operation by employees was related to the time schedules allowed to carry out the dual duties. From the public point of view also, the question of speed is important and extensions of one-man operation must be mindful of maintaining a reasonable service efficiency, since a substantial loss of revenue would in some measure defeat the objectives aimed for in this revision.

(a) Reductions in the service frequency

A general all-round reduction cannot be recommended, at least until other practicable avenues of economy have also been explored. Peak hour traffic being now handled on most of the routes is very heavy and we will be subject to strong criticism if we reduce our earning capacity during this period when transport is vital. In other instances where one-man operation is in practice or considered to be potentially possible, a reduction of the service would defeat this objective. There are possibilities of effecting partial reductions, this involves a review of passenger traffic on each route and the characteristics of weekdays, Saturdays and Sundays require individual attention. Where the traffic is heavy or reasonably consistent, thereby necessitating two-man operation, the frequency of the service can be reduced by the use of the large type trams exclusively to the service of such routes. Where it is shown that unbalanced traffic exists on through operating services a segregation would be necessary to enable economy of one-man operation to be applied to the lighter traffic route. In general principle

(Cont'd.)

one-man operation would permit of a more frequent service than could be supplied with conductors on the trams. In general the review shows that reductions can be made in some of the day services, both in off-peak and peak. Reductions can be made in practically all night services after 8 p.m. and also a general reduction to Sunday services. The details of variations considered practicable on each route in the three provincial systems are shown in Appendix A and also on the passenger traffic graphs which have been prepared.

(b) One-man operation

There are definite possibilities for the further extension of one-man operations on weekdays and especially on Saturdays and Sundays where previous extensions were substantially avoided. There is probably more opportunity for effecting savings without reducing income by the extension of one-man operation than by service reductions. There is a link between the practicability of one-man operation and the fare system, in that a simple fare system is essential for one-man operation to be reasonably successful. The following points regarding one-man operation are recorded:-

In the present system the motorman collects fares, issues checks and records check issues on way bills. The disabilities of this system are that the motorman has to handle cash and checks in addition to his car controls. Payment of fares must be made upon entry which is slow and irritating where substantial numbers of passengers join the tram together and especially so in wet weather. The traffic on provincial tram lines has substantial directional characteristics, i.e. the pick-up of passengers on "in" trips and the set down of passengers on "out" trips is dispersed in character. On the other hand the pick-up on "out" trips and the set down on "in" trips is rather concentrated. It will be seen, therefore, that the weakness of one-man operation, necessitating the collection of fares and issue of checks, is more evident on out trips from the city.

There is a strong recommendation from those branches who have had previous experience with the fare box system, that this system of fare collection should receive serious consideration, especially if extension of one-man operation is to be carried to its practical limits. The main advantage of the fare box system is that the operator does not collect fares and only gives change to passengers where necessary. He has no checks and no way bills. The advantages are that fare payment may be upon entry or upon leaving the tram, according to the direction of travel. This facilitates the maintenance of a reasonable schedule speed. There is some reduction in office work by reason of the elimination of checks. The disabilities of the fare box system has regard to the fact that no receipt is issued to the passengers, therefore no ticket check can be made and the duties of supervisors is more related to observation than physical checking. There is no record of the fares of various denominations or the segregation of fares to individual routes. Sectional travel also does not blend satisfactorily with a fare box system and would require that either a flat rate of fare or a zone system be introduced to meet the requirements of fare box fare collection. It is obvious that in smaller communities such as the three provincial cities, the local passengers soon become familiar with the fare collection system. The fare box was used in both Ballarat and Bendigo from 1914 until the system was acquired by the Commission in 1931. It is very largely used in the United States of America where most public service

vehicles are one-man operated. The fare box system was used also by the Melbourne and Metropolitan Tramways Board on its Footscray system, prior to the late war and it may be that the fare boxes used may be on hand. The subject of fare boxes as a fare collection system could be thoroughly investigated, perhaps tried out in one of the branches if there is no vital question of policy to prohibit same.

(c) Reduction of service period

Suggestions have been put forward and consideration given to the possibilities of cessation of the tramway service at 8 p.m. on weekdays and withdrawal of service on Sundays. Substantial economies could without doubt be effected, especially on Sundays when the traffic is fair only and wage rates are doubled. It is suggested that the requirements to any proposition of this nature would be the existence of alternative public transport in the areas concerned. This condition exists only in a few isolated cases, for instance at Bendigo only two routes out of four, at Geelong one route out of seven and at Ballarat there are no bus services directly operating along tramway routes. With regard to Sunday services, the possibilities are perhaps more attractive at Geelong, having regard to beach traffic in the Summer and the possibility of bus services being organised to operate direct to the beach from all routes. Private buses in this city operate a token service on Sundays and it is possible that arrangements could be made for their substitution of trams on Sundays. At Ballarat and Bendigo however, private buses do not operate to any substantial extent on Sundays and as they are mostly owner-driver services, it is unlikely that they would be prepared to take over on Sundays. In general, therefore, it is doubtful if any purpose would be served at present in putting forward a proposition that would have strong political repercussion at the present stage.

(d) Abandonment of routes

A proposition to abandon a tram route at Bendigo to enable the expansion and economic operation along realistic lines of an existing bus service, has already been put forward and was politically shelved. Existing bus lines operate substantially along two routes in Bendigo and one route in Geelong, with another route in Geelong which is in effect a spur line of only a half mile in length, into an area already served by two private bus services. It is suggested, therefore, that if it is considered desirable to re-open the question of tram route abandonments, we could extend this to now include:-

- (i) The Golden Square route at Bendigo, now traversed by the Kangaroo Flat bus.
- (ii) The North route at Bendigo traversed by the White Hills bus.
- (iii) The North route at Geelong traversed by the Norlane bus.
- (iv) The Newtown route at Geelong as the area is also served by two bus lines.

Without doubt the Transport Regulation Board would be quite prepared to organise substitute services on these routes, if approval to abandon could be obtained.

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(e) Fares

Conjointly with consideration to means of reducing operation costs, is also the matter of fares and charges. By comparison with other larger systems our fares are very low, but routes are shorter and the ability to use private means of transport in the form of motor cars and cycles is very much more convenient.

For this reason it has been held that our fares in general are probably close to the economic limit that can be sustained. Opinions in the branches as to the desirability and practicability of increasing our fares vary considerably. Geelong Branch subscribes to another all-round increase of 1d. but on the other hand the Ballarat Branch does not subscribe to any increase from the feeling that the passenger loss would probably discount any overall increase in revenue. Bendigo suggest increasing the minimum fare to 4d. by eliminating 3d. fare sections and also some alteration to the fares on the Eaglehawk route, both as an increase and an absorption of the city special 2d. fare section, now substantially used. Following the passenger loss due to coincidental applications of fare increases and the reversion to unrestricted availability of private cars and petrol the passengers on the provincial tramways have become fairly stabilised over the last few years. From this we might conclude that losses to private car expansions, are being compensated by population increase, especially so at Geelong. It is not considered expedient at present to suggest all-round increases of fares but if various considerations regarding one-man operation and the segregation of routes at Bendigo are viewed with favour, some individual adjustments to the present fare schedule are very desirable. If the fare box system is considered to be practicable to the Commission, it would be desirable to adopt a zone system instead of section system to those routes upon which complete one-man operation is contemplated. It is explained that the section system divides routes into consecutive sections, the fare paid being relative to the number of sections used. Our short routes for example provide for two sections of 3d. each and a through fare of 4d. With a zone system, the inner section could be retained as the 3d. fare zone and the outer section would become the 4d. fare zone, so that the existing outer 3d. section would be discontinued. Incidentally, these sections are very little used on our systems. In general the work of a fare box collection car on such a line would be that passengers on entry on trips to the city pay according to the zone in which they board the tram, and on trips from the city they would pay as they leave, according to the zone in which they alight. This system corresponds with the traffic characteristic already pointed out with regard to traffic features in the provincial cities. With regard to the proposed change to the Eaglehawk service at Bendigo, it is suggested that this service overlap the centre of Bendigo to the end of the double track near the railway station which is now a separate 2d. section from the Fountain. It is notable that on "out" traffic to Eaglehawk (peak hours) considerable use is being made of this 2d. fare section to get seats on the trams before Charing Cross is reached. It can also be stated that the present fare from Charing Cross to Eaglehawk is the same as in 1931 when the Commission acquired the Bendigo Undertaking. The fare increase of 1949 and 1951 having only restored the fares reduced by the Commission in 1936. Having regard to the characteristics already mentioned, it is suggested that the fare from Eaglehawk to Bendigo could be increased to 8d. from the present fare of 6d., the increased fare giving entitlement to extension travel in which 8d. is now paid. This should enable the separate 2d. fare section to be discontinued. Corresponding increases in

(Cont'd.)

section fares from 5d. to 7d. and 4d. to 6d. would be necessary, with the existing 3d. section increased to 4d. on the city end, including the extension. A close analysis of fares and fare increases has not been made but when matters associated with operations are dealt with a review effecting the branch or routes concerned would be necessitated.

(f) Revision of service operation

A revision can with advantage be carried out on through services where there is an absence of traffic loading balance on the two routes concerned. This has been done in Geelong with the East and West routes with good results. The project now in mind concerns the Bendigo route combination of Eaglehawk and Quarry Hill. A considerable excess of service is run on the Quarry Hill route and the use of conductors is not justified by the traffic carried. It is suggested, therefore, that a substantial economic advantage would be gained by the segregation of these two services which have been linked probably for 50 years. In addition to the economy of one-man operation on the Quarry Hill route, the heavy interurban peak traffic on the Eaglehawk route could be better handled by the concentration of the maximum traction rolling stock to this service. It would also, by the use of such rolling stock exclusively to the Eaglehawk route, be possible to make a revision of the service in off-peak periods.

Analysis of Possible Savings.

(1) Revision of service and extension of one-man operation.

Geelong about £7,000 per annum = 5 men

Bendigo about £10,000 per annum = 10 men

Ballarat about £8,000 per annum = 8 men

Total about £25,000 per annum = about 23 men

(2) Revision of operation periods

Figures have only been taken out by Geelong where it is considered that a saving of £6,500 per annum and the release of 5 men could be effected by the withdrawal of the present Sunday tram service. This figure is reduced to £2,400 and the release of 3 men in consideration of the proposed Sunday service. With regard to cessation of the tram service at 8 p.m. on weekdays, Geelong estimate a saving of £2,500 and Bendigo a saving of £1,000. In the latter case, the consideration is only to the Golden Square-North Bendigo line where private buses already operate.

(3) Route abandonment

The abandonment of the Golden Square-North Bendigo service would release about 7 men and the Newtown service in Geelong would release 4 men.

Summary

A summary of alterations to each route service and fare collection system is set out in detail in Appendix "A". A brief summary on these revisions is as follows:-

Geelong release approximately 5 men.

Reduction of service through the day is only of a minor nature. Reduction of service at night is more substantial. The extension of one-man operation on weekdays is of a minor nature, but on Sundays is substantial.

Bendigo release approximately 10 men.

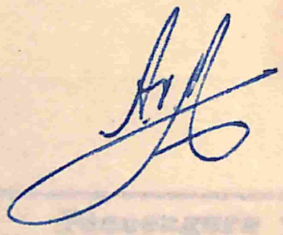
Reduction of the day service is quite substantial but at night is only of a minor character. Substantial reductions in the service proposed for Saturdays. The extension of one-man operation both on weekdays and Sundays quite substantial.

Ballarat release approximately 8 men.

The reduction of service during the day is of a minor nature - concerning one service only. There are substantial reductions of service at night and the extension of one-man operation on weekdays and on Sundays is quite substantial.

Other attachments comprise:-

- (a) Graphs showing average passenger traffic on each route.
- (b) Rolling stock details (seating capacity)
- (c) Tramways Award (conditions effecting roster compilation)
- (d) Maps showing through routing and service.
- (e) Comparison covering last 8 years (miles, passengers, traffic employees)
- (f) Comparison covering last 8 years (motorman/conductor labour costs)



Encls.

Miles (000)			Passengers (000)			Passengers per 4 1/2 hrs		
Mon.	Tues.	Wed.	Mon.	Tues.	Wed.	Mon.	Tues.	Wed.
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0
100	100	100	100	100	100	10.0	10.0	10.0

(40 hour week)
Longer Intervals
Reduced Service
Extension and one man operation
Roster and Service revisions

6th October, 1954.

PROVINCIAL TRAMWAYS
ROLLING STOCK DETAILS

BALLARAT BRANCH

Single Truck One man type	9 x 28 seats	
" " " " "	9 x 30 "	x
" " " " "	1 x 32 "	
Bogie Trucks Two " "	7 x 44 "	x

x One car each type out of service (damage)

BENDIGO BRANCH

Single Truck One man safety type	2 x 30 seats	
" " " " "	4 x 32 "	
" " " " ord.	2 x 30 "	
" " " " "	6 x 32 "	
" " Two " "	4 x 36 "	
Bogie Trucks " " "	6 x 48 "	

GEELONG BRANCH

Single Truck One man type	4 x 30 seats	
" " " " "	13 x 32 "	
" " Two " "	4 x 38 "	
Bogie Trucks " " "	10 x 44 "	

PROVINCIAL TRAMWAYS

	Miles (000)			Passengers (000)			Passengers per C/Mns		
	Bal.	Bend.	Geel.	Bal.	Bend.	Geel.	Bal.	Bend.	Geel.
1947	603	506	640	5.396	3.735	6.550	8.9	7.4	10.2
1948	623	521	656	5.473	3.769	6.609	8.8	7.2	10.1
1949	624	520	667	5.663	3.859	6.818	9.1	7.4	10.2
*1950	595	498	629	4.823	3.352	6.037	8.1	6.7	9.6
*1951	554	448	589	4.605	3.239	5.893	8.3	7.2	10.0
1952	526	399	571	4.221	2.845	5.315	8.0	7.1	9.3
1953	562	399	565	4.468	2.830	5.375	7.9	7.1	9.5
1954	575	393	548	4.480	2.780	5.454	7.8	7.1	10.0

* Electricity Restrictions

	Traffic Employees (Nominal)			
	Bal.	Bend.	Geel.	Total
1947	67	58	74	199
1948	77	68	94	239 (40 hour week)
1949	79	70	94	243 Leave Increases
1950	81	70	96	247 " "
1951	76	67	96	229 Reduced Service
1952	74	62	86	222 " "
1953	67	60	81	208 Extension one man operation
1954	67	55	79	201 Roster and Service revisions

APPENDIX "A"

Summary of possible changes (Headways and Operations system).

Geelong - Headways - Weekdays.

To 9.00 a.m. - No reduction of present services.
 9.00 a.m. to noon - East - West service reduced to 20 mins.
 (15 min.) (M.T.)
 12.00 to 3.30 p.m. - No reduction.
 3.30 to 6.00 p.m. - East - West service reduced to 15 mins.
 (12 min.) (M.T.)
 Chilwell " " " 20 "
 (15/10 min.)
 6.00 to 8.00 p.m. - East - West " " " 20 "
 (15 min.) (M.T.)
 8.00 to 11.00 p.m. - " " " " 30 "
 (20 min.)

Saturdays

To 9.00 a.m. - East - West service reduced to 20 mins.
 (15 min.) (M.T.)
 North - Belmont " " " 20 "
 (16/18 min.)
 9.00 a.m. to 2.00 p.m. - No reduction.
 2.00 p.m. to 5.00 p.m. - " "
 5.00 p.m. to 8.00 p.m. - East - West service reduced to 15 mins.
 (12 min.) (M.T.)
 North - Belmont " " " 20 "
 (12 min.)
 Chilwell " " " 20 "
 (15 min.)
 8.00 p.m. to 11.00 p.m. East - West " " " 30 "
 (20 min.)
 North - Belmont " improved " 20 "
 (25 min.)

Sundays

2.00 p.m. to 6.00 p.m. East - West service reduced to 20 mins.
 (15 min.)
 North - Belmont " " " 20 "
 (16/18 min.)
 6.00 p.m. to 10.00 p.m. East - West " " " 30 "
 (20 min.)
 North - Belmont " " " 30 "
 (16/18 min.)

M.T. = Max. Traction Bogie Trams.

Operation System.

(To enable extension of one man operation to the North - Belmont service and revision of the East - West service headways - Basic service of bogie type trams to be diverted to the East - West routes to 8.00 p.m.)
 East/West Service - Weekdays no changes - Sundays one man 2.00 to 6.00 p.m.
 North/Belmont " - Weekdays one man 9.00 a.m. to noon and from 8.00 p.m.
 Sundays - North route one man from 2.00 p.m. to 6.00 p.m.
 Chilwell " - Weekdays - one man 10.00 a.m. to 8.00 p.m.
 Sundays - " " 2.00 p.m. to 6.00 p.m.

(Cont'd.)

Newtown/East Park - Weekdays one man 9.00 a.m. to 3.30 p.m.
 Saturdays " " 9.00 a.m. to 8.00 p.m.

Bendigo. The principle feature involves the segregation of the Eaglehawk and Quarry Hill services.

Headways - Weekdays.

To 9.00 a.m. - Quarry Hill increased to 12 mins.	(15 min.)
9.00 to 12.00 noon - Eaglehawk reduced to 20 mins.	(15 min.)
Quarry Hill " "20/24 "	(15 min.)
Golden Square " " 24 "	(15 min.)
North Bendigo " " 24 "	(15 min.)
12.00 noon to 3.30 p.m. Eaglehawk " " 20 "	(15 min.)
Quarry Hill increased "12 "	(15 min.)
3.30 p.m. to 6.00 p.m. " " reduced "12 "	(10 min.)
6.00 p.m. to 8.00 p.m. Eaglehawk " " 20 "	(15 min.)
Quarry Hill " "20/24 "	(15 min.)
8.00 p.m. to 11.00 p.m. Eaglehawk " " 30 "	(24 min.)
Quarry Hill " " 30 "	(24 min.)

Saturdays

To 9.00 a.m. - Eaglehawk reduced to 20 mins.	(15 min.)
Quarry Hill " "20/24 "	(15 min.)
Golden Square " " 24 "	(15 min.)
North Bendigo " " 24 "	(15 min.)
9.00 a.m. to 2.00 p.m. Quarry Hill increased to 12 mins.	(15 min.)
2.00 p.m. to 5.00 p.m. Eaglehawk reduced to 20 mins.	(15 min.)
Quarry Hill " " 20/24 "	(15 min.)
Golden Square " " 24 "	(15 min.)
North Bendigo " " 24 "	(15 min.)
5.00 p.m. to 8.00 p.m. Quarry Hill increased to 12 mins.	(15 min.)
8.00 p.m. to 11.00 p.m. Eaglehawk reduced to 20 mins.	(15 min.)
Quarry Hill " " 20/24 "	(15 min.)
Golden Square " " 24 "	(15 min.)
North Bendigo " " 24 "	(15 min.)

Sundays

2.00 p.m. to 6.00 p.m. - Golden Square reduced to 24 mins.	(15 min.)
North Bendigo " " 24 "	(15 min.)
6.00 p.m. to 10.00 p.m. Eaglehawk reduced to 30 mins.	(20 mins.)
Quarry Hill " " 30 "	(20 min.)
Golden Square " " 24 "	(15 min.)
North Bendigo " " 24 "	(15 min.)

The 24 minute service on Golden Square/North Bendigo routes could be increased to 20 min. frequency by turning trams at Calidonia Street instead of Thunder Street (Ordnance factory) terminus. A 20 min. service by one tram between the Fountain and Quarry Hill appears practicable only be fare box system.

Operation System.

Eaglehawk Route - Max. Traction Cars. No change except Sundays.

Sundays only - one man service with through operation to the Cemetery (Quarry Hill)

Quarry Hill Route - From 100% 2 man operation to 100% one man.

Shuttle service to city except Sundays.

Golden Square)	Weekdays - One man	11.20 a.m. to 8.00p.m.)	100
North Bendigo)	Saturdays - " "	9.30 a.m. to 11.00p.m.)	%
	Sundays - " "	1.45 p.m. to 6.15p.m)	

Ballarat. Headways. Weekdays.

To 9.00 a.m. - No reduction.

9.00 a.m. to 12.00 noon - No reduction.

12.00 noon to 2.00 p.m. Grey St. - Lydiard St. reduced to 20 mins. with Supps. (10 min.) M.T.

2.00 p.m. to 3.00 p.m. Grey St. - Lydiard St. reduced to 20 mins. (10 min.) M.T.

3.00 p.m. to 6.00 p.m. Lydiard St. reduced to 20 mins. (10 min.) M.T.

6.00 p.m. to 8.00 p.m. No reduction.

8.00 p.m. to 11.00 p.m. All routes " " 30 " (20 min.)

Saturdays

To 9.30 a.m. - No reduction.

9.30 a.m. to 2.00 p.m. Grey St. - Lydiard St. reduced to 20 mins. (10 min.) M.T.

2.00 p.m. to 5.00 p.m. No change 20 mins. services.

5.00 p.m. to 8.00 p.m. " " " " "

8.00 p.m. to 11.00 p.m. All routes reduced to 30 mins. (20 min.)

Sundays

2.00 p.m. to 6.00 p.m. - No reduction - 20 min. services.

6.00 p.m. to 10.00 p.m. - All routes reduced to 30 mins. (20 min.)

Operation System.

Use small trams on Gardens - East services to facilitate one man operation on the outer Gardens section (Car sheds to Carlton Street). Use large bogey trams on Sebastopol - Lydiard St. service between 6.00 a.m. and 8.00 p.m. to enable service revision, reduction of supplementary duplicates and improved running on light open ballast track.

Gardens via Sturt St. or)	Weekdays: One man operation 9.30 to
" " Drummond St. N)	11.30 a.m.
Victoria St.)	Two man to 8.00 p.m. in-
Mt. Pleasant)	stead of 6.00 p.m. and
	section conductors to
	8.00 p.m.
	One man operation on outer
	Gardens section through-
	out.
	Saturdays: One man operation 2.00 to
	5.00 p.m. and conductors
	5.00 p.m. to 8.00 p.m.
	instead of irregular con-
	ductors 2.00 to 8.00 p.m.
	Sundays: One man operation all
	routes 2.00 p.m. to
	7.00 p.m. except in
	summer as required.

Sebastopol
Lydiard St.
North

Weekdays: Through conductors on large cars
to 8.00 p.m.

Saturdays: Through conductors on large cars
with service reduction.

Sundays: One man operation between 2.00 p.m.
and 7.00 p.m.