30

INTERSTATE RAIL PASSENGER SERVICES: ANALYSIS AND RESOLUTION OF PROBLEMS

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ABSTRACT:

The ability to maintain financially viable intersystem rail passenger services has for some time been a problem to the railway systems jointly operating those services. This paper deals with the analysis of the problem and the identification and implementation of actions to resolve it.

Topics discussed include the interactions necessary between railway systems and other government agencies, the assessment of the relevant costs for evaluation and planning purposes and quantification of public service obligations involved.

INTERSTATE RAIL PASSENGER SERVICES

SUMMARY

The problems of the East-West rail passenger services (EWRPS) have been analysed with particular emphasis on the financial effects on Westrail. (1)

A comparison is made of the results for the present level of operation (seven services per week) with those for an expanded service during peak periods (11 services per week). The analysis of the service (at 7 per week), based on current cost structures and operating methods, indicates that the present operation is losing approximately half a million dollars per annum; an increase to eleven services per week during peak demand periods could be made without increasing this loss.

However, a package of cost saving and revenue increasing measures is also outlined. These have the potential to convert the loss into an attractive profit for the seven services operation, with this profit increasing by a further $300,000 pa for the 11 services.

Since the achievement of these improved results depends on the success of a variety of implementation interactions and actions, a strategy is developed for pursuing the improvements which gives special attention to close monitoring of performance.

Finally, suggestions are also included to further improve the railway financial results in the long term, as well as contributing to a more efficient use of fuel in interstate passenger transport.

INTRODUCTION

Many of those associated with the management and operation of the EWRPS were surprised at the results of a recent study of these services by the Bureau of Transport Economics (BTE) which indicated that the services were covering their incremental operating costs (BTE, 1978).

Within Westrail the surprise was largely due to past internal cost assessments indicating that the services were having an adverse effect on Westrail finances. The BTE study had however looked only at the overall national position and had not specifically assessed the effects on the individual railway systems which jointly operate the services. To add to the uncertainty the BTE results were based on out-of-date costs, fares and service levels.

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1 Trading name for the Western Australian Government Railways

In an endeavour to clarify the situation Westrail undertook a follow-up study and suggested that the other railway systems concerned do likewise.

This paper focusses on the Westrail follow-up study. It outlines the analyses and financial assessments made, the very real problems to be overcome to improve the financial viability of the services, and the action strategy developed in the study.

The paper is structured to give initially an appreciation of the nature of the service and its problems. This is followed in turn by an outline of the financial assessments made in the Westrail study, an examination of actions and interactions identified as necessary to resolve the present problems of these services, and finally a summary of conclusions drawn from the study.

CHARACTERISTICS OF THE SERVICE

Some background information on the operating characteristics of the EWRPS is essential to an understanding of the analyses presented in this paper and will also give a better insight to the problems facing these services.

Nature of the Service

The EWRPS are provided by two trains. One is the Indian Pacific (IP) running between Sydney and Perth and jointly operated by the Public Transport Commission of New South Wales (PTC NSW), the Australian National Railways Commission (ANRC)[1] and Westrail. The other is the Trans-Australian (TA) running between Pt. Pirie and Perth and jointly operated by ANRC and Westrail. Between them these trains provide a daily service (of 40 hours duration) between Perth and Pt. Pirie. The IP operates four days per week, and continues through to Sydney, while the TA operates on the other three days of the week terminating at Pt. Pirie. Daily connections are available from Pt. Pirie to Adelaide, Melbourne and on to Sydney.

For each train the normal consist is similar, being comprised of a locomotive, power van, combined mail and brakevan, dining car, staff dormitory car, two club or lounge cars (1 economy class, 1 first class) and six or seven coaches with passenger sleeping accommodation. The IP has five first class and two economy class coaches with capacity for 152 passengers while the TA has three first class and three economy class coaches with capacity for 150 passengers.

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1 The former South Australian Railways were a joint partner in this operation up to the time of their recent transfer to the ANRC.

It is also of note that both trains transport the equivalent of one to two 10 tonne truck loads of mails and parcels, as well as up to 10 passenger motor vehicles on flat-top wagons.

Patronage and Competition

In 1976-77 the passenger journeys eastbound and westbound at Kalgoorlie were approximately 116,000 representing gross earnings approaching $20 million at current fare levels.

For some periods of the year (eg. the January holiday period) it is usually necessary to book well in advance to secure travel accommodation but there are also "off-peak" periods when accommodation is readily available. An illustration of the patronage levels and trends over recent years is illustrated in Figure 1.

One other feature of the patronage demand situation is that approximately 40% of the passengers travel at concession rates, most of these being for half fare government granted pensioner concessions. Many of the passengers (pensioner and other) are holidaymakers and the WA Department of Tourism has estimated (Semmens 1977) that service level reductions in January 1977 in the EWRPS would cost WA about 7,000 tourists per annum with a corresponding loss of $2.1 million in tourist spending within the State.

Competition for the government railway systems EWRPS comes from government and private air services, private bus services and of course the private motorist. Rail fares have generally been set below air fares and above road bus fares but different conditions regarding meals and sleeping accommodation complicate the comparison. The rail journey time from Perth to Adelaide is 41 hours compared with 36 hours by road bus and less than 3 hours by air.

Financial Arrangements and Performance

Sharing Arrangements - Because the services are operated jointly arrangements are necessary for the sharing of costs and earnings. Current agreements provide for earnings from all intersystem passenger fares to be shared proportionally to the "stage" fare (i.e. virtually proportionally to the distance on each system) while some costs are shared in proportion to system distance and others are required to be borne fully by the system incurring the cost in the first instance. The costs for dining car provisioning and conductors are examples of the costs to be pooled and shared proportionally to distance while locomotive operating costs and track costs are examples of those which remain the full responsibility of the system incurring them initially.

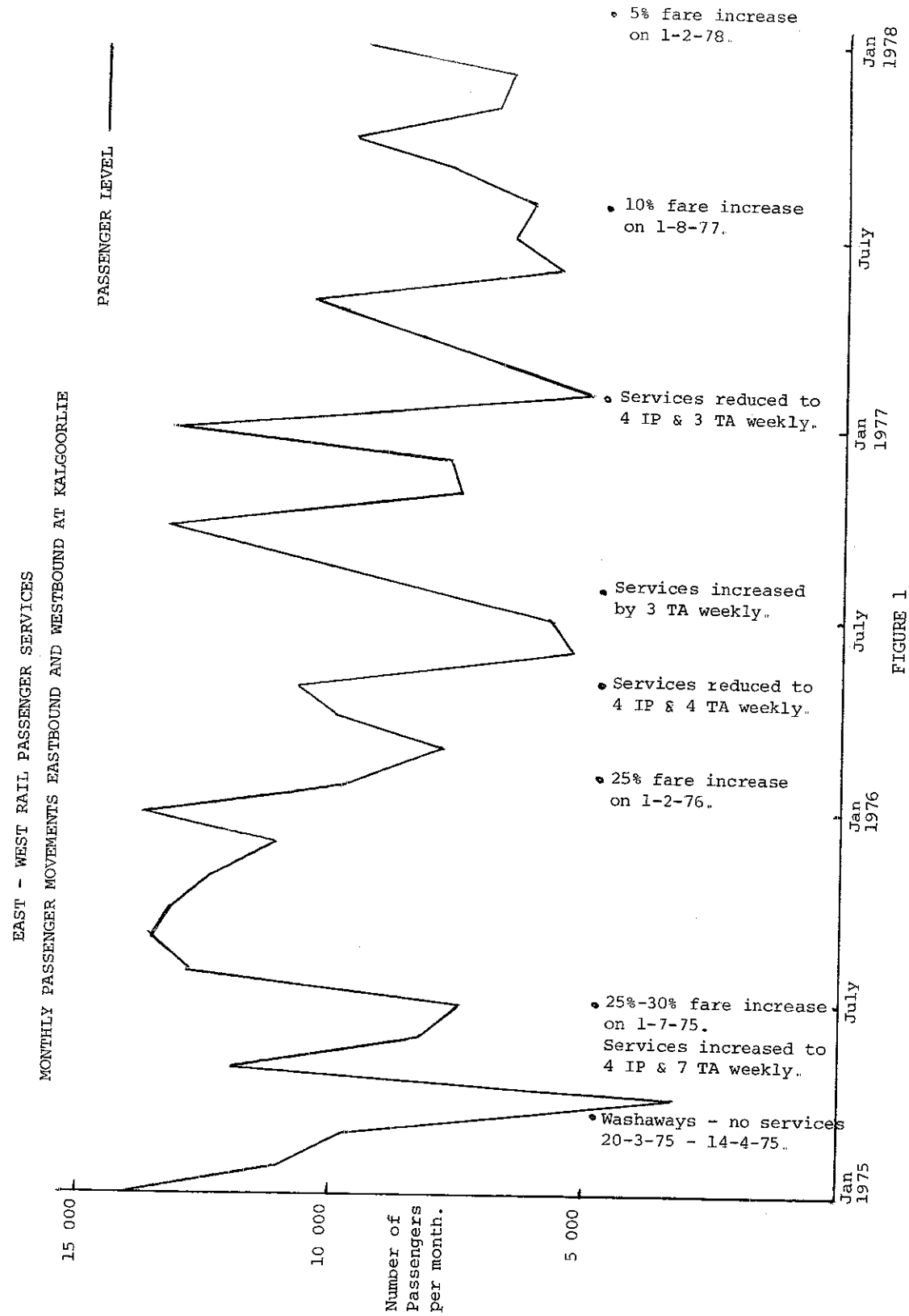

EAST - WEST RAIL PASSENGER SERVICES
MONTHLY PASSENGER MOVEMENTS EASTBOUND AND WESTBOUND AT KALGOORLIE
PASSENGER LEVEL
Number of Passengers per month.
15 000
10 000
5 000
Jan 1975
July
Jan 1976
July
Jan 1977
July
Jan 1978
Washaways - no services 20-3-75 - 14-4-75.
25%-30% fare increase on 1-7-75. Services increased to 4 IP & 7 TA weekly.
25% fare increase on 1-2-76.
Services reduced to 4 IP & 4 TA weekly.
Services increased by 3 TA weekly.
Services reduced to 4 IP & 3 TA weekly.
10% fare increase on 1-8-77.
5% fare increase on 1-2-78.

FIGURE 1

The assessment of these costs is a difficult task from a technical viewpoint because many of the functions and facilities provided by each system (eg. track maintenance, rollingstock maintenance supervision, general administration) are not readily separable from those provided for freight operations (interstate and intrastate) and from intrastate passenger service operations. Added to this difficulty are variances in the costing methods of the different systems. Current agreements provide only that costs be calculated by each system by the method adopted for internal costing purposes.

Financial Performance Indications - As indicated previously the EWRPS' management have suspected that they were incurring high costs in "subsidising" these services. Some of the reasons for such views can be gleaned from a report by the then Executive Director of the Railways of Australia Committee (Swan 1976) which summarises results from a number of past cost studies. Among these results is one covering the whole service (costs and earnings of all systems) showing that in 1973 earnings were less than 60% of "full" costs. Other assessments by PTC NSW and ANRC indicate losses of the same magnitude, as far as these systems are concerned, in 1975 and 1976.

However in the past there have been no agreed and regularly produced financial results for measuring and monitoring the overall financial performance of these services.

Management Structure

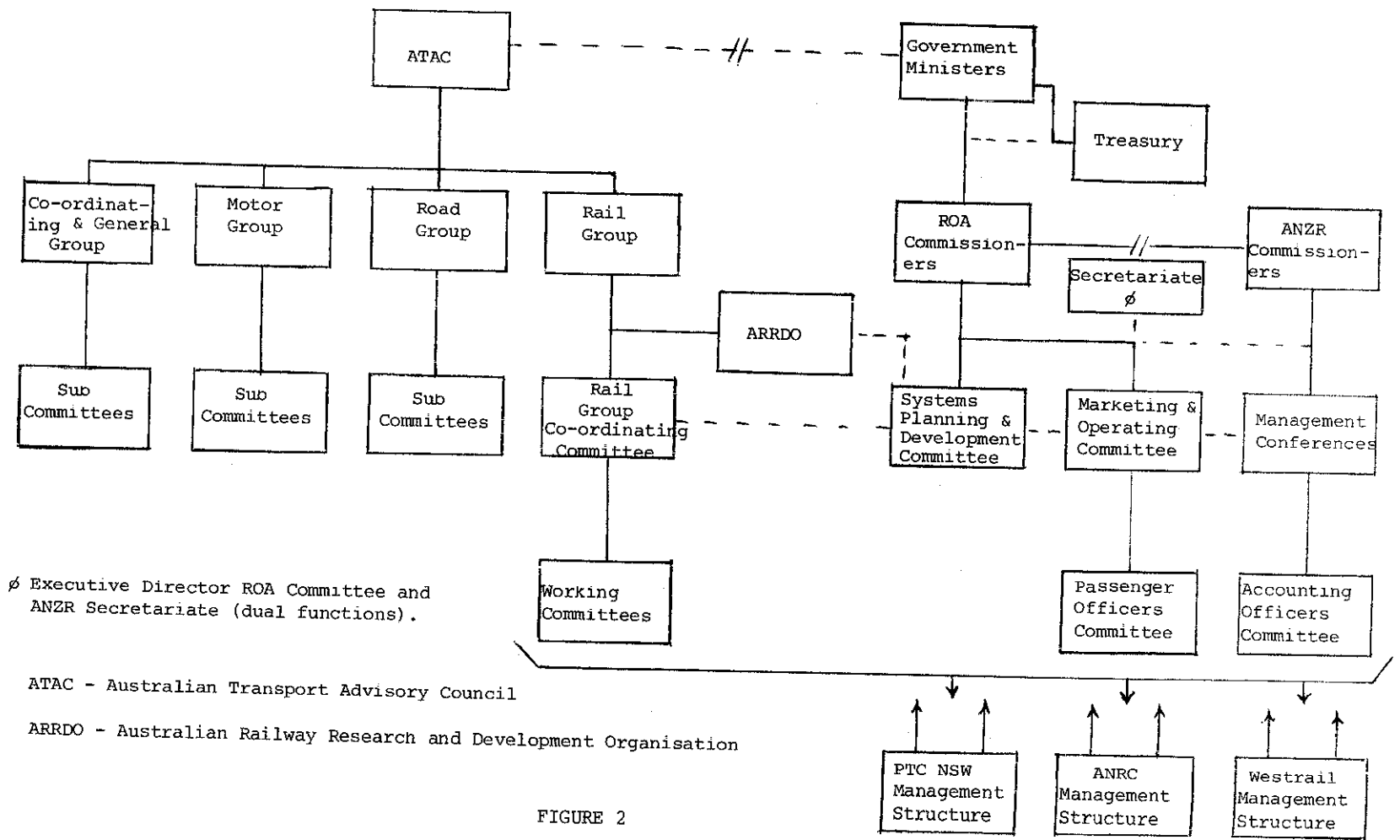
The complex management organisation structure of the EWRPS presents another challenge to achieving effective management and efficient operation of these services. As well as the line management structures within each railway system, which have interactions with intrastate passenger and freight service operation and management, there is also a complex intersystem structure involving interactions between Railway Commissioners and Government Cabinet Ministers, involved in management decisions directly pertinent to these services.

An illustration of this structure and the numerous interactions involved is shown in Figure 2.

WESTRAIL STUDY ASSESSMENTS

Scope of the Study

The Westrail assessments made in a follow-up to the



ø Executive Director ROA Committee and ANZR Secretariate (dual functions).

ATAC - Australian Transport Advisory Council

ARRDO - Australian Railway Research and Development Organisation

FIGURE 2

MANAGEMENT STRUCTURES COVERING EAST - WEST RAIL PASSENGER SERVICES.

BTE study, covered the following ground:-

- A reconciliation of previous internal Westrail financial assessments to the BTE results.

- A forward looking assessment of the financial effects on Westrail for a seven services per week operation compared with an operation augmented to eleven services per week during peak demand periods of the year.

- A quantification of potential short-term financial improvements.

- An evaluation of further potential long term benefits from these services.

In each of these assessments the primary aim was to indicate the likely financial implications for Westrail. It was realised that integration of the results with similar assessments from other systems was desirable to complete and confirm the position, but nonetheless the work done was sufficient for Westrail to develop its own strategy of action while waiting for results from other systems.

Reconciliation with BTE Results

As mentioned before there seemed to be conflict between the BTE results for the service as a whole, and the latest available Westrail assessments of the financial effects of operation on Westrail.

To determine the reason for the difference in these results Westrail made a further analysis. This analysis showed that after adjustment to the totals for differences in the levels of overhead costs and wages rates treated in the BTE study and Westrail assessments, the results were generally reconcilable.

The analysis also showed that when BTE cost and earnings figures were allocated to railway systems in accord with agreed sharing arrangements, a loss, in fact, results for Westrail. It was evident that this situation was largely due to the relatively higher terminal costs that Westrail is required to bear. As a result of this finding an investigation is being made into the operations and sharing arrangements.

Service Level Comparison Assessment

The next step in the Westrail follow-up analysis was a new assessment based on the latest cost and fare levels. On this occasion the approach taken was to compare the likely financial implications to Westrail over the next five years at two levels of service, the first of these being the

current level (7 single consists per week, 4 IP and 3 TA) and the second being for a service augmented at peak periods (11 services per week, 4 IP and 7 TA consists). The assessment included:-

- The calculation of labour costs taking into account estimated staffing requirements for both levels of service, as well as the existing total Westrail staff position for the various classes of labour involved.
- The cross-checking of costs based on estimated staffing requirements against historical cost accounting records where the latter were available. (Some omissions in the staff estimates were revealed and also the inclusion in the cost accounting records of some administrative overheads that would not be avoidable in the short-term).
- Estimates of the incremental content, dependent on the EWRPS, of the costs and earnings of catering services at Westrail Centre. (These had not been considered in previous evaluations).
- A careful re-examination of track maintenance and overhead costs to ensure that only incremental (or avoidable) costs were included.
- Estimates of charges that the other systems would raise against Westrail for recoup of a share of their costs, again, for both levels of service.
- Likely patronage levels and resultant passenger fare earnings for both levels of service, as well as earnings from mails and parcels and motorail services provided by the passenger trains.
- Consideration of tolerance limits for the various assessments.

The principal result of this evaluation work was the indication that Westrail would be out-of-pocket by close to half a million dollars per annum if it continued to operate at the current service levels and under current operating methods and conditions. The position was likely to be no better, though no worse either, for the augmented service level.

Potential Short-Term Improvements

However, another important consequence of the assessment work just outlined was that the analysis of costs and earnings necessary had pointed to areas where financial improvements might well be achieved. The next phase of the Westrail study was therefore a closer examination of these areas and a quantification of the potential benefits.

As a result improvements with the potential to convert the half million dollar loss to a gain of similar magnitude were identified and quantified. Further the potential reductions in on-train staff (conductors and dining car service staff) improve the 'economies of scale' of the operation. Also one of the other potential improvements, the opportunity to improve the utilisation of staff on rollingstock maintenance, applies only for the higher level of service.

It follows that the augmented service is the preferred level of operation because there is greater potential for improvement at the higher service level, while the loss is no greater even if the suggested improvements are not realised.

The potential improvement areas identified were as under:-

- Reductions in on-train staff, coach cleaning costs and rollingstock maintenance costs.
- Increased recoups for government imposed concessions.
- Revised cost sharing arrangements.
- Increases in occupancy levels.

The improvement areas will be discussed later in this paper together with the all important actions necessary for their implementation.

Assessment of Long Term Prospects

Consideration was also given to the long term prospects for these services, i.e. over the time period when replacement rollingstock would be required.

Looking to a like-for-like replacement of rollingstock it was estimated that most of the existing rollingstock had close to a further twenty years of physically serviceable life and even the earliest replacements were not likely to be necessary for about ten years. This situation allows ample time to find out whether, and to what extent, the potential short-term improvements can be realised. With the improvements implemented a reasonably attractive return on the capital required for replacements would be available.

Another option identified as worthy of attention in the long term planning of these services was that of introducing sit-up services coupled with buffet meals paid for separately from the rail fare. An order of magnitude assessment for this type of operation indicated that, given sufficient

patronage[1] for reasonable utilisation of rollingstock, rail could provide such a service profitably, at fares competitive with present road bus fares. These sit-up rail services would also provide more floor space per passenger with access in transit to facilities such as meals and light refreshment services.

In addition, this latter type of operation offers potential for an overall reduction in the total fuel consumption for interstate passenger transport. That is, based on an examination within Westrail of the relative efficiency of fuel consumption for road and rail transport the comparison shown in Table 1 was derived.

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1 In his address on "The Role of the Transport Industry in the Australian Economy" Taplin (1973) indicated that the most significant change in the future Australian Transport System would be the growth in travelling for recreation. Couple this trend with the developing fuel situation and there are good prospects for such patronage being available.

INTERSTATE RAIL PASSENGER SERVICES

TABLE 1

Comparison of Fuel Consumption Efficiency

in Long Distance Passenger Transport

Litres per Passenger KM

Private Motor Vehicle	.0275(1)
Locomotive Hauled Coaches - present service	.0154(2)
Road Bus	.0085(2)
Railcar	.0075(2)
Proposed Locomotive Hauled Coaches - sit-up service	.0041(3)

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1 This is only a broad indicator given for comparative purposes. It is based on the assumption of four passengers per motor vehicle and fuel consumption rate of 9km/litre (approx 25mpg).

2 These figures are based on internal Westrail assessments. However the figures assessed for locomotive hauled coaches have been adjusted to allow a credit for the fuel saved in the haulage of mails and parcels and passengers' motor vehicles, which are an integral part of the locomotive hauled coach operation. Even with this credit the rail services are still at a disadvantage in the comparison because rail services are self supporting whereas the road bus and private motor vehicle options require ancillary service support en route for meals and sleeping facilities.

3 The assessment for the proposed new rail sit-up services is based on the consumption for the present locomotive hauled coach operation, with passenger capacity per consist increased from 144 to 540.

IMPLEMENTATION ACTIONS

Following the quantification of potential benefits attempts were made to identify the all important implementation actions and interactions necessary to realise these benefits. When consideration is given to the management structure for the EWRPS outlined earlier it is not surprising that these interactions involve not only internal Westrail operators and administrators, but also those of other government railway systems and other State and Commonwealth government departments.

Reducing Costs

Attention was first directed to the area which Scrafton (1973) indicated as one of his two key requirements for improving future rail passenger transport, i.e. "to make better use of manpower".

The potential cost savings quantified in this area were based on reducing the number of on-train conductors and dining car attendants, and on a more efficient utilisation of labour for coach cleaning and rollingstock maintenance work. The on-train staff reductions had previously been put forward by the ROA Marketing and Operating Committee as practicable from an operating viewpoint, large differences between systems (for similar results) pointed to a potential for coach cleaning economies, and the rollingstock maintenance economies identified were based on better use of staff for the higher service level.

In view of the prior work by the ROA Marketing and Operating Committee, and its sub-group the Passenger Officers Committee, it was recommended that these groups be responsible for developing and negotiating a package deal with all of the Railway Unions involved. A key requirement of this interaction with Unions was to be the stressing of the likely long term adverse effect on all Railway Unions if economies were not made and conversely the promising long term future if a viable operation could now be achieved.

Recognition of Public Service Obligations

The effort to quantify the deficiency arising from executing public service obligations focussed on one area - concession fares. What was sought was the deficiency (one exists) between the subsidy Westrail receives from the WA State Treasury for pensioner and some other government granted concession fares, and the amount required to make up full fares on these concessions. 'First approximation' estimates derived were almost sufficient in themselves to give Westrail a break-even result on the EWRPS but it became evident in the course of this work that a satisfactorily reliable assessment for a claim to be lodged with the Treasury

could only be obtained by a comprehensive approach covering all State rail passenger fare concessions.

Accordingly it was recommended that appropriate officers within Westrail prepare such a claim and a case for negotiation with the Treasury.

Because of the indication from the BTE study that the services, overall, were covering operating costs, effort was not spent to pursue the broader general question of subsidies. Should sufficient of the potential improvements discussed in this paper prove not to be realisable, and government still require the services to operate, there might then be value in pursuing the topic of subsidies further. If experience in the USA and Canada, for example, is any criterion a case for large subsidies for long distance rail passenger transport may well be sustainable. (See Reistrup (1976) and Johnston, Ray, Bunting and Mozersky (1976)).

Cost Sharing Arrangements

Two aspects of the cost sharing arrangements stood out as requiring attention. The first of these was the need for uniformity by all systems in adopting incremental costs as the basis for assessing the costs to be shared. If this method of costing was adopted the relevant data for management planning and control purposes would then be readily available when required.

The other problem seen in the sharing arrangements was the exclusion of terminal booking office and marshalling costs from the costs to be shared. When this terminal work is not evenly distributed over systems, and yet earnings are shared proportionally to distance, it is evident that an inequitable situation exists.

After consideration of these problems it seemed that they might best be handled initially through the ROA Accounting Officers Conference and recommendations were made accordingly. However progress and further development on this topic clearly interact with decisions and actions of other ROA groups.

Improved Occupancy Levels

Assessments of the marginal costs and earnings associated with changes in the occupancy level of the trains had shown that a large proportion (about 70%) of the costs were "fixed" with the commitment to operate a consist and therefore served to show the potential value of efforts to improve occupancy levels. Although past levels averaged about 90% there had been times of the year (see Figure 1) when there was ample capacity available for more passengers.

Further, a healthy result from a marginal analysis of the costs and earnings of the motorail service (haulage of passenger motor vehicles in conjunction with the EWRPS) offered one means of encouraging patronage and lifting the occupancy levels.

To initiate action in this area the Westrail Commercial and Publicity Sections were nominated. Interaction with other systems through the ROA Marketing and Operating Committee was again indicated so that co-ordinated action could be taken.

Strategy Development and Implementation

In view of the extent of the actions and interactions proposed and the uncertainties regarding the realisability of the potential improvements a strategy was developed for Westrail to follow over the next few years.

Factors considered in the development of this strategy were the alternative possible courses of action (i.e. implement potential improvements, do nothing, discontinue the services, further reduce services); the practicability, the timing and the level of gains achievable; and implementation costs associated with these alternatives. However as only very broad indications were obtained here, the strategy developed was a cautious one depending heavily on close monitoring of future performance.

Not surprisingly therefore the strategy comprised several lines of action requiring co-operation between Westrail operators, financial analysts and management for effective implementation, viz;

- Establish the realisable level of benefits from implementation of the potential improvements identified, through careful monitoring of performance over the implementation period.

- Depending on the level of improvement achieved (or achievable) follow one of the two lines of action below:-

  - if the improvements are such that the services become contributors to Westrail profitability, continue with the services, increased to 11 services per week during peak periods, while planning and developing longer term improvements.

  - if it becomes evident that the improvements realisable are not sufficient to enable the services to contribute to Westrail profitability, retain the improvements but develop plans to implement discontinuance of the services or to obtain appropriate 'public service' subsidies.

Monitoring of Performance

From the foregoing it is clear that monitoring of performance will be required to play a major role in the strategy. Fortunately steps were taken some two years ago within Westrail in this direction and most of the basic requirements are already available.

That is, procedures have been introduced to provide management with quarterly financial results of the operation of the EWRPS, but only from a Westrail viewpoint. With some relatively minor changes and extensions these quarterly results are capable of providing a ready measure for the monitoring of performance.

The other important ingredient in this area is a financial analysis of the results achieved. To obtain full value from the reporting and monitoring processes there is a need for careful analysis of the results each quarter in conjunction with previous results and consideration of known and expected changes in the operating and financial conditions.

Results of this analytical (post audit) review will be required for presentation to top management.

CONCLUSIONS

Principal Results

In summary the principal results from the Westrail assessments were:-

- Under the current operating conditions Westrail would be out-of-pocket by approximately half a million dollars per annum with continued operation of the EWRPS. This result can be reconciled to an earlier BTE result that the service as a whole was covering operating costs at mid 1976 cost, fare and service levels.

- With the only change being an increase in service levels to eleven per week during peak demand periods the Westrail result would not be appreciably worse (or better).

- There are a number of potential improvements which, if fully realised, would convert the loss to a gain of $550,000 pa.

- If the improvements were successfully implemented there would be an increase from $550,000 to $850,000 pa for a service augmented to eleven consists per week during peak periods.

- If the improvements could be fully realised, like-for-like capital replacement of rollingstock would represent a reasonably attractive investment.

- A new or additional form of service involving sit-up passenger accommodation and buffet meal services could be an even more economically attractive proposition for the long term.

Short-Term Implications

Short-term implications that can be drawn from these results are that without the realisation of some improvement it would be better for Westrail to cease to operate these services if this was a practicable option. But there is no doubt they should be retained if the potential improvements can be fully realised and even with partial realisation a commercial case for retention might still exist.

Given the likely short-term practical constraints (political and economic) to cessation of the services there is benefit to Westrail in pursuing the improvements, provided only that the costs of implementation are kept within the benefit from the improvement.

Therefore a cautious strategy is appropriate at this stage, with careful, regular monitoring of performance necessary to determine the course of action during the period when the implementation of the short-term improvements is pursued.

Long Term Implications

Looking now to the longer term planning horizon when capital replacement would be needed, the analyses indicate that there is good reason for optimism. That is, providing that the short-term problems can be overcome, and this will require effective interaction within railway systems, between railway systems and between government departments, the EWRPS should be well able to fund its own future capital needs. As well as this potential to be commercially viable for the railways, there is promise that EWRPS could make a worthwhile contribution to reducing the overall use of fuel for interstate passenger transport.

We therefore conclude that, given effective interaction, co-operation and corrective actions in the short-term, the EWRPS have promising prospects of making a valuable contribution to railway finances as well as to the Australian community in general. Conversely, without effective action to resolve the short-term problems this opportunity may well be lost.

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