

AN INVESTIGATION INTO THE ADOPTION OF  
AUTOMATED PROCEDURES FOR THE PREPARATION  
OF CREW DUTY ROSTERS AND TIMETABLES.

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## 1. INTRODUCTION.

### BACKGROUND

This report covers the investigation into the automation of procedures used in the Traffic Department of the Board for the preparation of crew duty rosters and timetables.

Essentially, there are two parts of the report the first dealing with the present methods of rostering by the Board, the automated procedures adopted in Adelaide by the Municipal Tramways Trust and the procedure adopted for automation in Melbourne.

The second part deals with the preparation of various timetables. These programs are still being developed. The automation of the timetable procedures are a pre-requisite for crew duty rostering.

2.

THE PREPARATION OF ROSTERS.

2.0. The Aims of Rostering.

The aim of any form of rostering is

- (i) to employ the least number of vehicles.
- (ii) to employ the least number of operators to man the vehicles, both consistent with the type of service that is to be operated.

2.1. Existing Procedures.

The procedures presently used by the Traffic Department are now described.

2.2. Timetable or Headway Requirements.

The timetable or headway sheet is made up from a "specification". Such a specification aims at providing a sufficient number of vehicles at a frequency considered desirable to cater for the patronage offering.

e.g. East Brunswick-Blyth Street to City-Spencer Street route, weekday (Monday to Thursday) specification -

Trips at 5.20 a.m. from East Brunswick and 5.43 a.m. from City, thence

10 min. service	5.36 a.m. to	6.46 a.m. from	East Brunswick
6 " "	7.04 a.m. to	7.28 a.m. " "	" "
4 " "	7.28 a.m. to	8.00 a.m. " "	" "
3 " "	8.00 a.m. to	8.12 a.m. " "	" "
4 " "	8.12 a.m. to	8.48 a.m. " "	" "
6 " "	8.53 a.m. to	9.17 a.m. " "	" "
12 " "	9.23 a.m. to	2.38 p.m.	City
6 " "	2.38 p.m. to	4.20 p.m. " "	" "
4 " "	4.20 p.m. to	5.36 p.m. " "	" "
6 " "	5.36 p.m. to	6.00 p.m. " "	" "

thence trips at 6.07 and 6.14 p.m.

10 min. service 6.14 p.m. to 7.44 p.m.

12 " " 7.55 p.m. to 11.07 p.m.

thence trips at 11.07 p.m., 11.20 p.m., 11.40 p.m. and 12 midnight.

An additional 12 minute service will operate between North Fitzroy-Park Street and the City from 9.34 a.m. to 2.32 p.m. from the City.

Before the headway sheet has been prepared the number of vehicles needed to fulfil the specification requirements for service are obtained. If, for example, the service to be provided is of a 6 minute frequency, and the journey running time between termini is 23 minutes with a 3 minute stop-over at the City terminus, the total round trip time is  $23 + 23 + 3 = 49$  minutes. Since the service to be provided is at 6 minute frequencies we divide 6 into 49, and if this will not divide evenly we go to the next highest integer, as we require some lay-up time at the outer terminus. In this case we would go to 54 minutes and this 9 trams would be required whilst the difference between 54 and 49 minutes is