

An Inquiry into Pricing of Public
Passenger Transport Services

Buses and Ferries

INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

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Passenger Transport Services**

Buses and Ferries

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Please forward submissions by 19 April 1996

Public Hearings to consider the interim reports of this review and determinations of
maximum prices from July 1996 for declared passenger transport fares will be held on
26 April 1996 at the Sydney Hilton Hotel, 259 Pitt St, Sydney

The Tribunal is releasing the following Interim Reports for this review. Copies of the reports
are available from the Tribunal's office.

Report No 1	Government Payments for Public Transport
Report No 2	Buses and Ferries
Report No 3	CityRail
Report No 4	Fare Structures
Report No 5	Framework for Public Transport Pricing
Report No 6	Fair Fares: An Overview

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Glossary and Abbreviations

<i>BCA</i>	Bus and Coach Association
<i>Cost effectiveness</i>	How well inputs are combined to produce a given level of output as measured by passengers or passenger kilometres, at the lowest cost.
<i>CSO</i>	Community Service Obligation
<i>Cost efficiency</i>	How well inputs are combined to produce a given level of output as measured by vehicle kilometres at the lowest cost.
<i>EBIT</i>	Earnings before interest and tax
<i>EBITD</i>	Earnings before interest, tax and depreciation
<i>Farebox recovery</i>	The percentage of costs recovered from farebox revenue.
<i>Farebox revenue</i>	Revenue generated by direct ticket sales.
<i>IPART</i>	Independent Pricing and Regulatory Tribunal
<i>NCOSS</i>	Council of Social Service of NSW
<i>Over-riding</i>	Travelling a distance greater than the distance paid for.
<i>Service effectiveness</i>	How well the level of service provided is matched with the level of service demanded.
<i>SSTS</i>	School Student Transport Scheme
<i>STA</i>	State Transit Authority
<i>Total factor productivity</i>	Measure of total output produced per unit of input.

EXECUTIVE SUMMARY

- This report reviews the costs of providing bus and ferry transport services, and the relationship between cost recovery, fare structure and efficiency.
- This report is concerned with getting better value for the transport dollar paid by travellers and taxpayers, through providing services that the community requires and doing so efficiently.
- The Department of Transport contracts with bus operators in Sydney (both STA and private operators) to provide services for particular areas to specified minimum standards. These contracts are subject to satisfactory performance reviews and may be renewed every five years.
- STA is required to offer more concessions, higher quality services and lower prices than private bus operators, and consequently receive three different types of CSO payments. These are:
 - ♦ *Pricing CSO* - To reimburse STA for the difference between the fares charged by STA and 85 per cent of the standard fares charged by private operators that are set by the Department of Transport.
 - ♦ *Service CSO* - To reimburse STA for providing non-commercial services above the minimum service level requirement. These additional services generally relate to late night services or higher frequency levels during the day.
 - ♦ *Concession CSO* - To reimburse STA for offering Government determined concessions. Reimbursements are based on revenue forgone when compared to private bus operator fares and costs. Private operators are also reimbursed for most of these concessions according to the same criteria.
- Fares should be set so that there is an incentive for bus operators to increase efficiency and improve cost recovery. This will reduce the level of CSO payments.
- ***The Tribunal considers that improved efficiency and higher levels of cost recovery can be obtained and should be encouraged through efficiency incentives and not deterred by compensating for inefficiencies through CSO payments.***
- ***The evidence presented by the STA suggests that Sydney buses could reduce its costs by at least \$23 million. However, the Tribunal considers that further reductions should be achievable because the identified savings are under estimated and the uncontrollable cost estimate is inflated. The Tribunal invites STA to offer a case to the contrary and also invites Treasury and STA to present a case for a commercial rate of return on STA operations.***
- ***Fares and Government funding should be based on the efficient cost of operations (and not the current cost structure) so that operators have an incentive to improve efficiency and tax payers are not funding inefficiencies.***
- The fare structure for Sydney buses is based on 1.6 kilometre sections and tickets are sold for five fare bands. STA propose to increase the number of bands to seven and to alter

the distances in each fare band so that the fare will more closely reflect the distance travelled. The Tribunal supports this initiative in principle.

- Free transfers within the distance covered by the ticket purchased would further improve the relationship between fare paid and distance travelled.
- There is a case for viewing the multi-ride and periodical tickets as the core business products of the STA, meeting the core travel demand of commuters and other regular users of public transport. On this view, the price of the TravelTen ticket should be the starting point, with the cash fare that is purchased by the occasional traveller seen as a premium ticket with a premium price relative to the “core business” service.
- ***The Tribunal accepts Sydney Buses' argument for the introduction of a cash fare scale that is more closely related to distance. The Tribunal recommends that Sydney Buses should bring forward new proposals for changes to cash fares which are consistent with no increase in the weighted average of all fares.***
- ***Sydney Buses should allow penalty-free transfers between their own buses.***
- ***STA should revise proposals for changes to multi-ride and periodical tickets which are consistent with the weighted average of all fare types not increasing. The fare changes should also minimise the loss of passengers from public transport to the private motor vehicle. TravelPasses may increase due to their link with rail and ferry fares.***
- The Department of Transport has been looking into opening all areas to open tender at the end of the current five year contract. Under this approach *all* franchise areas (those currently operated by both Government and private buses) would be open to tender at the end of the five year contract and both private and Government operators could compete for the franchise to that area. All service levels and requirements of the contract would be spelt out, including the provision of school services and concessionary travel.
- ***All franchise areas should be open to competitive tender at the end of the five year contract. The successful tenderer would be the operator that can meet the requirements of the contract, including fully specified service and CSO requirements, for the least cost or the highest bid. There would need to be appropriate sanctions and penalties for not meeting contract requirements.***
- ***The 'standard' fare would be reviewed periodically and determined on the basis of information provided in the tender process.***
- Sydney Ferries operate services for discretionary travellers: commuters who have bus alternatives, or those pursuing leisure activities. These passengers presently fail to pay even the operating cost of the services they use.
- Farebox recovery on Sydney Ferries is poor. Some routes would only require modest increases in fares to become viable. Other routes are likely to continue to make losses regardless of fare increases, because the level of fare increases required would cause users to move away from ferries to alternative transport modes.

- ***STA should propose a combination of increases in prices and reductions in service levels to eliminate the revenue shortfall on the potentially commercial ferry services.***
- ***Fares on the chronic loss-making ferry services should increase by a similar amount to fares on the services that potentially can better cover costs. The Government should consider whether these perpetual loss-making services should continue at reduced levels or, indeed, at all. If so, continuing support through an explicit CSO payment will be required.***
- A major problem with the present ferry fare structure is the 'Inner Harbour' fare, which covers distances from 2.5 km (Neutral Bay) to 13.8 km (Meadowbank).
- An increase in the price of single fares would have little effect on the level of patronage, as it is mostly discretionary travellers that use these fares.
- ***Cash fares for ferries should be increased by a larger percentage than periodical fares.***
- ***There is a case for a closer relationship between fares and distance travelled.***
- The Newcastle CBD does not possess many of the characteristics that encourage patronage in larger metropolitan centers.
- Passengers who use public transport in Newcastle often have little or no alternative. This includes pensioners, school children, some tertiary students, low income earners and social welfare recipients.
- To improve cost recovery the emphasis should be on growing the market through service level improvements and cost reductions. However, because Newcastle has very little commuter travel and the majority of travel on Newcastle services are pensioners (46 per cent as compared to 24 per cent in Sydney) there is very little opportunity to increase patronage.
- STA's preferred fare structure for Newcastle is time based pricing. That is, a ticket is valid for a certain period of time allowing the traveller to travel as far as they like in the time available with free transfers between services.
- The Stockton Ferry provides the only direct means of transport for people of Stockton peninsula across the 700m wide Hunter River that separates them from the Newcastle CBD. It is proposed that the current flat fare for Newcastle Ferries remain.
- ***The Tribunal considers that a time based fare is worth trialling in Newcastle. The STA should submit details of the proposed time based fares to the Annual Determination.***

OVERVIEW

This report reviews the costs of providing bus and ferry transport services, and the relationship between cost recovery, fare structure and efficiency.

A lot of public money is spent on these transport services. This report is about getting better value for the transport dollar by providing services that the community requires and doing so efficiently.

Transport services that provide better value for money will benefit not only the users of public transport but also the wider community. Transport users will pay less for using public transport, and the community's financial contribution through taxes will be less for the same level of services, resulting in desirable social and environmental outcomes.

NSW has both government owned and privately owned bus services. Private operators generally provide a lower cost service. The State Transit Authority (STA) claims that this is due to operating differences. Operating differences affecting government owned services include:

- incurring high costs involved in transporting large numbers of passengers in heavily congested traffic
- providing a higher quality of service than is generally required by the Department of Transport because of additional Government requirements
- conducting functions that would otherwise be paid for by other Government departments.

STA's cost recovery is poor. The Government provides money to bridge the gap through "pricing" and "service" community service obligations (CSOs). "Service" CSOs are paid when levels of service are above the minimum laid down in contracts with the Department of Transport. Pricing CSOs are paid when tickets are priced at more than 15 per cent below normal commercial fares, that is, below the standard fares approved by the Department of Transport for private operators.

The objective of this report is to review the current fare and cost structures of the bus and ferry public transport system so that appropriate fares can be determined for the next five years. To achieve this objective, the efficient costs of providing bus and ferry services are evaluated and methods for ensuring that services are provided by an efficient operator are developed.

This report also discusses service requirements, and fare structures and levels. As most of the costs of public transport are fixed, the cost per passenger is reduced if patronage increases. Cost recovery also improves. Increased fares improve revenue collection, but higher fares may deter some people from using the services, which, if the decline is significant, may have an adverse effect on revenue.

Another way of achieving better recovery of costs is to reduce the cost of providing the service. This can be done most effectively by increasing the efficiency with which services are provided.

This report discusses STA bus and ferry services in comparison to private bus services. Each segment of the public transport market has different characteristics and operating environments which affect the demand for the service and the cost of providing the service.

Taking these differences into account, it is possible to determine efficiency gains and fare changes that will increase revenue and cost recovery and improve the value of the service to travellers and to the community as a whole. It may prove necessary to reduce or discontinue some services that can recover only a small proportion of their costs from the farebox. However, this is a decision for Government. Alternatively, the Government may choose to provide an explicit CSO if a service provides substantial benefits to the general community which justify its subsidy from taxpayers.

The report is divided into three parts. Part 1 looks at STA's government bus service in comparison with private bus services in Sydney. Part 2 looks at the STA operated Sydney Ferries service, and Part 3 looks at Newcastle buses and ferries. Conclusions are drawn and comments made regarding issues such as fare structures, fare levels, cost minimisation and service provision in each part of the transport markets examined.

PART A
SYDNEY BUSES

1 INTRODUCTION

The Department of Transport contracts with the State Transit Authority (STA) and private bus operators to provide services for particular areas to specified minimum standards. STA operates services mainly in the eastern part of the metropolitan area, the lower North Shore and the Warringah area, servicing the Sydney CBD. Private buses in Sydney operate generally outside the former tram network and the Warringah and Northern Beaches area, where government buses operate. Private bus services developed during the 1930s to serve the new areas of population that have opened up since then. Private buses take commuters to and from stations, take students to and from school, and provide an alternative to private vehicles for other passengers.

1.1 Industry characteristics

In 1991, 4.3 per cent of total travel demand in the Sydney region was met by buses¹. This had declined from 5.6 per cent in 1981. Trips taken in the morning peak were around 150,000 in 1991 which was down by a third from 1981. Approximately 7 per cent of the total population of Sydney used private bus services and slightly fewer used Government bus services in 1991. The majority of bus users came from households with incomes greater than \$30,000².

The private bus fleet (1,568 buses) is larger than STA's Sydney Buses fleet of 1,300. However, STA has a large number of densely travelled routes serving the Sydney CBD, and there are more journeys on Sydney Buses (2.8 million boardings a week) than on private buses (2.4 million boardings a week).

1.1.1 Requirements of the Department of Transport

Operators of public passenger services in NSW must obtain accreditation under the Passenger Transport Act. This includes both STA and private operators. Under the Act, transport operators sign contracts with the Department of Transport which govern the provision of services. Subject to satisfactory performance, these contracts may be renewed every five years.

The contracts grant exclusive rights to an area or route, in return for:

- specified minimum levels of service, including service frequency
- service quality conditions including: cleaning, age of buses, clear destination signs, and disability aids
- acceptance of maximum fare scales set by the Department of Transport based on uniform 1.6 km section lengths for all regular passenger bus services.

There are two types of contract: commercial and non-commercial. A commercial contract is entered into when the services to be provided in a franchise enable the operator to recover costs. A non-commercial contract may be entered into when the Department of Transport requires a service to be offered (for example, to school students) which does not recover costs. The Government then provides funds to cover the difference between revenue collected and revenue required for the service to be viable. These contracts require an average fleet age, which is currently under review by the Department of Transport, of 12

¹ Transport Data Centre's Home Interview Survey, 1991.

² Ibid.

years for buses over 25 seats and eight years for smaller buses. Operators are paid according to a model which was developed to reflect actual costs (the Price Waterhouse model).

The Department of Transport issues four 'Standard Fare Schedules' for the metropolitan, rural, country and urban fringe areas. Standard Fare Schedules list the maximum fares that private bus operators may charge adults and children within NSW. Private bus operators may, however, charge lower than the authorised fares. The STA's fares are currently subject to determination by the Independent Pricing and Regulatory Tribunal (IPART). Thus, the fares in STA's contracts reflect the Tribunal's determinations. The difference between fares charged by STA and the 'Standard Fare Schedule' is reimbursed by the Government under a pricing CSO.

The State Transit Authority is required to meet the minimum service standards as is also required of private bus operators. However, STA provides services that exceed these levels and is reimbursed by the Government for some of these services. Private operators are not reimbursed for providing services above those required by the Department of Transport. The level of services provided by STA above the minimum include:

- increased frequency
- 24 hour customer service information line
- information provision at kiosks
- air conditioned buses
- sophisticated workshops
- better uniforms
- public transport promotion and advertising
- extensive ticketing distribution outlets
- extensive interchange and route identification facilities.

It is not clear whether the standards of STA buses which exceed the minimum prescribed, are appropriate or not. They are not required of nor generally provided by private operators. This raises the question of whether the minimum standards are set too low or the actual service levels of the STA are inappropriately high. In the first case, the standards would need to be adjusted and met by all operators. In the second case, the Government is paying STA for service levels that may not be appropriate to meet. There is a need to review the minimum service standards and the actual service levels offered by STA to ensure that each complies with Government transport policy objectives.

STA is required to offer more concessions than private bus operators.

STA receives three types of CSO payment.

1. *Pricing CSO* - This payment reimburses STA for the difference between the fares it charges and 85 per cent of the standard fares charged by private operators, as set by the Department of Transport.
2. *Service CSO* - This payment reimburses the STA for providing non-commercial services above the minimum service level requirement. These additional services generally relate to late night services or higher frequency levels during the day.
3. *Concession CSO* - This payment reimburses STA for offering Government determined concessions. Reimbursement is based on revenue forgone when compared to private bus operator fares and costs. Private operators are also reimbursed for most concessions, according to the same criteria.

1.1.2 Concessions

NSW offers the most generous transport concessions of any state or territory in Australia. Benefits are provided to welfare recipients, low income groups and others. Thirty different types of beneficiary are catered for, including the elderly, the unemployed, sickness beneficiaries, ex-service personnel, full time tertiary students and children. Approximately 1.5 million people in NSW are eligible for transport concessions. Concession travellers on STA and private buses (including SSTS) in Sydney cost the Government \$370 million in 1994-95. These concessions are outlined below, and are discussed in Report No 1, *Government Payments for Public Transport*.

Tertiary students

Under the contracts with the Department of Transport, private operators are required to provide travel at half fare to full time tertiary students aged under 30 years who are travelling to and from college or university. They are not reimbursed for offering this concession.

Under Department of Transport contracts all full time tertiary students are entitled to half fare concessions at all times on government buses. STA is not reimbursed for providing the concessions offered where travel takes place to and from classes, however it is reimbursed for other travel by tertiary students.

Pensioners, Senior Card holders, unemployed and war widows and widowers

Unemployed people with a NSW half fare entitlement card and war widows and widowers with NSW War Widow and Widowers concession cards are entitled to half fare concessions on all buses. The government reimburses operators for the cost of providing these concessions.

Pensioners and holders of the Senior Card are entitled to half fare travel on private buses. Operators are reimbursed for the loss of revenue resulting from the use of these concessions. On government buses this group has access to excursion tickets which are available for unlimited trips all day. A \$1 ticket is available for travel in the metropolitan region and \$2 and \$3 tickets may be purchased for travel in outer regions. STA is reimbursed for loss of revenue resulting from the use of these concessions.

School Student Transport Scheme (SSTS)

Under the SSTS, all kindergarten, Year 1 and Year 2 students are entitled to free travel regardless of distance. Beyond Year 2, school students (and TAFE students under 18 years of age) are eligible for free travel if they live more than 1.6 km radial distance or 2.3 km walking distance from the school they are attending.

In 1995, 64 per cent of students received free travel, and 36 per cent of students made their own arrangements or had access to tickets priced at half the adult single fare (50 per cent concession) or discounted term tickets offered by STA and some private operators.

Under commercial contracts, payments to bus operators (including STA) are based on the child fare (half the approved adult fare) for each student for the 201 school days each year. Allowing for absenteeism, and non-usage of passes by school children, the individual

operator is reimbursed for 92 per cent of the total amount owed, and must have carrying capacity for 92 per cent of the passes issued.

Non-commercial operators who provide school services where there are no regular passenger services, are reimbursed the actual cost of providing the bus service, rather than on a per student basis.

Changes to the SSTS scheme³, took effect from Term 1 1996, reducing the number of students receiving free travel. These changes and their effects are discussed in Report No 1, *Government Payments for Public Transport*.

Other concessionary travel

Travel at concessionary fares is also provided to the following groups⁴:

- War veterans on certain days
- Blind civilians
- Judges, Parliamentarians and others
- First and second year apprentices
- Recipients of sickness benefits
- Sole parents

³ The radial distance has been extended to 2 km for new students not in primary school from first term of 1996.

⁴ Department of Transport submission, October 1995.

2 COSTS AND EFFICIENCY

In this chapter evidence concerning the efficient costs of operating bus services is reviewed. This is important as the level of bus fares should reflect the efficient cost of providing the services. There does need to be an appropriate incentive for bus operators to increase efficiency and improve cost recovery. In the case of the STA in particular, CSO payments from Government reflect any inefficiency costs incurred. This has meant that inefficiency has been funded and no incentive has been offered for cost reductions.

The Tribunal considers that improved efficiency and higher levels of cost recovery can be obtained and that these will be encouraged by offering incentives for efficiency, rather than reimbursing operators for incurring unnecessary costs.

2.1 Performance trends

To evaluate STA's performance over the past five years⁵ performance measures of cost efficiency, cost effectiveness and service effectiveness are examined. Hensher defines these:

"Cost efficiency refers to how well inputs are combined to produce a given level of output (ie vehicle kilometres) at the lowest cost.

Cost effectiveness refers to how inputs are combined to produce a given level of output as measured by passengers or passenger kilometres, at the lowest cost.

Service effectiveness represents how well the level of service provided is matched with the level of service demanded. This indicator measures the quantity of service offered."⁶

Ratios which provide these measures are called "partial measures" since no single measure reflects the whole performance picture. On the other hand, total factor productivity measures present an overall indication of how well outputs are generated from its inputs.

In this analysis, a time series of partial factor ratios has been calculated from STA annual reports 1990 to 1995. In addition, farebox revenue and farebox recovery trends have been analysed. These provide an indication of the ability of STA to survive without government funding or subsidies. Trends in financial statement ratios provide a broader view of financial performance.

The annual reports for STA prior to 1993-94 did not provide a breakdown of financial information comparing the Sydney and Newcastle operations. Therefore, this analysis incorporates information from the Newcastle operations. Due to the relatively small size of the Newcastle operations, including the information on Newcastle still provides an effective indication of performance for Sydney Buses.

STA's bus operations have made considerable performance improvements in the past three to four years. In spite of this, the financial results as summarised by profit and return have been rather volatile. This appears to be due to the effect of changing government contributions. These have been reduced significantly over the past four years, mostly due to the phasing out of deficit funding, which has been achieved through efficiency improvements.

⁵ All figures are presented in inflation adjusted 1995 dollars.

⁶ Hensher and King, *The Performance Profile of Government Sector Bus, Ferry and Passenger Rail Services*, Report to the Government Pricing Tribunal, December, 1995.

2.1.1 Cost efficiency

Significant efficiency improvements have been made in bus operations over the past five years which has stemmed from reductions in total costs per bus kilometre (see Figure 2.1), which has been assisted by the decline in labour costs per bus kilometre (see Figure 2.2). With further labour efficiency gains planned for the future, it is envisaged that this trend will continue for the next few years.

Figure 2.1 STA Buses: Total costs per vehicle km (1995 dollars)

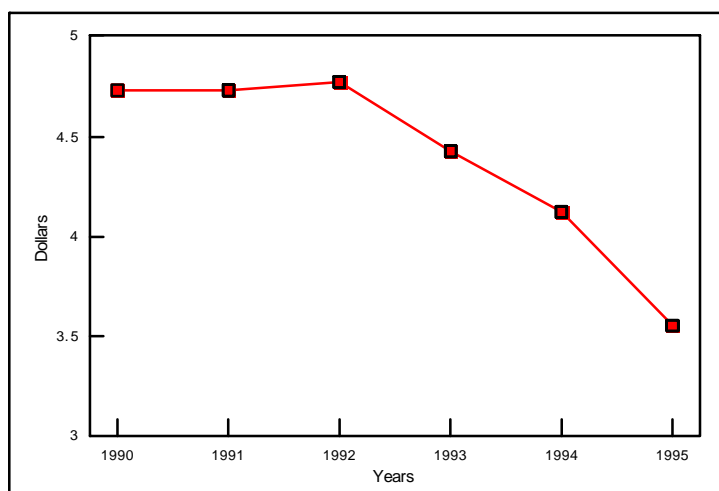
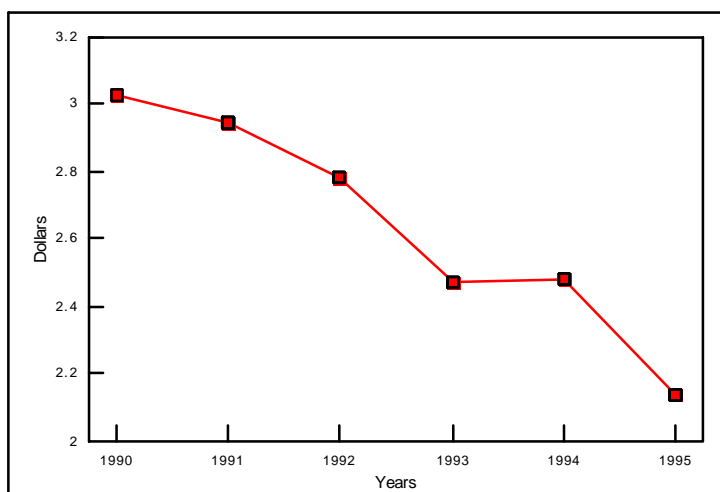


Figure 2.2 STA Buses: labour costs Per Vehicle km (1995 dollars)



2.1.2 Cost effectiveness

Cost effectiveness in bus operations has improved considerably even through the years of declining patronage (see Figure 2.3). This is illustrated in Figures 2.4 and 2.5, which show a decrease in total costs per passenger and in labour costs per passenger.

Patronage declined through the early 1990s, possibly due to the economic downturn and the diminishing importance of the CBD as a commuter destination. Although, the

importance of the CBD is still declining, the upturn in the economy and subsequent job opportunities has had a positive effect on patronage.

Figure 2.3 STA Buses: passenger trips

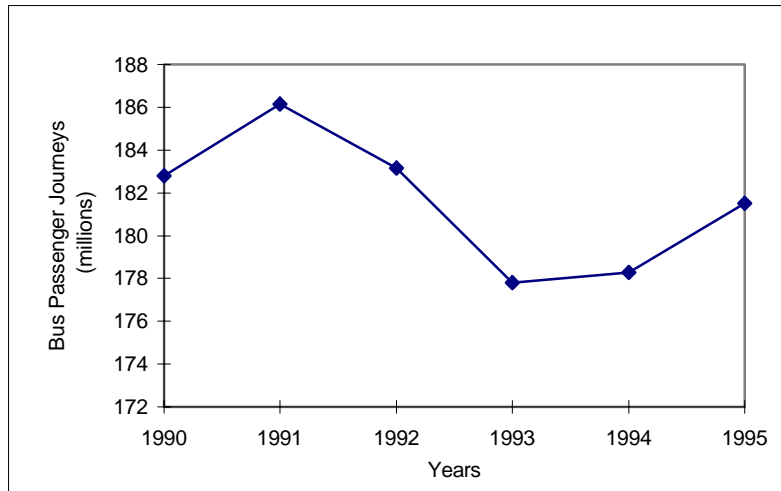


Figure 2.4 STA Buses: total costs per passenger (1995 dollars)

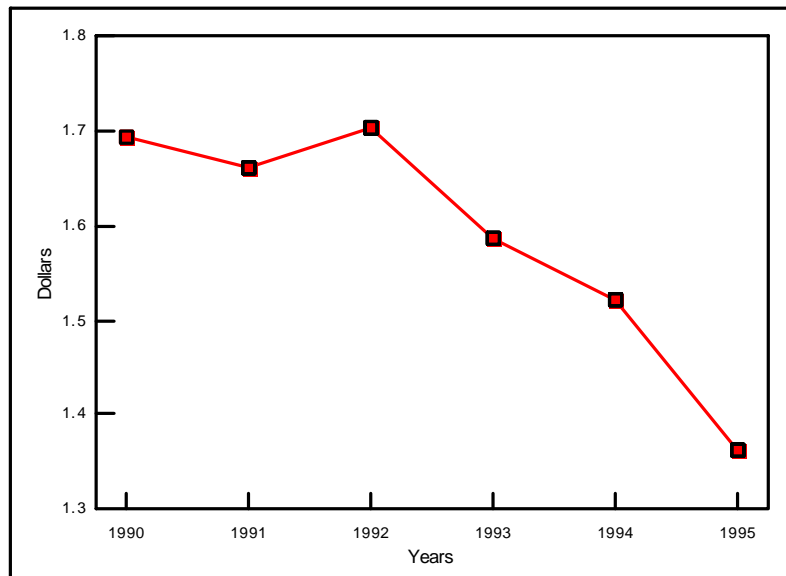
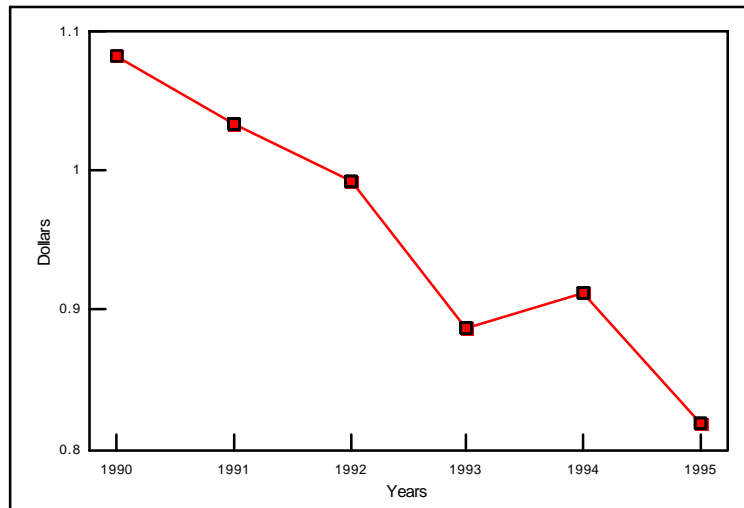


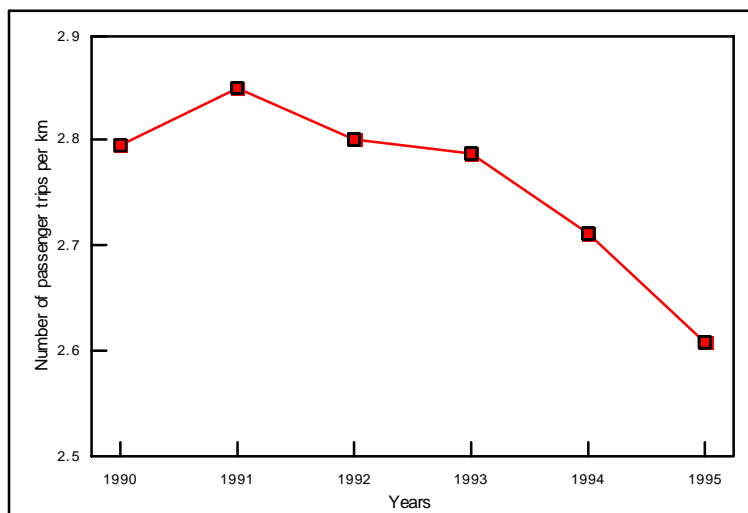
Figure 2.5 STA Buses: labour costs per passenger (1995 dollars)



2.1.3 Service effectiveness

In contrast to improvements in cost effectiveness and efficiency, service effectiveness, as reflected in passenger trips per vehicle km (see Figure 2.6), has fallen over the years 1990 to 1995. This reflects an increase in vehicle kilometres but a decrease in patronage. Because of the relative decline in the importance of the CBD as a commuter destination and the strong competition provided by the automobile in other commuter markets (eg cross suburban transport), further growth in patronage after the initial recovery seems unlikely.

Figure 2.6 STA Buses: passenger trips per km



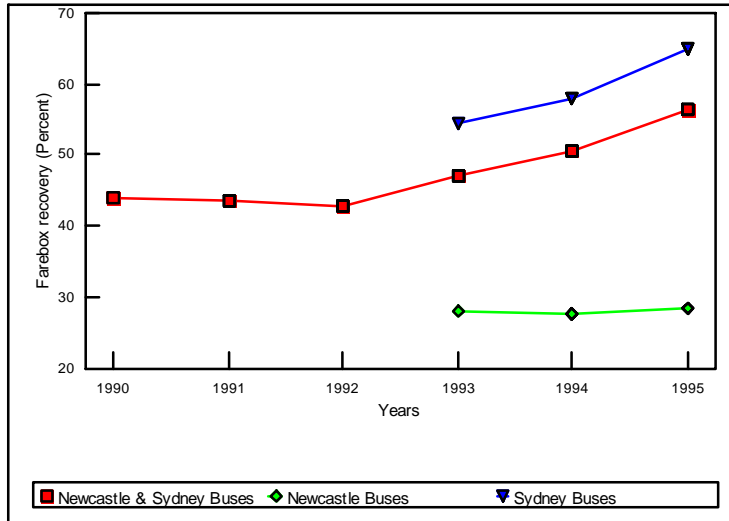
2.1.4 Farebox recovery

Farebox revenue is the revenue generated by direct ticket sales only and does not include government contributions. Farebox recovery is the per cent of costs recovered by farebox revenue. In this analysis, farebox recovery is examined in relation to operating costs only⁷.

⁷ Total costs minus depreciation and interest.

Figure 2.7 shows an improvement in farebox recovery over the past four years, for the whole of STA buses, and for both Sydney buses and Newcastle buses separately. This recovery may reflect the cost cutting strategy implemented over recent years by the STA. With further costs earmarked for reduction, this trend is likely to continue. This is imperative if STA's goal of removing the need for pricing and service CSO payments is to be achieved. Although this is unlikely to be achieved for Newcastle Buses which will continue to need government support.

Figure 2.7 STA Buses: farebox recovery



2.1.5 Profit and returns

The financial results of STA bus operations have been erratic over the past five years. Figures 2.8 and 2.9 reveal a considerable increase in profit in the year 1991-92. This was primarily due to a large CSO payment of \$118 million which included a large Government payment for a redundancy program.

Figure 2.8 STA Buses: earnings before interest and tax

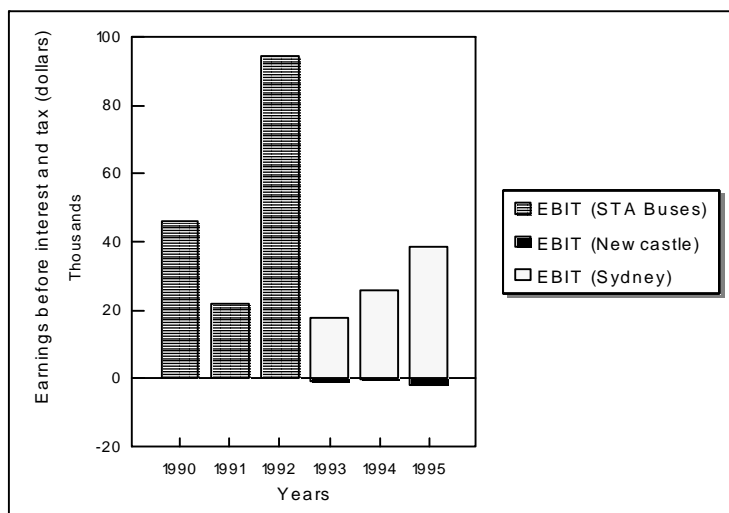


Figure 2.9 shows that the return on net operational assets has varied from -5.5% to 36% over the past five years. The variable size of CSO payments from year to year partially explains this variation in returns.

Figure 2.9 STA Buses: return on assets

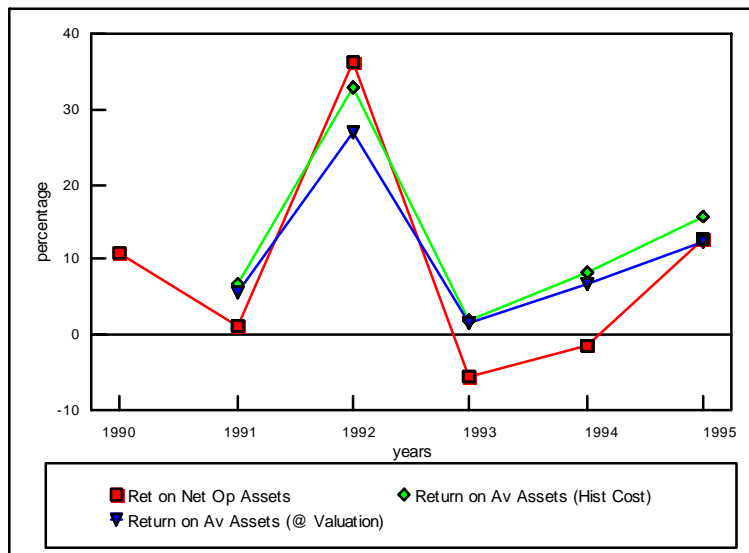
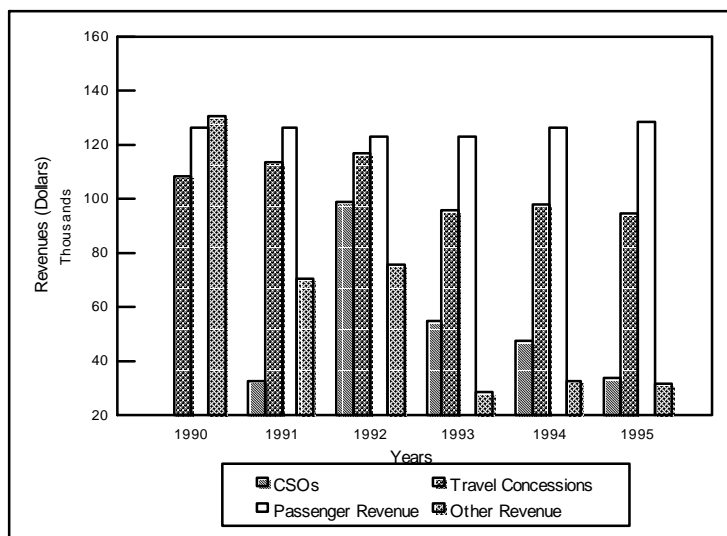


Figure 2.10 provides a breakdown of the total revenue over the six years from 1990 to 1995. While passenger revenue appears to have remained fairly stable over the past five years, total revenue has tended to decline (except for 1992). CSO payments, concessional revenue and other revenue has fallen.

Figure 2.10 STA Buses: revenue

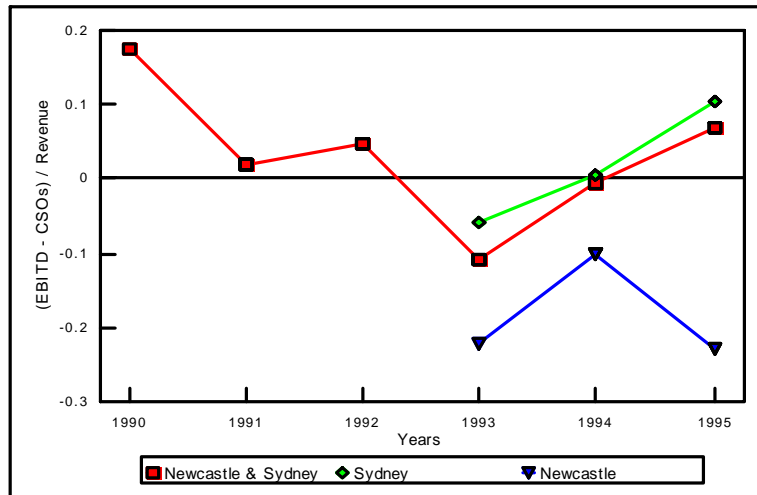


2.1.6 Cashflow and capital structure

Figure 2.11 shows the ratio of earnings before interest, tax and depreciation (EBITD) over total revenue for STA bus operations from 1990 to 1995. The higher this ratio, the greater the level of cash needed to service debt, make dividend payments and fund capital expenditure. It would appear that before 1994, Sydney bus operations were not able to

generate sufficient cash flow to service costs without the aid of CSOs. However, since then they have been successful in generating sufficient cash flow to service costs and will continue to do so. It appears that Newcastle will never achieve this outcome.

Figure 2.11 STA Buses: (EBITD - CSO)/revenue



2.2 Cost studies

Several studies have investigated the cost of operating bus services. From the information contained in these studies some conclusions can be drawn about the scope for cost savings for the STA that could arise from efficiency improvements.

Professor David Hensher's total factor productivity studies of bus costs show that the STA has considerably higher costs than the Sydney private bus operators surveyed. These cost differences are not explained entirely by differences in operating conditions⁸. The partial productivity data (unit costs of various types) cited by Hensher in *Productivity Measurement in the Urban Bus Sector*⁹ can be used to estimate the costs that efficient private operators would incur if they were to operate STA bus routes.

The operating cost per bus kilometre for private operators in Sydney ranges from between \$1.80 to \$2.80 with an average of \$2.12. Operating cost for the STA per bus kilometre was stated as \$4.07, nearly twice as much. Private operators provide services for a cost per passenger of \$1.35, which is 10 cents per passenger lower than for STA buses, despite the greater number of passengers travelling on STA buses.

When comparing productivity measures, Hensher's report indicates that private bus operators in Sydney are 45 per cent more efficient than STA's Sydney bus operations and 12 per cent more effective (because they transport more people further). Because the STA and private bus operators operate in different environments, it is unclear whether STA is advantaged or disadvantaged on balance as compared with private operators. For example, although STA buses claim that operating CBD services is a disadvantage (because of

⁸ Such as the higher cost of operating into and out of the CBD, additional service levels required by the Government and performing duties that would otherwise be undertaken by other Government departments.

⁹ David A Hensher, Rhonda Daniels "Productivity Measurement In The Urban Bus Sector", Institute of Transport Studies, The University of Sydney, Jan 1995.

congestion), the Hensher report considers this an advantage (because of high passenger volumes).

In 1993, Hyland, Joy and Wardrop simulated what it would cost private bus companies to operate the Sydney network. The private bus costs, which were provided by a consultant to the Bus and Coach Association, were also used by the Department of Transport as a guide for delivering payments to operators under the School Students Transport Scheme.

The Hyland, Joy and Wardrop comparison was based on 11 private bus operators operating eleven depots as separate businesses under realistic traffic conditions. Whilst the simulation of private operator costs included all of their crew rostering advantages, it did not assume that any operator could provide buses in another depot's area in the same way that STA is able to schedule bus runs. A cost disadvantage of \$48.5 million was identified for weekday operations.

The critical item in the comparison was managerial overheads at both depot and head office level. At that time, Sydney Buses was spending \$38 million per annum (about \$30,000 per peak bus) more on administration than a series of 11 private companies would have required. These extra administration costs have been reduced substantially over the past 4 years through a restructure that eliminated some of the divisions, but some of the cost differences remain.

The Tribunal believes that the STA needs to continue to address these overhead costs in order to place its operations on a more cost effective footing with private bus operators.

A Travers Morgan report¹⁰ compares government bus systems with six private bus operators. Three of the private operators were in outlying areas of Sydney (Blacktown, Macarthur and Dural) that did not experience the same level of congestion as the central area. These private operators are medium sized (28 - 60 buses), and are likely to have higher unit costs than larger private operators.

This report calculated what it would cost private operators to provide the same service currently provided by Sydney Buses. The cost difference was around \$78 million. However, these cost estimates make no allowance for differences in operating conditions between private and government buses.

2.2.1 Operating differences

In response to the Travers Morgan report¹¹, Sydney Buses has allocated the \$78 million in cost differences to five different categories (see Table 2.1).

¹⁰ STA submission to the Government Pricing Tribunal, "Major Review of Fares", September 1995, p 71.

¹¹ STA submission to the Government Pricing Tribunal, "Major Review of Fares", September 1995, p 71.

Table 2.1 Allocated cost disadvantage

Costs	\$m	Description
Sydney city costs	23.6	Location costs associated with operating high passenger volumes in high congestion traffic.
Quality of service	16.4	Costs incurred in delivering a higher quality of service.
Government operating costs	15.5	Costs incurred through conducting functions that would otherwise be paid for by other Government departments.
Short term efficiency goals	0.12	Recognised inefficiencies which can be rectified without much difficulty.
Longer term efficiency goals	22.7	Recognised inefficiencies which can be rectified only through considerable reform.

(Source: STA)

Sydney Buses argues that the gap between its actual costs and the costs of efficient private sector operators is \$23 million. They claim that this gap can be eliminated through short and long term efficiency gains. The Tribunal considers this to be the minimum level of savings available through efficiency gains. STA considers the remaining \$55 million to be uncontrollable costs; that is, costs they cannot reduce given their operating environment. The validity of claiming these costs to be uncontrollable is untested.

STA claims that 'quality of service' costs are incurred because of Government requirements which are imposed only on STA. Although, STA has estimated these costs, the Tribunal has not verified this estimate. The Tribunal asks why the STA is required to provide service levels above the minimum required by the Department of Transport and why these same additional requirements are not imposed on private operators. If the Government considers the minimum level of service to be too low, then that minimum level of service should be adjusted and the private operators should be required to provide the same level of service.

If the higher level of services provided by STA buses exists because of the difficulty of removing services that have been provided historically, the Government should reconsider if this difficulty justifies a cost to the NSW taxpayer of \$16.4 million. There is no reason for STA buses to receive Government funds to provide services that are not justified.

Government operating costs are claimed to include such costs as vehicle inspection costs and administration costs associated with operating under government regulations which include tendering and reporting costs. These costs seem high and it may not be appropriate for Sydney Buses to absorb these costs if they are considered to be additional to the cost of operating bus services. Perhaps these costs should be absorbed by another Government department.

Whether operating in Sydney city results in a cost advantage or disadvantage is questionable. STA claims that dead running costs are greater in Sydney due to the peak demand of the CBD and congested roads resulting in further costs from increased stops and starts in heavy traffic. On the other hand, densely populated routes result in high passenger volumes which reduce the per passenger costs.

The Tribunal believes that those costs associated with higher service standards and meeting government requirements that are not imposed on private operators must be addressed by STA. If, indeed, there are uncontrollable costs in these areas arising as a result of Government policy requirements on STA, then these must be funded as explicit CSOs.

Any recommendations for short term and long term efficiency gains should be implemented immediately. This is especially critical because STA is currently receiving CSOs for pricing and service of \$28.9 million that, in effect, fund inefficiencies.

Table 2.2 shows the operating results for STA buses based on efficient expenditure (assumes cost savings of only \$23 million) and excluding CSOs. Total income for the STA in 1994-95 excluding CSOs was \$216.8 million, and expenditure was \$187.8 million, resulting in a positive operating result after abnormal items. This result will further improve with cost reductions, which are likely to be greater than the identified \$23 million.

Table 2.2 STA Buses: operating results

	\$'000
Income	245,720
CSO payments	28,943
Income less CSO payments	216,777
Expenditure	210,804
Efficiency savings	23,000
Efficient expenditure	187.804
Operating result	28,973
Abnormal items	3,320
Final operating result*	25,653
Profit margin (%)	11.8
Rate of return [#] (%)	0.01

(Source: STA Annual Report 1994/95.)

* Excluding CSOs and based on efficient expenditure.

[#] Based on communication provided by the STA, *Financial Forecasts For the Next Five Years*.

The rate of return shown in Table 2.2 is minimal and is not likely to be considered commercial. However, this rate of return is dependent on how the assets are valued, and what is considered to be a commercial rate of return is dependent on the risks involved. The Tribunal is yet to determine what rate of return is appropriate for STA operations, or even if a rate of return is appropriate considering that STA receives both explicit and implicit CSO funding.

In light of the identified inefficiencies, which cost at least \$23 million; the uncertainty surrounding the validity of STA's claims about uncontrollable costs; and, the composition of STA's Sydney Bus operations revenue (which covers expenditure without CSOs), there is no obvious case for increasing revenue at this time through general fare increases. That is, at this time, the Tribunal does not believe that a case has been made for a general increase in Sydney bus fares.

Recommendations

The evidence presented by STA suggests that Sydney Buses could reduce its costs by at least \$23 million. However, the Tribunal considers that further reductions should be achievable because the identified savings are under estimated and the uncontrollable cost estimate is inflated. The Tribunal invites the State Transit Authority to offer a case to the contrary and also invites Treasury and STA to present a case for a commercial rate of return on STA operations.

Fares and Government funding should be based on the efficient cost of operations (and not the current cost structure) so that operators have an incentive to improve efficiency and tax payers are not funding inefficiencies.

Although there is a need for changes to individual fares (see Chapter 3), at this stage the Tribunal does not consider that an argument has been made for an increase in Sydney Buses' fares overall over the five year period of the price control.

3 FARES

3.1 Objectives

Bus fares should recover costs and advance Government policy objectives. More precisely, the revenue collected from fares should recover the cost of providing the services, less the amount the Government is prepared to pay to achieve policy objectives. Government policy objectives could include any or all of the following:

- assistance to low income earners and senior citizens
- extension of access to education (as with the SSTS)
- reduction of environmental damage
- urban planning
- delayed investment in road infrastructure.

Report No 1, *Government Payments for Public Transport*, discusses the concessions available to users of public transport. There is a strong “equity” argument that all residents of Sydney should be entitled to the same concessions regardless of whether they travel on a private or a government bus. Currently, the concessions offered on private buses are less generous than those offered on government buses.

3.2 Government support

The Government currently reimburses private and government buses for offering the concessions required by the Department of Transport. In addition, the Government pays for pricing and service CSOs to STA.

The argument that concession reimbursements are intended to meet revenue forgone is difficult to substantiate, because many of the concessionary travellers would not use the service if they were required to pay full price. If an operator was not reimbursed, it might well continue to offer concessionary fares to attract the large market of marginal travellers who are likely to travel in off-peak times.

There is an argument that a commercial purchaser of a large proportion of the output of a service provider would negotiate a bulk purchase price for that service. As discussed in Report No 1, *Government Payments for Public Transport*, the Tribunal believes that the purchaser of the transport CSO should negotiate a commercial lump sum with the transport operator - both STA and private - rather than the present reimbursement arrangements which over-pay for CSO transport services.

STA buses are provided with a financial advantage over private operators because they are reimbursed for providing discounts greater than 15 per cent on multi-ride tickets. However, private operators also offer discounts to attract travellers and expand markets which are often greater than 15 per cent¹², and they are not reimbursed for the difference.

3.3 Fare structure

At present, 56 per cent of travellers on STA buses travel on fixed zone fares, where a zone represents a geographical area. The other 44 per cent use tickets that are distance based.

¹² BCA submission, p 21.

Distance based fares allow a traveller to pay a fare that reflects the distance to be travelled. Zone based fares allow travel within a specified zone and the traveller must purchase another ticket to travel outside the zone, regardless of distance. Both zone and distance based fares are available to travellers on STA buses. Only distance based fares are available on private buses.

Fare structures are outlined briefly in this section. A fuller discussion of fare structures is contained in Report No 4, *Fare Structures for Public Transport*.

Distance based fares

Distance based fares have the following characteristics:

- They result in revenue collection that more closely reflects cost because they require passengers to pay for the distance they travel.
- Detecting passengers who travel a greater distance than they pay for (over-riding) is difficult because it requires knowledge of passengers origins and their destinations.
- Distance based ticketing is incompatible with integration of STA and CityRail fare systems. This is due mostly to the difficulty of detecting if a traveller is travelling further than the distance paid for. The distance travelled on a previous mode cannot be determined.

A further disadvantage of distance fares is that they do not allow free transfers. Buses extract a new fare when a passenger transfers to another bus, regardless of the distance travelled on the original fare.

Zone fares

Zone fares are attractive because:

- they simplify ticket issue and checking
- they allow free transfers between buses
- they are compatible with an integrated ticketing system.

Travellers can identify the zones in which they need to travel by looking at a map. A ticket inspector or seller can determine the zonal ticket required for the journey just as simply. This facilitates ticket issue and checking and allows fare evasion to be detected easily. When the likelihood of being caught for fare evasion is high, it is less likely that travellers will attempt it and so zone fares reduce fare evasion.

Zone fares also allow the traveller free transfers between buses in order to travel as far as desired within the zone (or zones) for which the fare is valid. Intuitively, free transfers encourage public transport usage because they increase the convenience and reduce the cost to travellers, thereby providing extra value for money.

A major drawback with zone fares is that they require average cost pricing which is not very cost reflective. Average cost pricing is necessary because it is difficult to allocate costs to particular travellers when the travellers can travel any distance on any service within a zone. This results in inequitable fares because long and short distance travellers within a zone pay the same fare. This becomes particularly obvious where zones cover a large

geographical area. This fare structure encourages longer distance (and consequently higher cost) users and discourages short distance (lower cost) users. Eventually, this will result in average costs shifting upwards.

STA is currently trying to reduce anomalies which occur because fares charged are not closely related to distance. Greater use of zone based ticketing would be a retrograde move.

Some form of average pricing will always exist in fare structures. Problems with zone based fare systems depend on the size of the zones, the location of zone boundaries and the inequity in fares for short distance travel across zone boundaries.

Transfers

Free transfers within the distance covered by the ticket purchased improve the relationship between fare paid and distance travelled. For example, under the current coarse bands for cash fares, a person travelling four sections to one destination who then has to transfer to another bus and travel another four sections would have to purchase two 3-9 section tickets even though he was travelling only eight sections. A person travelling eight sections on the same bus would have to purchase only one ticket.

Time based fares

These fares are valid for travel within a specified lapsed time, regardless of distance travelled or number of transfers. A time based fare is compatible with integrated inter-modal ticketing systems.

Both distance and time based fares allow free transfers between buses. If a traveller rides 5 km on one bus and then 5 km back again, the costs to Sydney Buses are no greater than if the second journey is 5 km further on another bus. Rather, it is the reverse, because in a return trip situation, there is a high likelihood that one of the buses used will travel in the opposite direction to peak traffic and will be able to accommodate extra passengers at no cost. (There is, of course, a revenue loss because the passenger is able to complete a round trip for a single fare).

Like most fare structures, time based fares require some average pricing which will result in inequity between passengers.

The apparent bargain which a time based zone fare offers to the limited number of quick there-and-back travellers is one of its greatest virtues. This feature generates much good will, but relatively little actual revenue loss, provided sufficient effort is devoted to inspecting whether or not passengers are travelling on expired tickets.

Off-peak fares

Lower off-peak fares are offered where it is expected that they will generate additional traffic which will provide total off-peak revenues higher than at normal fares. There are usually discounts for off-peak because marginal costs are lower when the threshold costs of operation have already been recovered from the peak traffic which determines the required capacity.¹³

¹³ Although the significance of minimal marginal costs in the off-peak is much more prevalent for rail operations, marginal costs in the off-peak for buses are still quite low.

The goal of off-peak discounts is to maximise the revenue on services which usually have spare capacity.

Because many STA bus travellers on off-peak services can use \$1 pensioner fares or other half fare concessions, the ability of an off-peak fare to generate significant additional traffic is limited. The travel decisions of others may not be affected greatly by fares. Therefore, offering an off-peak fare to attract the limited further market may be at the expense of reduced revenue.

3.3.2 Integrated fares for buses, ferries and trains

STA claims to be committed to the integration of public transport fares in Sydney. Market research conducted by STA indicates that customers are more sensitive to issues of service quality, convenience and integration than to the cost of the ticket.

Zone fares and time based fares are the most compatible with integrated ticketing systems for buses, ferries and trains. One of the biggest problems that needs to be resolved is how revenues would be divided amongst modes and operators.

As with any zone based fare system, integration will encounter problems relating to cost recovery. In order to recover costs across zones, operators would need to adopt average pricing which is neither equitable nor efficient. It deters or penalises those wishing to travel short distances and encourages higher cost users (long distance travellers) to increase their public transport use.

There are inevitable costs in requiring the private bus industry to participate in an integrated system including the installation of validators (although this may be less of a problem with changes to the SSTS scheme¹⁴). If fares integration is to extend to cash fares, as it does in other Australian cities, a zone cash fare structure becomes obligatory for all operators.

The Tribunal considers that a more integrated ticketing system will be beneficial to the community and public transport users by providing convenience and flexibility. Integrated ticketing should also encourage public transport usage. The issues and implications of further integration of public transport are discussed in Report No. 4, *Fare Structures for Public Transport*.

Private bus applications

Because of the patterns of traffic on most private bus routes, and the need to maintain their revenue levels from casual travellers, private bus operators may prefer to be reimbursed on the basis of their sectional fares. Any participation in an integrated cash fares system for multi-modal travellers would require private buses to sell zone tickets to those passengers, and to account for the revenue divisions.

¹⁴ Changes to the SSTS scheme where operators will be reimbursed according to actual travellers will require private operators to install validators.

3.4 STA Fare proposals

STA expects to increase patronage of Sydney Buses by 25 per cent over the next five years and to reduce government contributions, other than for concession subsidies to specific groups within the community, to zero. This is to be achieved by improved pricing and ticketing as well as through further advances in service design and resource utilisation.

Sydney Buses believes that following the implementation of efficiency improvements, they will eliminate the need for service CSO payments this year. STA is prepared to accept commercial responsibility for all Sydney bus services operated.

The growth in patronage projected by STA is not in line with previous trends. Over the five years from 1990 to 1995, passenger trips per vehicle kilometre have decreased. Although some recovery was shown after the low of the recession years, mostly due to the relative decline in the importance of the CBD as a commuter destination, as employment centers outside the CBD are expected to grow, there is no reason to expect steady growth in patronage. Although it is to be hoped that patronage will increase as projected by STA, it may be wise to plan using less optimistic assumptions.

STA believes that fare structures should be simple, equitable, consumption based, distance based and integrated with other transport modes.

3.4.1 Current system

The fare structure for Sydney Buses is based on 1.6 km sections. The current fare structure for single fares and TravelTens is set out in Table 3.1.

Table 3.1 Current single and TravelTen fares

Sections	Single (\$)	TravelTen (\$)
1 -2	1.20	8
3 - 9	2.50	16
10 - 15	3.30	24
16 - 21	4.00	30
22 +	4.40	36

(Source: STA)

The jump from the 1-2 section ticket (\$1.20 for a cash fare) to the 3-9 section ticket (\$2.50 for a cash fare) is large and provides an incentive for fare evasion or over-riding.

At present the relationship between TravelTen tickets and the single cash ticket is such that the single cash fare is up to 56 per cent greater than the fare available to a frequent user on a multi-ride TravelTen ticket. Although large increases may be required to reduce the gap between a single cash fare and a single fare available on a multi-ride ticket, State Transit believe that such increases should be considered. Their reasoning is that the majority of single fares available on TravelTen tickets provide more than a 15 per cent discount on the single fares available on private buses for the same distance (see Table 3.2).

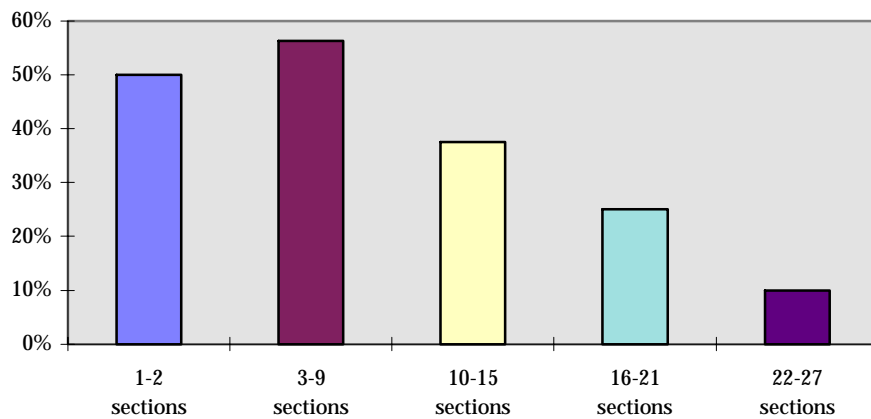
Table 3.2 Adult fare comparison between discounted private bus fares and single fares available on TravelTen

Sections	Private bus fare (\$)	Private bus fare less 15% discount (\$)	STA fare (\$)	Difference (\$)
1	0.77	0.65	0.80	-0.15
2	1.19	1.01	0.80	0.21
3	1.65	1.40	1.60	-0.20
4	1.93	1.64	1.60	0.04
5	2.18	1.85	1.60	0.25
6	2.41	2.05	1.60	0.45
7	2.62	2.23	1.60	0.63
8	2.83	2.41	1.60	0.81
9	3.03	2.58	1.60	0.98
10	3.22	2.74	2.40	0.34
11	3.38	2.87	2.40	0.47
12	3.54	3.01	2.40	0.61
13	3.70	3.15	2.40	0.75
14	3.86	3.28	2.40	0.88
15	4.02	3.42	2.40	1.02

(Source: STA)

Figure 3.1 shows the premium paid for a single cash ticket over the fare available for a single trip on a TravelTen ticket.

Figure 3.1 Single cash fare premium 1994-95



(Source: STA, Calculated from STA's fare scale)

The division of patronage by ticket type is shown in Table 3.3.

Table 3.3 Boardings per year on Sydney Buses, 1994-95

Ticket type	Boardings per year (million)
Single ride	28.5
TravelTen	38.0
Bus/Ferry TravelPass	19.6
Bus/Ferry/Rail TravelPass	17.9

(Source: STA)

Sydney Buses considers that the current fare structure is inequitable, because it results in fares that do not correspond to distance travelled. For example, a traveller wishing to travel

four sections has to pay the same price as a traveller who wishes to travel nine sections, which is more than twice the distance.

3.4.2 Options examined

Fare options were examined by STA to ascertain the impact on patronage and revenue. These options are outlined in Appendix 2. STA's preferred option would increase the number of cash single ride and TravelTen fare bands from 5 to 7, and reduce the 'discount' on TravelTen tickets to 15 per cent compared to single ride tickets. Existing TravelPasses would be withdrawn and replaced by three TravelPasses for Zones 1, 2 and 3, relating to new zones forming concentric circles around the city. These would replace the previous 1 to 7 zone system. While zone 1 would be consistent with travel entitlements of the red TravelPass, zones 2 and 3 would be consistent with travel entitlements of the existing yellow and purple TravelPasses. The TravelPasses would be priced according to STA's Total Value of Travel (TVT) concept. This concept is based on STA's estimation of the average number of trips taken on that ticket type. Each of these trips is then valued at the fare available for a single trip on a TravelTen. The average fare increase under the proposal is 21.7 per cent. Patronage would fall and revenue would increase by 16.7 per cent.

The option referred to above results in the cash fare changes presented in Table 3.4.

Table 3.4 STA's preferred option for cash fare changes.

Section	Current fare (\$)	Proposed fare (\$)	Range of price per km (cents)
1 - 2	1.20	1.20	75-38
3 - 4	2.50	1.70	35-27
5 - 6	2.50	2.30	29-24
7 - 10	2.50 - 3.30	3.00	27-19
11 - 15	3.30	3.60	20-15
16 - 21	4.00	4.20	16-13
22+	4.40	4.80	<14

(Source: STA)

Increasing the number of bands for distance based fares will decrease the inequities that exist between travellers travelling the shortest distance in the band and those travelling the longest distance. The Tribunal considers this to be desirable. It also reduces the tendency for travellers to over-ride as the cost of purchasing the ticket for the next band is not as great, and travellers are more likely to purchase the ticket that covers the distance they wish to travel.

Sydney Buses argues that the proposed fare scales provide the same revenue that would occur if they used the private bus fare scale. This would eliminate the payment of the pricing CSO.

Under this option, cash fares would decrease by 9.4 per cent. Where anomalies exist fares should be altered, however, an overall reduction in cash fares is unnecessary because passengers purchasing the cash fare are the least likely to increase their patronage of the services¹⁵ after a reduction in fares.

The fact that pensioners, students, the unemployed and many other disadvantaged groups travel free or use fares that offer significant concessions suggests that low income groups

¹⁵ Hensher and Raimond, *Evaluation of Fare Elasticities for the Sydney Region*, January 1996.

are not seriously affected by the level of cash fares. However, 72 per cent of transport trips provided by government-owned transport services are made by those with household incomes under \$15,000, and 50 per cent of trips made by those with household incomes between \$15,000 and \$25,000 are made using cash fares. The equity implications of raising cash fares are therefore of some potential concern to the Tribunal.

It was determined in the Chapter 2 that given reductions in expenditure of at least \$23 million, and the operating result after CSOs have been removed, there is no evidence that fares should be altered for the purpose of increasing farebox revenue. However, it is accepted that there are anomalies in the fare system that should be corrected. This should be achieved with no overall increase in fares.

Sydney Buses' proposals for its own fare structure do not take account of the possibilities for greater integration of ticketing. In discussion, Sydney Buses has indicated its readiness to consider allowing penalty-free transfers between its own buses. However, whether these transfers would be zone, distance, or time based has yet to be decided.

Recommendations

The Tribunal accepts Sydney Buses' argument for the introduction of a cash fare scale that is more closely related to distance. The Tribunal recommends that Sydney Buses should bring forward new proposals for changes to cash fares which are consistent with no increase in the weighted average of all fares.

Sydney Buses should allow penalty-free transfers between its own buses.

3.4.3 The multi-ride fare

STA proposes to increase the fares available on multi-ride tickets so that they are only 15 per cent less than the equivalent cash fare. However, it is arguable that the multi-ride and periodical tickets should be seen as the core product of Sydney Buses; that is the ticket used by commuters and other regular users of public transport. Most commuters use multi-trip tickets, so the fare available on a multi-trip ticket should form the base fare, and the single cash fare should be considered as a premium to this. Pensioners and seniors and other groups that are occasional users of the system are (or could be better) protected from single fare increases by targeted CSOs.

The travel decisions of regular users of transport services are sensitive to fare changes. It is possible that a small increase in the fare available to a regular user (such as a multi-trip ticket) could cause a decline in demand large enough to reduce overall revenue. Some people would transfer to other tickets (such as single cash tickets) but there would also be a reduction in the overall use of public transport. By contrast, the travel decisions of users of cash tickets are less sensitive to the level of fares.

The sensitivity of travellers to fare changes is illustrated in the fare elasticities derived by Professor Hensher and his colleagues (see Table 3.5).

Table 3.5 Fare elasticities

Ticket type	Elasticity
Single	-0.078
TravelTen	-0.383
Bus travel on Bus Ferry TravelPass	-0.813
Bus travel on Bus/Train/Ferry TravelPass	-0.822

(Source: Hensher and Raimond, *Evaluation of Fare Elasticities for the Sydney Region*, January 1996.)

The elasticities illustrate the change in the market share of a ticket type which occurs for every per cent change to a fare. As can be seen, a one per cent increase in a single fare will reduce travellers using this ticket by only 0.078 per cent. In contrast, a one per cent increase in the single trip fare for travellers using a TravelTen or TravelPass results in a 0.383 or 0.813 per cent reduction in the use of these ticket types respectively.

The price of the multi-ride fare should be set in relation to the core nature of this ticket type - that is the ticket used by the large group of users of the Sydney Bus system - regular commuters. This is consistent with Government transport policy which, among other things, is concerned with providing public transport services for commuters rather than excessive reliance on private motor vehicles.

There are some options in how the single cash fare is set relative to the core business fare. On one view, the single cash fare should be set so as to ensure an appropriate contribution to the overall network by the occasional user of that network. This contrasts with the “marginal cost” pricing view, which argues that the price charged should only cover extra cost of providing one more unit of the service. For large infrastructure networks such as transport networks, marginal cost pricing will not cover unit costs.

The single cash fare could be set so that it costs more than a fare using a multi-ride ticket, reflecting the extra costs to the system of the ticket, such as on-bus cash handling and time delays while the ticket is being purchased. Alternatively, the fare could be set so that there was no relationship with the multi-ride fare, making the premium as high as is possible without adversely affecting patronage on this ticket type (keeping in mind that the single cash fare user is less sensitive to the price).

As noted, efficiency improvements should make it possible to eliminate existing pricing and service CSOs for Sydney Buses. However, if existing reimbursement mechanisms for targeted concessions are not changed to reflect a more commercial basis for bulk purchasing of these services, there will continue to be an implicit subsidy to STA as a result of government over-paying for those targeted concessions.

In these circumstances, at present there does not seem to be a strong case for overall fare increases. Moreover, the preceding analysis suggests there are reasons for being cautious about large increases in the price of multi-ride and periodical tickets. However, there may be scope to remove fare anomalies within this overall cap by selected adjustments to individual fare types.

In Interim Report No 3, *CityRail*, the Tribunal proposes that rail periodical fares should increase in real terms by 12.5 per cent over 4 years. This would apply to the weekly rail ticket and the TravelPass ticket. These TravelPasses have a bus and ferry component and STA shares the revenue from TravelPass sales with CityRail. The increase in rail periodical fares will result in increases in the bus-rail-ferry TravelPasses. The Tribunal recognises this inter-relationship and, so that there is no increase in overall bus fares, the basis of apportioning revenue between the modes may need to change.

Recommendation

STA should revise proposals for changes to multi-ride and periodical tickets which are consistent with the weighted average of all fare types not increasing, except for the bus/ferry and bus/ferry/rail TravelPasses which may be affected by fare increases in rail and ferry fares. The fare changes should also minimise the loss of passengers from public transport to the private motor vehicle.

3.5 Private operator fares

Private bus operators in Sydney are considered to be some of the most efficient in Australia¹⁶. The 'standard' fares for private operators are used as a benchmark to determine government reimbursements of concessions and pricing CSO payments to STA buses. The NSW Government established a standard fare in 1992. According to BCA,

"It then phased the various fare scales to a standard fare, based on the average, over a three year period."¹⁷

This resulted in a reduced 'standard' fare relative to fares before 1992 so that,

"Now, previously inefficient operators have had their fares reduced to the average and are being forced to chase passengers like the more efficient operators."¹⁸

Whether the current set of 'standard' fares is appropriate has been open to much debate. In its submission the Council of Social Services of NSW(NCOSS) rejects the use of private bus fares as the benchmark for STA fares. One of the reasons given is that the starting point for the current structure was not thoroughly investigated to determine reasonableness¹⁹.

NCOSS also objects to inconsistencies in government and private bus fares,

"We currently have the crazy situation where prices for government-owned services are supervised by an independent body after a public process, but maximum prices for privately-owned services are set secretly through a combination of departmental and Ministerial consideration."²⁰

And further,

"The class of ownership should not be a relevant distinction in setting fare levels."²¹

NCOSS recommends that the Independent Pricing and Regulatory Tribunal be given the power to set maximum fares for both government and private public passenger transport.

The BCA would like fare increases to compensate for any losses from changes to the SSTS scheme. There are more arguments against increases in standard fares. If some operators are operating successfully at current fare levels, it would be counter-productive to increase the fare levels to all operators just to allow inefficient operators to continue operating. If the services are deemed non-commercial, but are required by Government, then it is the Government's responsibility to make up the difference or tender out franchise areas for

¹⁶ David A Hensher, Rhonda Daniels: "Productivity Measurement In The Urban Bus Sector", Institute of Transport Studies, The University of Sydney, January 1995.

¹⁷ BCA submission, 1995, p 20.

¹⁸ Ibid, 1995, p 20.

¹⁹ Council of Social Services of NSW (NCOSS), submission, 1995, p 26.

²⁰ Ibid, p 30.

²¹ Ibid, p 31.

more efficient operation. On balance, the Tribunal is not convinced that a case has been made for an increase in the standard fare for private bus operators. There needs to be a careful examination of the basis for cost-fare adjustments as well as a consideration of the way in which government purchases concessions, including the SSTS, from both the STA and private operators before any consideration of an adjustment in the standard fare. This issue is discussed further in Report No 1, *Government Payments to Public Transport*. Further, the standard fare would need to be set on a different basis if there was a move to a competitive tender system for bus franchises; a move strongly supported by the Tribunal.

3.6 Franchising

All operators of public passenger services in NSW must obtain accreditation under the Passenger Transport Act 1990. To gain accreditation, operators must:

- be of good repute
- be fit and proper
- be financially viable
- have adequate vehicle maintenance facilities and programs
- provide for the safety of passengers and the public.

Operators must enter five year commercial contracts with the Department of Transport. The commercial contract grants exclusive rights to an area or route in return for:

- minimum levels of service, detailing the periods of operation and service frequency
- service quality conditions including cleaning, age of buses (average fleet age of 12 years) clear destination signs, and disability aids
- maximum fare scales based on uniform 1.6 km section lengths for all regular passenger bus services.

With the introduction of the Passenger Transport Act, incumbent operators were offered the contract to the area already serviced, if they agreed to the conditions in the contract. Where no service had previously existed, contracts were put out to open tender. At the end of the five year contract, if the operator is seen to be meeting all the requirements of the contract, the contract will be extended for a further five years.

The Department of Transport has been considering putting all franchise areas out to open tender at the end of the five year contract. Under this approach *all* franchise areas (those currently operated by both government and private buses) could be open to tender at the end of the five year contract and both private and government operators could compete for the franchise to an area.

There are a number of ways in which a competitive tender model could be formulated. The following is one example of a competitive tender model.

With standard fares set for all areas, competing operators would tender on the basis of how much they were willing to pay for the franchise, or, in the case where a franchise was non-commercial, how much funding they would require to provide the specified services. The Department of Transport would detail in the contract the level of service required, including the provision of school services and all targeted concession travel. Operators would then compete for the franchise of an area or route based on the cost of providing the

services and meeting the requirements in the contract. The successful tenderer would be the operator that could meet the contract at the least cost or highest bid price.

One issue with this form of franchising is that with standard fares, there will be the scope for government to extract rents from operators in the more profitable franchise areas while subsidising operators in the sub-commercial franchise areas. The question is whether it is appropriate to have standard fares which allow for this potential transfer between franchise areas or have a franchise model which includes fares as one of the elements for the franchise bid. That is, competing tenderers would offer different fare levels for different franchise areas depending on the economics of the area; some areas would have lower fares than others. Clearly, there are several ways in which the franchise model could be established.

The benefits of a competitive tender process are firstly, that efficiency is encouraged, (the most efficient operators win the tender), and secondly, the costs to Government of subsidising selected transport services and providing targeted concessions should be minimised. In achieving these benefits, it is essential to ensure effective competition between franchise bidders. All franchises would have to be open to tender, though this may need to be phased in, and all bus operators, private and government, should be encouraged to participate in franchise tenders. The usual Trade Practices provisions may need to be strengthened to ensure effective competitive tendering.

An added benefit of this system is that additional information could be collected to assess appropriate fare levels. Changes in the estimate of the cost of providing the services that could be derived from tender bids would allow the Department of Transport to determine whether fares were reasonable, and whether they needed to be altered to better reflect costs.

Further, if the system is properly designed and well-functioning, as the successful tender would be the operator that could provide all the contract requirements at least cost, the Government would no longer be funding inefficient transport service providers.

This franchise model would provide an effective benchmark against which the efficiency of different bus operators could be judged, because other bus operators would be ready to take over operation of any franchise at the next tender if they could meet the contract requirements at lower cost (lesser subsidy). Operators would need to be monitored with regard to meeting all contract requirements, including service standards. There will need to be sanctions, including penalties and contract termination, for contract breaches.

Recommendation

All franchise areas should be open to competitive tender at the end of the five year contract. The successful tender would be the operator that can meet the requirements of the contract, including fully specified service and CSO requirements, for the least cost or the highest bid. There will need to be appropriate sanctions and penalties for not meeting contract requirements.

The 'standard' fare would be reviewed periodically and determined on the basis of information provided in the tender process.

PART B
SYDNEY FERRIES

4 INTRODUCTION

Of an annual total of 11.9 million Sydney Ferries passenger journeys, 51 per cent are for tourism and leisure pursuits²². Sydney Ferries has a fleet of 26 vessels that provide a wide range of services classified under four major groupings. These are:

1. Outer harbour services, specifically the Manly ferries and JetCats
2. Inner harbour services including Mosman, Watsons Bay, Balmain and Hunters Hill
3. Parramatta river services including Abbotsford and Meadowbank
4. Tourism cruises and charter hiring

Last year, Sydney Ferries lost about \$18 million dollars, or \$1.59 per boarding. These figures exclude the Parramatta services, which receives a special payment from the Government.

Estimated passengers by type is shown in Table 4.1.

Table 4.1 Estimated ferry passengers by type

Type	Number (million)	%
Commuters	4.1	35
Pensioners	1.7	14
Students	0.007	negligible
Tourists and leisure	6.1	51
Total	11.9	100

(Source: STA submission, p 102.)

Note: Commuter numbers are estimated as all those using TravelPass and FerryTen tickets

Sydney Ferries operates services for discretionary travellers, that is, commuters who have bus alternatives, or those pursuing leisure activities. These passengers presently fail to pay even the operating cost of the services they use and contribute nothing to the fixed cost of the services, or the periodic replacement of the \$30 million fleet.

Whether services which will never cover their operating costs and require permanent subsidies should continue at the same level or, indeed, at all is a matter for Government to decide. It needs to be recognised, however, that millions of dollars of public funds are benefiting approximately 6,000 regular passengers and a large number of leisure and tourist travellers.

4.1 Market Characteristics

Sydney Ferries originally catered for commuters who rode trams, and later buses, to the ferry wharves. However, its business has increasingly been taken away by direct bus services provided by STA's Sydney Buses division. STA buses feed ferry wharves, but they do not carry large numbers of passengers. Because of the short distances involved and the layovers needed to match ferry schedules, buses threaten the viability of these services. For example, only about 100 passengers per peak ferry arrival now use the bus service from the Warringah Peninsula and Northern Beaches to connect with ferries at Manly Wharf, rather than taking the direct bus service to the city.

At the city end, Sydney Ferries' commuter market has been adversely affected by the growth of office employment in the southern CBD, which is more conveniently served by

²² STA submission, p 102.

the bus terminal at Wynyard, and the increasing number of buses from the North Shore routed south of Wynyard.

The competitive pressures imposed by fast direct bus services combine to characterise the typical journey-to-work ferry traveller as one who:

- lives close to a ferry wharf
- works close to Circular Quay
- or, if one or both of these conditions does not apply, places high value on the ambience of the ferry journey itself.

Sydney Ferries' passengers tend to be from higher income groups (harbourside suburb residents, living a short walk from the water). Commuters form only 34 per cent of all travellers. After allowing for Pensioner travel, the 6 million other ferry travellers are divided into unknown proportions of tourists, local sightseers and leisure travellers.

The key issues for this Inquiry and for the Government to decide are the desirability of providing ferry services to discretionary travellers at a substantial loss, and whether present fares adequately reflect the value to users of the special characteristics of ferry trips. The fact that not all of these discretionary travellers are tourists, or have high incomes is not relevant to consideration of fare levels, because alternative public transport services are available.

The businesses operated by Sydney Ferries - commuter travel, leisure travel, and special cruises - are joint products of the ferries, wharves and maintenance facilities; that is, none could survive without the others. For this reason, the only useful way to consider the ferry business is to test whether each business is maximising its revenues, and then whether all businesses together are generating revenue sufficient to cover full costs.

At the moment, whilst special cruises may be covering their marginal costs, neither commuter travel nor leisure travel is generating sufficient funds to cover even its short-run costs, and so no route is justifying the replacement of the ferries used.

5 COSTS AND EFFICIENCY

Farebox recovery on Sydney Ferries is poor. The Government has been required to provide general deficit funding in addition to specific pricing and service CSOs. Some services are chronically unprofitable. In addition to Parramatta (for which STA already receives support) the unprofitable routes, Meadowbank, Hunters Hill and Watsons Bay, together incur an annual loss of about \$4.5 million. **Thus \$9 million of Sydney Ferries loss is incurred on routes which have no commercial justification.** The remainder of its operations also incur losses. They should be subject to determined efforts to achieve full cost recovery. This may be successful.

The loss per passenger journey, by route, for Sydney Ferries in 1994-95 is shown in Table 5.1.

Table 5.1 Loss per passenger journey (Sydney Ferries 1994-95)

Route	\$ per passenger trip
Manly (JetCat fare)	-2.20
Manly (Manly Ferries)	-0.60
Combined Manly Service	-1.05
Meadowbank	-4.53
Darling Harbour	-0.78
Balmain	-1.48
Hunters Hill	-4.55
Mosman	-2.10
Neutral Bay	-0.35
Zoo	-0.11
Watsons Bay	-2.18
Parramatta	-6.57
Total	-1.59

(Source: STA)

Note: These losses do not include a return on net assets employed.
Loss per boarding on the Parramatta service excludes Government subsidy.

Some routes would require only modest increases in fares to become viable. Other routes are likely to continue to make losses except with very large fare increases which would likely result in a dramatic reduction in patronage. The services that have bus or train alternatives, and the Manly JetCat, which has a parallel ferry service, all show poor results. The likely necessary increases in fares for these services would result in a shift in demand to transport alternatives.

5.1 Performance trends

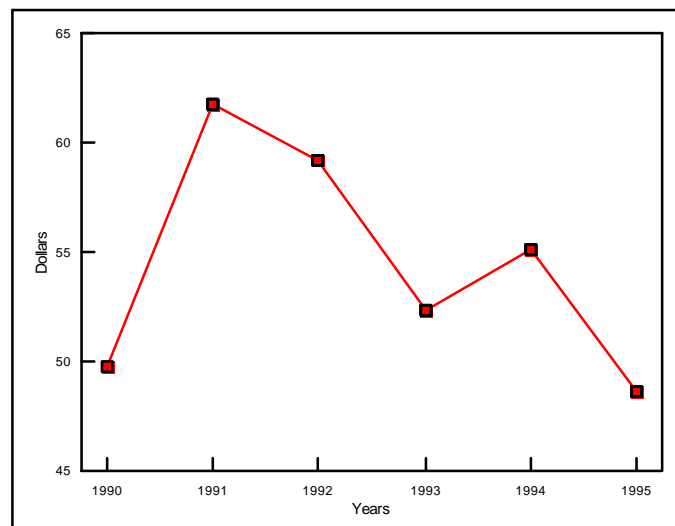
The following analysis combines information on both Sydney and Newcastle ferry operations. However, the results can be considered as reflecting the results for Sydney Ferries alone as there is only one ferry service in Newcastle and its effect on the results is negligible.

In contrast to STA's bus operations, the ferry operations have not shown significant improvement in performance over the past five years. In some cases, a deterioration in performance as measured by some partial factor ratios is apparent. With negative profits and returns over several of the past five years and declining farebox recovery the financial status of the ferry operations is deteriorating.

5.1.1 Cost efficiency

Cost efficiency refers to how well an operator combines its inputs to produce a given level of output (ie vessel kilometres) at the lowest cost. The total costs per vessel kilometre for ferry operations is lower in real terms in 1995, but the decrease since 1990 is negligible (see Figure 5.1).

Figure 5.1 Total costs per vessel kilometre



While labour costs have been decreasing over the period, maintenance and fuel costs have changed little. This pattern is reflected in the changes to total costs (see Figures 5.2 and 5.3).

Figure 5.2 Labour costs per vessel kilometre

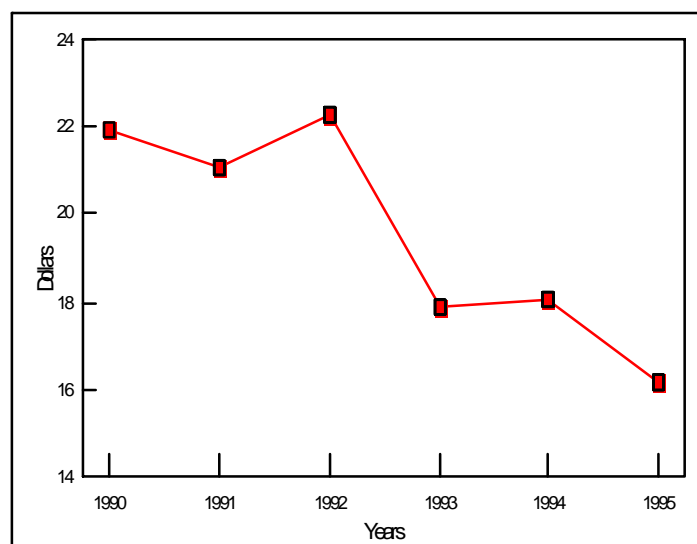
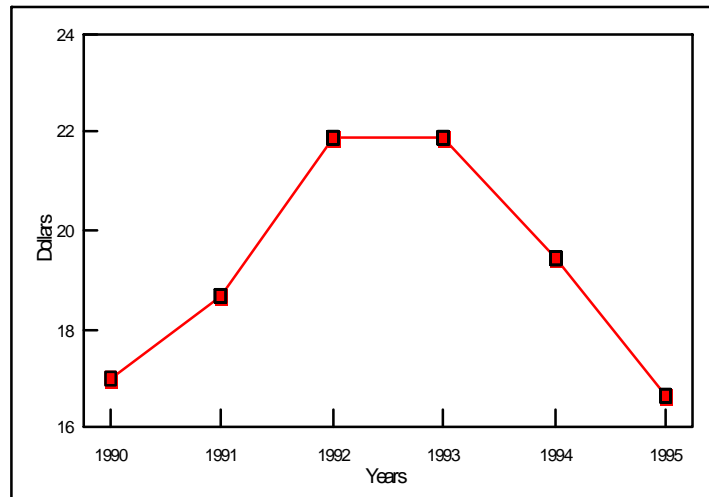


Figure 5.3 Maintenance and fuel costs per vessel kilometre



5.1.2 Cost effectiveness

Cost effectiveness refers to how well an operator combines its inputs to produce a given level of output as measured by passengers or passenger kilometres, at the lowest cost. A decrease in ferry passenger trips (Figure 5.4) and an increase in costs has seen the cost effectiveness of ferry operations deteriorate over the past five years. The reduction in passenger journeys has resulted in increased costs per passenger (see Figure 5.5).

Figure 5.4 Ferry passenger journeys

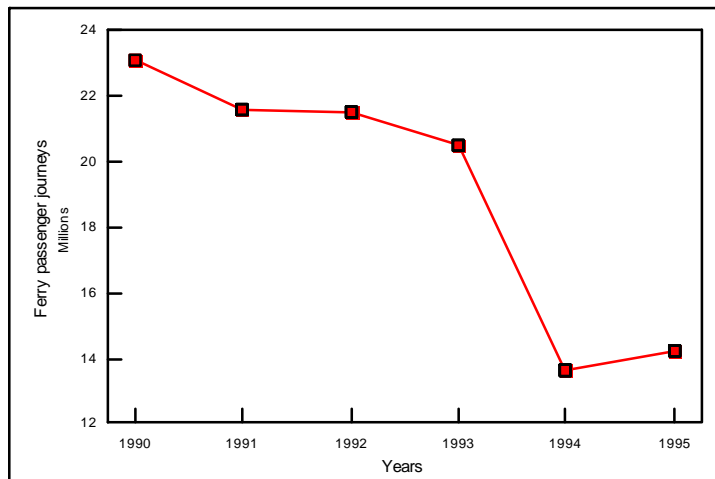
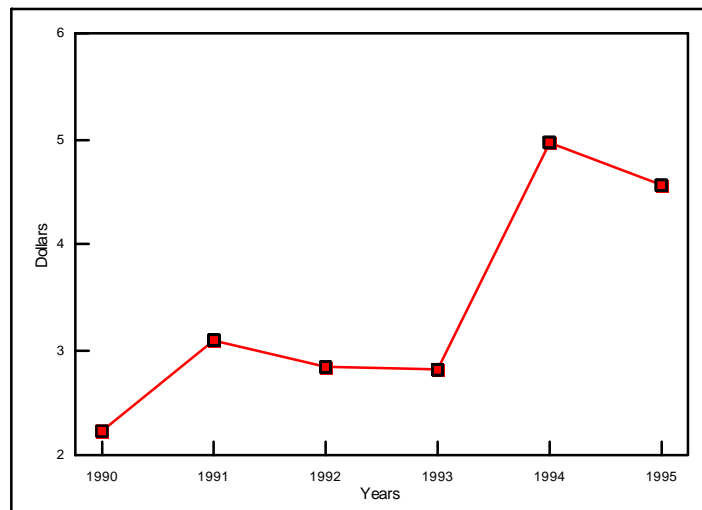


Figure 5.5 Total costs per passenger

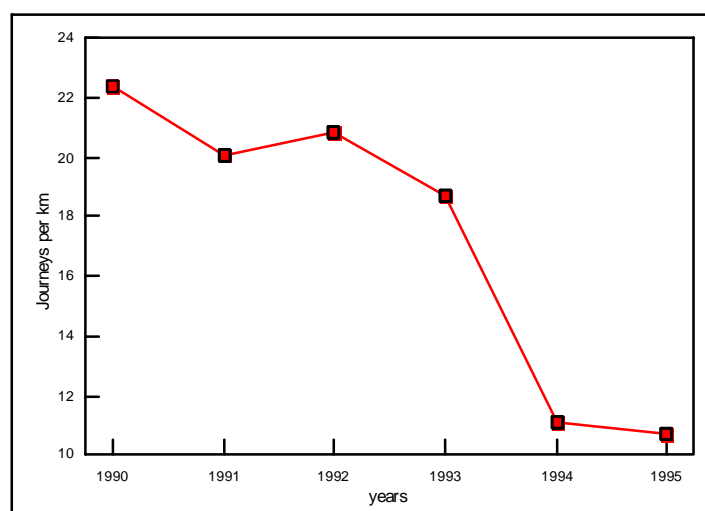


STA is concentrating on increasing patronage over the next few years, which is necessary if cost effectiveness is to improve. However, given the increase in the relative importance of the southern CBD areas, and bus alternatives, patronage growth in the commuter market is questionable.

5.1.3 Service effectiveness

Service effectiveness represents how well an operator does in matching the level of service provided with the level of service demanded. This indicator measures the quantity of service offered. The service effectiveness of STA's ferry operations has fallen considerably from around 22 passenger journeys per vessel km in 1990 to 11 passenger journeys per vessel km in 1994 (Figure 5.6). This 50 per cent decrease is attributable to a similar fall in ferry passenger journeys. The decline in patronage is likely to have been affected by improvements in competing STA bus services bringing commuters to the CBD, and an increase in the importance of the southern CBD area for business.

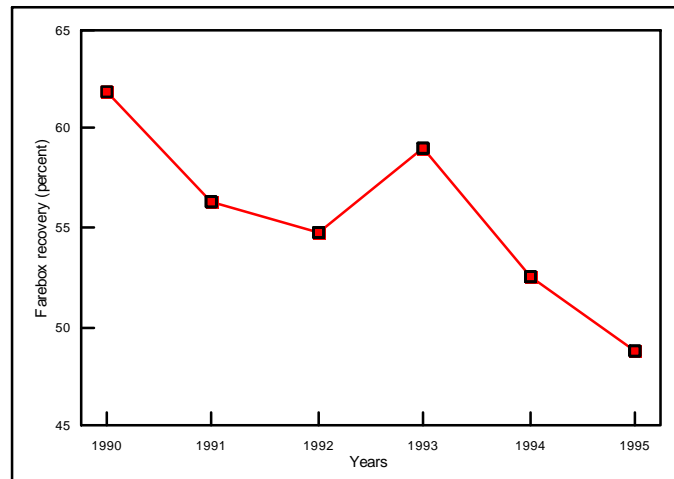
Figure 5.6 Ferry passenger journeys per kilometre



5.1.4 Farebox recovery

In spite of the large decrease in patronage, there has been a slight increase in passenger revenue due to fare increases. However, due to the large increase in costs over the same period, farebox recovery has declined for ferry services (see Figure 5.7), reducing the likelihood of removing CSO payments.

Figure 5.7 Farebox recovery



5.1.5 Profits and returns

Profits and returns for STA ferries have failed to be positive from 1990 to 1995 (see Figures 5.8 and 5.9). Fare restructuring, cost reductions and efficiency improvements will be needed if the ferry operations are to reach sustainability.

Figure 5.8 Earnings before interest and tax

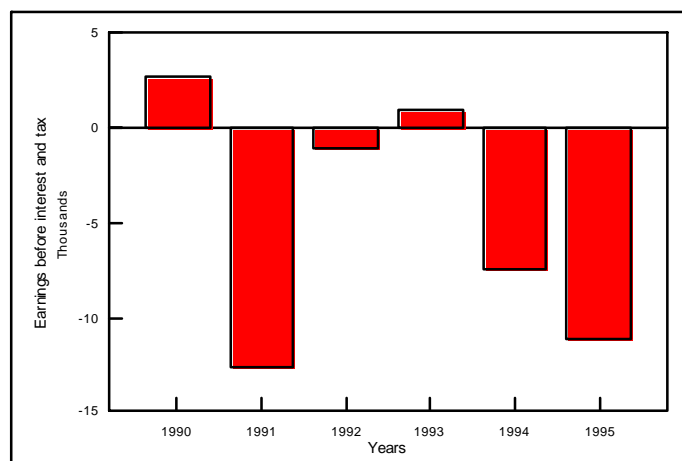
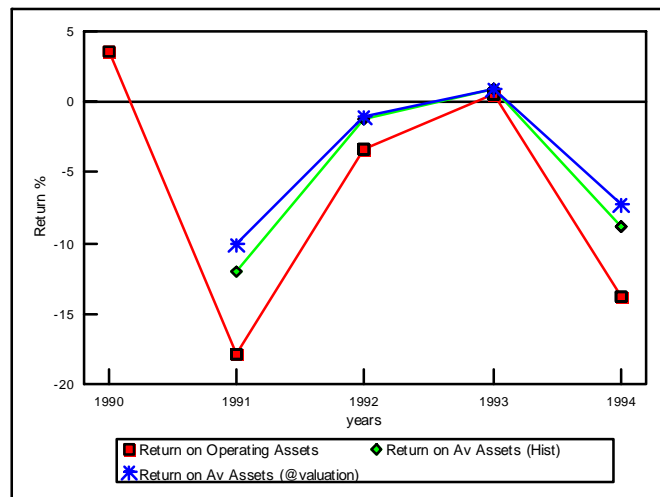
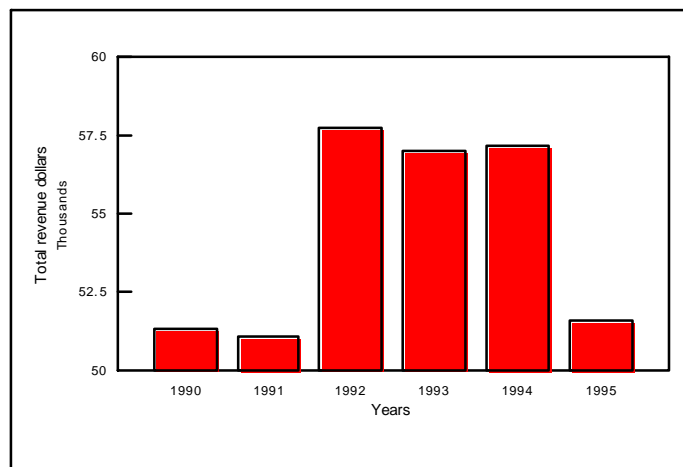
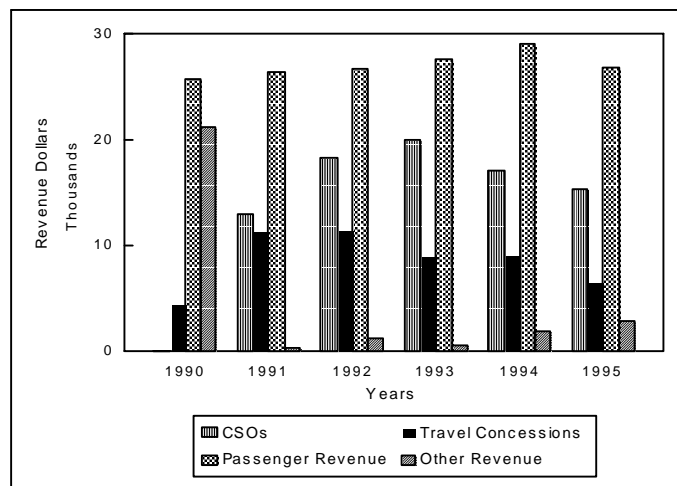


Figure 5.9 Return on assets



In spite of the decrease in ferry patronage, fare increases have resulted in an increase in passenger revenues from 1990 to 1994. In addition, CSO payments have increased and concessions decreased slightly (see Figure 5.10).

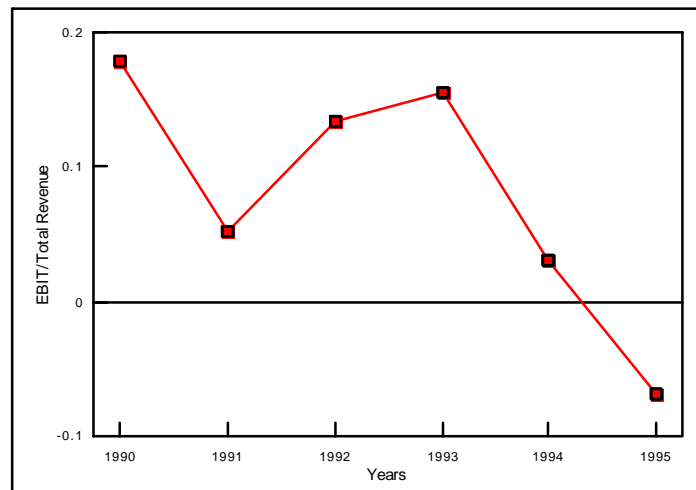
Figure 5.10 Breakdown by revenue type



5.1.6 Cashflow and capital structure

Figure 5.11 shows the ratio of earnings before interest, tax and depreciation (EBITD) over total revenue for STA's ferry operations from 1990 to 1995. The higher this ratio, the greater the level of cash to service debt, make dividend payments and fund capital expenditure. A worrying trend has appeared over the past two years, bringing this ratio below zero for the first time in 1995. While ferry operations have been able to generate sufficient cash flow in the early 1990s, this ability has diminished and would be further strained if CSO payments were removed without significant increases in passenger revenues or large cost reductions.

Figure 5.11 Ratio of earnings before interest, tax and depreciation to total revenue



5.2 Covering costs

The following table supplied by STA shows the costs currently incurred by Sydney Ferries and the additional revenues required to cover those costs after consideration of grants and other revenues.

Table 5.2 Breakdown Of Cost Structure For Sydney Ferries 1994-95

Total costs	\$54 million
Less service CSO for Parramatta service	\$4.5 million
Less reimbursement for free and concessionary travel	\$6.5 million
Farebox revenue requirement	\$41.4 million
Farebox revenue	\$26.6 million
Revenue shortfall	\$14.8 million

(Source: Information from STA and STA Annual Report, 1994-95)

A return on investment is usually included in the calculation of costs. STA has suggested that a 15 per cent return is appropriate. However, it should be noted that Table 5.2 does not include a return on investment. Any return expected would increase the revenue requirement and contribute to the shortfall. The Tribunal has concerns over the logic of allowing for a commercial rate of return on STA services which have such a large government CSO contribution (both explicit and disguised) and which fall well short of efficient costs.

STA has estimated that a further \$2 million could be saved through the elimination of inefficiencies, which would reduce the revenue requirement to \$12.8 million. The Tribunal believes there is room for efficiency improvements but the magnitude of the savings has not been reviewed by the Tribunal.

For purposes of analysis, Sydney Ferries' routes can be divided into three groups:

1. Manly services
2. Potentially commercial routes which could (and should) cover costs
3. Chronically unprofitable routes for which no feasible fare and cost combination would yield full cost recovery.

Services that have been identified as chronically unprofitable are the Parramatta, Meadowbank, Hunters Hill and Watsons Bay services. If all these services were funded by a direct grant from the Government, as the Parramatta service already is, the revenue shortfall required for the remaining services would be reduced by a further \$7.27 million (see Table 5.3).

Table 5.3 Costs of providing chronically unprofitable services.

Service	Cost (\$m)
Meadowbank	2.49
Hunters Hill	3.14
Watsons Bay	1.64
Total	7.27

(Source: STA)

Sydney Ferries operates above the minimum service levels required under the Passenger Transport Act and are reimbursed for these through CSO payments. STA has estimated that \$5.4 million in cost savings is achievable by decreasing service levels to the minimum required by the Department of Transport. Table 5.4. shows the services where these savings can be made.

Table 5.4 Estimated cost savings from reducing services to minimum service levels

Service	Savings (\$'000)
Manly Services	3,188
Hunters Hill	601
Mosman	900
Neutral Bay	477
Watsons Bay	276
Total	5,442

(Source: STA)

Note: Services not mentioned are already serviced at the minimum level.

Although reducing the service level would reduce costs by the same amount as the service CSO, overall cost recovery would improve.

5.2.1 Manly services

The JetCat and ferry services to Manly are competing services. Many passengers use FerryTen tickets for both services and take the more convenient departure. If either one of these services was no longer offered, the other service could become profitable (see Table 5.5). To illustrate this scenario, the following assumptions have been made:

- If only the JetCat service was available, the fare would be the same as the current Manly ferry fare and costs would increase by 50 per cent.
- If only the Manly ferry was to run, boardings would be equal to previous boardings on both the JetCat and the ferry, less around 20 per cent of the previous JetCat patronage due to transfer to other travel modes. Costs would increase marginally, assumed to be 5 per cent.

Table 5.5 Route results scenario

	JetCat	Manly Ferry	JetCat only	Manly Ferry only
Boardings ('000)	1,453	3,718	5,171	4,880
Revenue per passenger (\$)	4.43	3.15	3.15	3.15
Costs (\$'000)	10,123	14,396	15,185	15,372
Revenue (\$'000)	6,444	11,693	16,289	15,602
Profit (\$'000)	-3,201	-2,225	1,104	230

(Source: STA and IPART analysis.)

The profitability of running only Manly ferries is sensitive to patronage and cost assumptions. However, a small increase in the Manly ferry fare would ensure the profitability of running this service alone.

Alternatively, both services could be continued at fares which covered all costs. This would necessitate an average fare increase of about \$2.20 (50 per cent) on the JetCat service and 60 cents (20 per cent) on the Manly ferries. (The ferries would benefit substantially from traffic diverted from any increase in JetCat fares). There is not an obvious case for subsidising competing services on the same route, when by the nature of their market, both could be made profitable with progressive fare increases.

STA has also suggested that savings on the Manly services could be made by decreasing the service level currently required by the Government to the minimum service level required by the Department of Transport. STA estimates that there could be savings of around \$3.2 million per annum, which would reduce the fare increase required for the service to recover costs.

5.2.2 Routes which could cover costs²³

Some loss making routes could achieve profitability with modest fare increases²⁴.

- The Darling Harbour service is a low cost service because it uses ferries which are not required on other routes during the off-peak period. This is essentially a leisure service

²³ Note that the revenues used in this section are from Sydney Ferries' route profit statements which may have some marginal error between routes due to allocation of revenues between sailings.

²⁴ Based on information on route profitability provided by STA.

that could readily support a small average increase (about \$1) to reach profitable operation.

- The Balmain service would require an average increase of \$1.50 per boarding to become viable. However, this service has bus alternatives for all journeys except the cross-harbour trips to McMahons Point. Any increase in fares may affect the number of passengers choosing the service.
- The Mosman service would require an average increase of over \$2 to break even. However, if the service level was dropped to the minimum required by the Department of Transport, \$900,000 would be saved. The necessary average fare increase would then be only around \$1.30. The main problem with the Mosman service is the low average number of passengers per trip (35, compared with 70 for the comparable Neutral Bay services). More than half the loss is recorded²⁵ for the evening service, when the 3-crew ferries carry an average less than a bus load on each trip.

5.2.3 Chronically unprofitable services

These services provide a service level above that required by the Department of Transport. They are high cost services that are unlikely to cover costs, regardless of fare increases and/or efficiency improvements. The four routes that fall into this category are listed in Table 5.6.

Table 5.6 High cost, low patronised ferry services

Route	Boardings ('000)	Cost (\$'000)	Revenue (\$'000)	CSO payment required at present fares (\$ per boarding)
Parramatta	675	6,669	1,757	7.27
Meadowbank	395	2,486	637	4.68
Hunters Hill	450	3,136	1,017	4.71
Watsons Bay	328	1,644	893	2.29

(Source: STA)

Except for the Parramatta service, these services are provided to suburbs with high income levels where alternative transport services are available. Even with modest fare increase on these routes, large losses will persist.

To a large degree these losses are caused by the application of a standard 'Inner Harbour' fare to trips which are much longer than other trips for that fare. Reducing the service level of the Meadowbank, Hunters Hill and Watsons Bay services to the minimum would save \$7.27 million. In view of the heavy losses sustained, reducing these service levels should be considered.

If these services are to be continued, STA should seek direct support from the Government for these routes by way of an explicit CSO, such as is already paid for the Parramatta RiverCat services.

²⁵ Based on Sydney Ferries data.

Recommendations

The State Transit Authority should propose a combination of increases in prices and reductions in service levels to eliminate the revenue shortfall on potentially commercial ferry services.

Fares on the chronic loss-making ferry services should increase by a similar amount to fares on the services that potentially can better cover costs. The Government should consider whether these perpetual loss-making services should continue at reduced levels or, indeed, at all. If so, continuing support through an explicit CSO payment will be required.

6. FARES

For some years, Sydney Ferries' fares matched the bus fares for the same point to point journey. However ferry fares have been set slightly higher than bus fares. Most ferry commuters use FerryTens or TravelPasses, which give discounts of about 40 per cent on the cash fare and do not require queuing at the ticket issue machines at Circular Quay.

The joint availability of TravelPasses on the ferry and buses complicates the adjustments necessary for commuter ferry fares. About 40 per cent of ferry commuters use TravelPasses for which the price is also tied to bus fares. Any increase in ferry fares will need to be incorporated into TravelPasses.

An alternative solution for better cost recovery is to increase single fares considerably to tap into the tourist and leisure market, while allowing regular users to avoid this increase by purchasing multi-ride tickets where the effective fare is much less. Ferry users in the leisure and tourist market are more likely to purchase a single fare as they will often travel only once or a few times. The price tourists or leisure seekers are willing to pay for a trip on a ferry is likely to be high because they value the ambience of the trip. Regular users are likely to consider the trip as a way of getting from their origin to their destination and would consider travel alternatives if the fare increased excessively.

6.1 STA's ferry fare proposals

A major problem with the present ferry fare structure is the inner harbour fare, which covers distances from 2.5 km (Neutral Bay) to 13.8 km (Meadowbank). This coarse structure was introduced at a time when the goal was to simplify fare collection at Circular Quay. Having a standard inner harbour fare avoided the need to distinguish which ferry passengers were boarding or leaving ferries on the wharves.

STA has proposed that the Manly Ferry and JetCat fare structure remain the same, with JetCat fares maintaining a premium margin over the ferry services. Inner harbour fares would be divided into two zones: journeys of up to 10 kilometres and journeys greater than 10 kilometres. The single fare for journeys beyond Meadowbank rail bridge would be changed to include the Rydalmere and Parramatta services.

This proposal would differentiate only the Meadowbank service (13.8 km), leaving all other services priced the same as the 2.5 km trip to Neutral Bay at \$2.80 per trip. This would include:

- Watsons Bay - 7 km - presently losing \$2.18 per trip
- Hunters Hill - 4.9 km - presently losing \$4.55 per trip
- Mosman - 3.9 km - presently losing \$2.10 per trip
- Taronga Zoo - 3.4 km - on which about 73 per cent of travellers are leisure travellers. This service should charge the same fare as the nearby Mosman service with which it shares some trips.

In addition, STA has proposed that the fare for multi-trip ticket holders (FerryTen and TravelPasses) be increased so that a single trip would be priced at 85 per cent of the single cash fare.

6.2 Comment on fare structure

Sydney Ferries prefers the present coarse fare structure because of its simplicity. There is little need for on-board ticket checking because, apart from non-pensioners who have fraudulently purchased the pensioner ticket, everyone on board should have the correct ticket. However, this is its only advantage over CityRail-type ticket machines, which have a button for each destination. Systematic on-board checking could be carried out at virtually no cost as the ferry sails between the outer ports of a route because the deckhand has no duties between wharves. Even the cost of a machine at each outer wharf, at about \$20,000 per machine, is minimal compared with the revenue advantage from a more equitable, distance-based fare¹.

A problem with providing a high quality service for a price that does not cover costs is that artificially high levels of demand are created. Eventually additional ferries would be required to meet this demand. Unless the Government is prepared to provide capital grants for any additional ferries, services should not be increased to accommodate increased passenger numbers. Any additional services should be required to cover all costs other than the purchase of ferries from the farebox.

With two-thirds of ferry traffic coming under the category of discretionary travel, mainly in the off-peak periods, there is no case for a discount to generate more traffic while causing a substantial revenue loss from existing discretionary travellers.

6.3 Fare elasticities

The reaction of consumers to fare increases will affect whether revenue will increase or decrease. If a small increase in the fare will cause many consumers to no longer use a service, the overall result may be a decline in revenue. To gauge the movement in revenue due to changes in fares, the Tribunal commissioned the Institute of Transport Studies to research the sensitivity of travel choice to fare increases². The results of this research are presented in Table 6.1.

Table 6.1 Fare elasticities for ferries

Fare type	Elasticity
Commuters	
Ferry single	-0.183
JetCat single	-0.268
Ferry TravelTen	-0.344
JetCat TravelTen	-1.943
Ferry on bus/ferry TravelPass	-0.347
Ferry on bus/train/ferry TravelPass	-0.308
Non-commuters	
Ferry single	-0.042
JetCat single	-0.199
Ferry TravelTen	-0.436
JetCat TravelTen	-1.612
Ferry on bus/ferry TravelPass	-0.718
Ferry on bus/train/ferry TravelPass	-1.296

(Source: Hensher and Raimond, 1995.)

¹ Unless significant numbers of cross-harbour trips were involved, cash fares available from outer wharves would in most cases be limited to the journey to Circular Quay. Cheaper FerryTens which would not allow users to pass the turnstiles at Circular Quay could be available for intermediate journeys.

² Hensher and Raimond, *Evaluation of Fare Elasticities for the Sydney Region*, January 1996

Few TravelPasses are sold other than to commuters. Thus, a substantial increase in all tickets other than the JetCat TravelTen would increase net revenue.

The tourist and leisure travellers make up the majority of the market (see Table 4.1). These travellers are also the least affected by a change in price. An increase in the price of off-peak and single fares would have little effect on the level of patronage, but would result in a significant increase in revenue. Sydney Ferries should take advantage of this market segment in an effort to improve its cost recovery and enable a service that this market holds in such high regard to continue.

Table 6.1 also shows that single tickets purchased in the peak and more particularly, in the off-peak have a very low demand elasticity. An increase in price will have very little effect on the number of trips taken on that ticket type. The result will be a considerable increase in revenue. Considering that this fare is mostly purchased for leisure or tourist purposes, there is a strong case for an increase in this fare.

Recommendations

Cash fares for ferries should be increased by a larger percentage than periodical fares.

There is a case for a closer relationship between fares and distance travelled.

Part C

NEWCASTLE BUSES AND FERRIES

7. INTRODUCTION

The Newcastle City Centre is situated on the Stockton Peninsula on the southern bank of the Hunter river. During the past two decades other business areas have developed outside the historical CBD.

7.1 Market characteristics

The urban population of Newcastle is almost 300,000. Of these, 77 per cent live within the area serviced by STA's Newcastle Buses. However, passengers who actually use public transport in Newcastle often have little or no alternative. They include pensioners, school children, tertiary students, low income earners, and social welfare recipients. Only 25 per cent of all public transport journeys have the Newcastle CBD as their destination.

Although the Newcastle City Centre is still the business centre for many professional offices and government departments, since the 1989 earthquake, regional centres, specifically Charlestown, have become more important for shopping and leisure activities.

Department of Transport contracts provide private bus companies with access to the major regional centres via the Newcastle Buses service area. The growth areas on Newcastle's outskirts are served by private bus companies catering largely for school student travel. Three private operators service the newer, out-western areas of Newcastle. Their services are not CBD focused and are not integrated with Newcastle Buses. A further six private operators run services through the Newcastle Buses area to Charlestown and the CBD.

Approximately 5,300 people live opposite the Newcastle CBD across the Hunter River. The Stockton Ferry provides their only direct means of transport across the 700 metre - wide river.

8. COSTS AND EFFICIENCY

In 1994-95 the total cost per km for Newcastle Buses was \$2.67. This figure has been falling consistently for more than five years. The comparable figure for private operators is around \$2.10 per km.

In order to address this cost differential, Newcastle Buses has analysed those items of expenses in its 1994-95 operations that differed from those in the private sector.

Newcastle Buses has identified the following reasons for differences between its costs and the costs of the private buses:

- inefficiencies that could be reduced (\$0.25 per km)
- costs incurred because they are a Government agency (\$0.34 per km)
- service improvements that should encourage patronage and increase revenue (\$0.22 per km).

In its presentation to the Tribunal, STA suggested that private buses could provide the services currently being supplied by Newcastle Buses for a cost saving of \$4.4 million. However, STA claimed that only 47 per cent of these costs (\$2.07 million) was due to inefficiencies which could be reduced, whereas 41 per cent was due to service quality. As with Sydney Buses, the service levels provided by Newcastle Buses are greater than those required by the Department of Transport. A further 12 per cent of higher costs are due to the operating environment.

These cost differences between private and STA operators provide a basis for arguing that there should be competition in gaining the right to serve contract areas as outlined above (Section 3.6 of Part A).

In theory, if this were to happen, where private operators were more efficient, the cost of providing services would be reduced by around \$2.07 million. In addition, it would be clearer how much of the remaining \$2.3 million cost difference *is* due to the operating environment and/or higher service quality. Higher service quality requirements could be taken into account in determining the service levels featured in the contracts. It is possible that private operators can meet the same higher service requirements at lower cost.

9. FARES

Only 21 per cent of ticket sales on Newcastle Buses are for full adult fares (compared to approximately 55 per cent for Sydney Buses), and Newcastle Buses recovers only 11 per cent of total costs from these fares. Newcastle Buses presently use the same fare scales as Sydney Buses, with three bands for cash fares: 1-2, 3-9, and 10-15 sections. To apply these fares, the bus network requires that drivers are familiar with 802 section points, containing 2500 stops. As is the case in Sydney, multi-ride tickets in Newcastle offer discounts of up to 36 per cent on the equivalent cash fares with no provision for transfers on single fares or TravelTens.

STA estimates that around 30 per cent of passengers buying 1-2 section tickets on Newcastle Buses are over-riding into the 3-9 section range. This is likely to be a result of the large jump in fare for a trip greater than 2 sections.

According to the STA submission, fare levels for Newcastle Buses are higher for most sections than those charged by private buses. Under the Pricing CSO agreement with the Department of Transport, Newcastle Buses must pay the Department any excess revenue above what would have been collected if the service had been provided by a private bus. This means that any revenue gained through higher fares than private operators charge is paid directly to the Department.

9.1 STA proposed fare changes to ferries and buses in Newcastle

It has been proposed that the current flat fare for Newcastle Ferries should remain. However, the fare should recover efficient costs and reflect economic alternatives.

The flat fare structure approach is not appropriate for Newcastle Buses due to the diversity of services offered and the particular features of that market - in particular the absence of a large group of commuters using the buses. Another approach would be to charge zonal fares. In addition, the size and population of Newcastle is such that, in comparison to Sydney, it can be treated as one zone which is equivalent to a flat fare structure.

STA's preferred fare structure for Newcastle is time-based pricing. That is, a ticket could be valid for a certain period of time, allowing the traveller to travel as far as he/she likes in the time available, with free transfers between services. Costly transfers deter people from utilising public transport. Free transfers would encourage more efficient use of resources. Spare capacity would be better utilised as new and existing users increased their travel by taking advantage of free transfers. Other cities with time based fares (Melbourne, Adelaide, Perth) have high per capita levels of public transport usage. Although this fare type encourages greater usage of the transport system, fares need to be set in relation to some measure of average cost. This could result in higher relative prices for short distance, non-transfer travel relative to longer- distance (and time) travel with transfer.

With regard to peak and off-peak, a peak does not really occur in the case of Newcastle buses. A high level of pensioner and seniors travel on the concession fare is reasonably steady throughout the day. Therefore, off-peak pricing is of little relevance to the Newcastle bus services.

To improve cost recovery, the emphasis should be on cost reductions. There *may* be some opportunities for growing the market, with some innovative fare structures and through service level improvements. However, because Newcastle has very little commuter travel

and the majority of travel on Newcastle services are pensioners (46 per cent as compared to 24 per cent in Sydney - as shown in Table 9.1), there is little likelihood of increasing patronage and revenues. Although continued efforts should be made to reduce costs, Newcastle services can never hope to achieve adequate levels of cost recovery (See Figure 2.7, Chapter 2, Part A). As a consequence, ongoing operating subsidies will be necessary to maintain the Newcastle service. The size of these subsidies will depend on the reduction in costs that can be achieved by the transport service provider.

Table 9.1 Passenger boarding profile

Ticket type	Boardings per year ³ (%)	
	Sydney	Newcastle
Single ride ticket	21	28
TravelTen	28	22
TravelPass	27	4
Pensioner ticket	24	46
Total	100	100

(Source: STA)

Perceived increases in the value of fares and improvements in convenience may lead to some increase in levels of patronage and, hence, increased revenue. Time based fare structures could achieve these objectives in the Newcastle market. The risks of net revenue loss are slight, and there are benefits in the experiment, both in Newcastle and elsewhere.

Recommendation

The Tribunal considers that a time based fare is worth trialling in Newcastle. The State Transit Authority should submit details of the proposed time based fares to the Annual Determination.

³ Figures exclude boardings taken by school students and boardings on premium services and charters and hirings.

APPENDIX 1 STA CONSOLIDATED PERFORMANCE TRENDS

1 FINANCIAL ANALYSIS

STA has provided the Tribunal with five year financial forecasts for its main business segments. These forecasts are based on 25 per cent patronage growth in the five years to 2000.

The Tribunal has reviewed these forecasts and tested their sensitivity to changes to various assumptions. In particular, the Tribunal is concerned with the realism of the assumed growth in patronage and the outcome if an alternative strategy, ie cost minimisation, is pursued.

This Appendix will examine STA's current financial position, present STA's 5 year financial forecasts, and analyse the potential outcomes from alternative scenarios.

It needs to be stressed that the scenario analysis in this Appendix is based on a number of assumptions. Further, as has been argued in the Report, it is not clear that STA's financial performance can sensibly be analysed in terms of commercial outcomes with rates of return on assets (or equity). This is because of the substantial flow of government funds to the STA by way of various explicit CSOs as well as disguised CSOs in current reimbursements for targeted concessions. It is also not clear that there can be a reasonable expectation of a rate of return where there is such a large gap between actual and efficient costs.

1.1 Current financial status

At the consolidated level, STA reported a positive 1994-95 net operating result of \$19.8m⁴, an improvement of \$16m over the previous year. In the same year, payments for property, plant and equipment amounted to \$24.8 while debt and lease liabilities were reduced by \$14.2m.

⁴ The favourable impact of a tri-annual reassessment by the Government actuary of the superannuation liability contributed \$17.7m to this amount.

1.1.1 Cash flow

The following table summarises STA's cash movements since 1990-91.

Table 1.1 Cash flows (\$m)

	1990-91	1991-92	1992-93	1993-94	1994-95
Net cash provided by operating services	-12.9	41.0	37.8	31.3	28.2
Government contributions to redundancies	29.9	34.8			
Cash from investing activities					
Payments for property plant & equipment	-22.7	-28.2	-30.3	-23.5	-24.8
Proceeds from sale from property, plant etc	12.5	11.8	7.6	22.6	10.8
Cash flows from financing activities					
Repayment of borrowings	-14.4	-7.6	-16.2	-12.2	-10.2
Prepayment of lease liabilities	-12.5	-6.9	-5.6	-6.7	-4.0
Dividend paid to State Government		-58.3			
Net increase (decrease) in cash held	-20.1	-13.4	-6.7	11.5	0.0
Cash at end of year	74.1	60.7	54.0	65.5	65.5

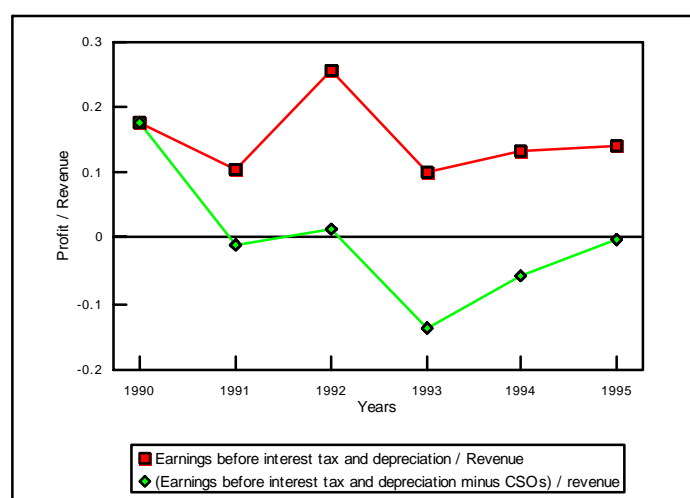
Notes:
 Net cash provided by operating services includes Government payments for targeted concessions, service level and pricing CSOs.
 An offset to the cash at end of the year is retirement benefits liabilities which amounted to \$75.5m at 30/6/95.

Source: STA Annual Reports.

Operating activities, including government payments for targeted concessions and CSOs, have generated a positive cash inflow since 1991-92. Capital expenditure was relatively constant and external debt was reduced. The level of cash and investments remain high, offset by retirement benefit liabilities.

Figure 1.1 shows the ratio of earnings before interest, tax and depreciation (EBITD) to total revenue for STA's consolidated operations from 1990 to 1995. The higher this ratio, the greater the level of cash is required to service the debt, make dividend payments and fund capital expenditure. The graph shows the results with CSO payments included and excluded. Fluctuations in the level of government payments make it difficult to indicate any particular trend from the graph. However, without CSO payments, STA has not been able to source sufficient cash flow to service its costs.

Figure 1.1 Cash generation



Source: STA, Annual Reports

Note: Calculation of interest expense for EBIT has not been adjusted for 'finance lease contingency'.

1.1.2 Segment profitability

The 1994-95 results, presented on an accrual accounting basis, and the related financial ratios and government payments are tabulated below.

Table 1.2 1994/95 Segment profitability (1995-96 prices)

	Consolidated	Under Review			Total
		Sydney Buses	Sydney Ferries	New'cstle	
Total Revenue (incl. Government payments)	344.9	234.8	45.7	21.8	302.3
Total Expenses	322.8	213.8	51.9	26.9	292.6
Net Operating Profit	22.1	21.1	-6.2	-5.1	9.8
Government Payments					
Service Level CSOs	25.8	11.5	10.2	4.1	25.8
Pricing Level CSOs	22.5	17.4	5.1		22.5
<i>Total CSOs</i>	48.3	28.9	15.3	4.1	48.3
Free & Concessional Travel	101.3	83.8	6.5	10.9	101.2
Other- for cost disabilities of being Gov't operator	2.8				0.0
<i>Total Government Payments-\$m</i>	152.4	112.7	21.8	15.0	149.5
Total Government Payments- % of Revenue	44.2	48.0	47.7	68.8	49.4
Ratios					
Return on net operating assets(%)					3.6
EBITD/Total Revenue(%)	15.7	16.8	6.6	-14.7	9.8
EBIT/Total Revenue(%)	8.6	11.1	-10.6	-21.5	2.7

Notes:

EBITD = earnings before interest, tax and depreciation

Source: STA, *Financial Forecasts for Next Five Years*, 20 November 1995

The results shown in Table 1.2 reveal the relative unprofitability of Sydney Ferries and the combined Newcastle buses and ferry operations. The results also indicate the high level of

dependence of Newcastle Buses on government payments. It should be noted that private bus operators receive equivalent payments from the Government for free and concessional travel.

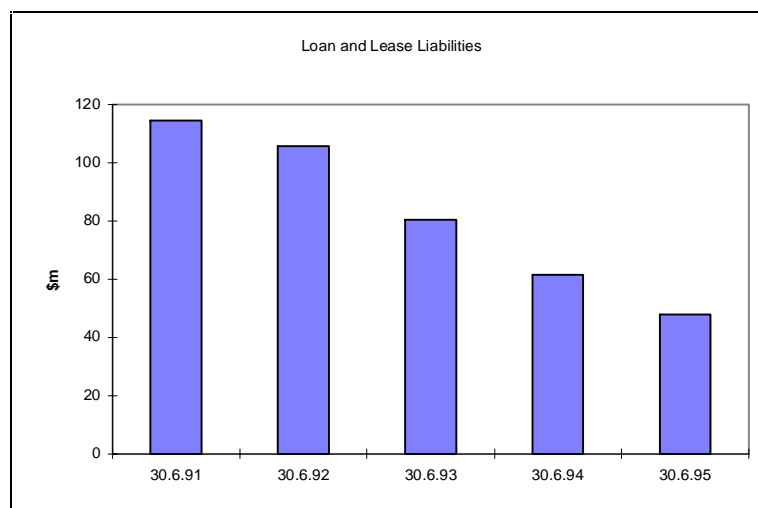
Table 1.2 shows that STA's operations provided a return on net operating assets⁵ of 3.6 per cent (as calculated by the IPART using STA's *Financial Forecasts for Next five Years*). Given that a weighted average cost of capital should be around 11.7 per cent before tax (7.8 per cent after tax)⁶ for an operator in this industry and with the same capital structure, STA could be considered to be earning below commercial returns. However, an adjustment would need to be made to reflect STA's low level of debt. Further, as stressed throughout this Report, the case for STA earning a commercial rate of return has not been established, given its current financial flows from government and level of costs.

1.1.3 Capital structure

9.1.1.1 Ability to service debt

The following graph illustrates the movement in STA's outstanding liabilities for loans and finance leases. The results highlight the substantial debt reduction program pursued by STA and the contribution to that program made by the proceeds from the sale of surplus property, plant and equipment.

Figure 1.2 Outstanding debt



(Source: STA Annual Reports.)

⁵ STA's different classes of assets are valued on different bases. For example, Freshwater class ferries are valued at current replacement cost, land at Director's valuation and other assets at historic cost.

⁶ Weighted Average Cost of Capital (WACC), after tax = $r_d (1-T)(D/V) + r_e(E/V) = 7.8$ per cent
 where r_d = average cost of debt (before tax) = interest payments for 1995 / opening debt balance
 = $5.1/61.5 = 8.4$ per cent
 T = corporate tax rate.
 D = debt at market value = debt closing balance + market value adjustments = \$59.6 million
 r_e = average cost of equity(after tax) (from capital asset pricing model) = $r_f + \text{beta (market premium)}$
 = 3 per cent + $0.8 (7 \text{ per cent}) = 8.6$ per cent (after tax)
 E = equity at market value = net operating assets - debt at market value =
 = \$168.4 mil (since equity in STA is not traded this is the best estimate).
 $V = D+E$
 WACC (before tax) = $r_d(D/V) + r_{e(\text{before tax})}(E/V) = 11.7$ per cent

The funds flow interest cover ratio (see tables 1.3 and 1.4) measures STA's ability to service debt by comparing cash flow to interest costs. This ratio has been maintained at high levels over the past five years. The highest Australian rating (AAA) was achieved for most of the past five years. However, it should be noted that this was achieved with the aid of CSO payments.

9.1.1.2 Ability to service capital expenditure

A ratio which measures ability to cover capital expenditure is net cash flow to capital expenditure. This is presented in Table 1.3. This ratio has been maintained at high levels for the past four years. In particular, a AA Australian rating benchmark for this particular measure was achieved in the past two years. To date, capital expenditure payments have been maintained at comfortable levels. However, a planned significant increase in capital expenditure over the next five years will place increasing pressure on maintaining this benchmark. In addition, it should be noted that calculations of these ratios included the CSO payments.

9.1.1.3 Capital structure

Various debt-to-equity and debt-to-value ratios are presented in Table 1.3. As can be seen, ratios have improved due to the sale of redundant assets and a reduction in overall borrowing.

Table 1.3 Capital structure indicators

	1990	1991	1992	1993	1994	1995
EBIT/Interest	4.5	1.1	14.2	1.3	1.4	4.3
Fundsflowinterest cover		3.4	13.7	9.6	4.4	6.1
Net cashflow/ Capex		0.8	0.6	1.3	1.4	1.3
Debt/Equity	4.4	2.0	1.4	1.2	0.8	0.6
Debt/ Longterm debt +equity	0.8	0.6	0.6	0.5	0.4	0.4
Debt/Total Assets	0.4	0.3	0.3	0.3	0.2	0.2
Fundsfrom operations/ debt		0.1	0.6	0.3	0.4	0.3

Table 1.4 Ratings benchmarks⁷

	1991	1992	1993	1994	1995
<u>Austalian RatingsBenchmarks</u>					
Fundsflowinterest cover	A	AAA	AAA	AA	AAA
Net cashflow/Capex	AA	A	AAA	AAA	AAA
Fundsfrom operations/Total debt	B	AAA	AA	AAA	AA

1.2 Financial forecasts

The forecasts provided by STA represent an aggressive and optimistic growth strategy. STA bases much of its forecasting on the assumption that a 25 per cent growth in patronage can be achieved over the next five years. On the assumption that the public is more sensitive to service than to price, STA hopes to achieve growth by expanding capital expenditure to increase service quality. A sensitivity analysis of these forecasts is presented below in Figure 1.3.

⁷ Benchmarks were derived from *Capital Structure Policy For NSW Government Trading Enterprises* - NSW Treasury August 1994.

1.2.1 Sensitivity analysis

The Tribunal undertook its own sensitivity analysis based on the five year financial forecasts provided by STA. This data differs from that found in the annual report due to various adjustments including the elimination of outstanding retirement benefit liabilities and associated accumulated cash and investments. While only indicative, the model utilised allows the most sensitive factors, and the major cost drivers to be identified.

9.1.1.4 Assumptions of the Tribunal forecasts

The Tribunal attempted to reflect the assumptions of STA forecasts as closely as possible. However, where STA assumed a 25 per cent increase in passenger ticket revenue, the corresponding total revenue increase (which includes free and concessional contract revenue) is around 14 per cent. It was assumed that 70 per cent of STA's net profit would be distributed to the Government in the form of tax equivalents and dividends.

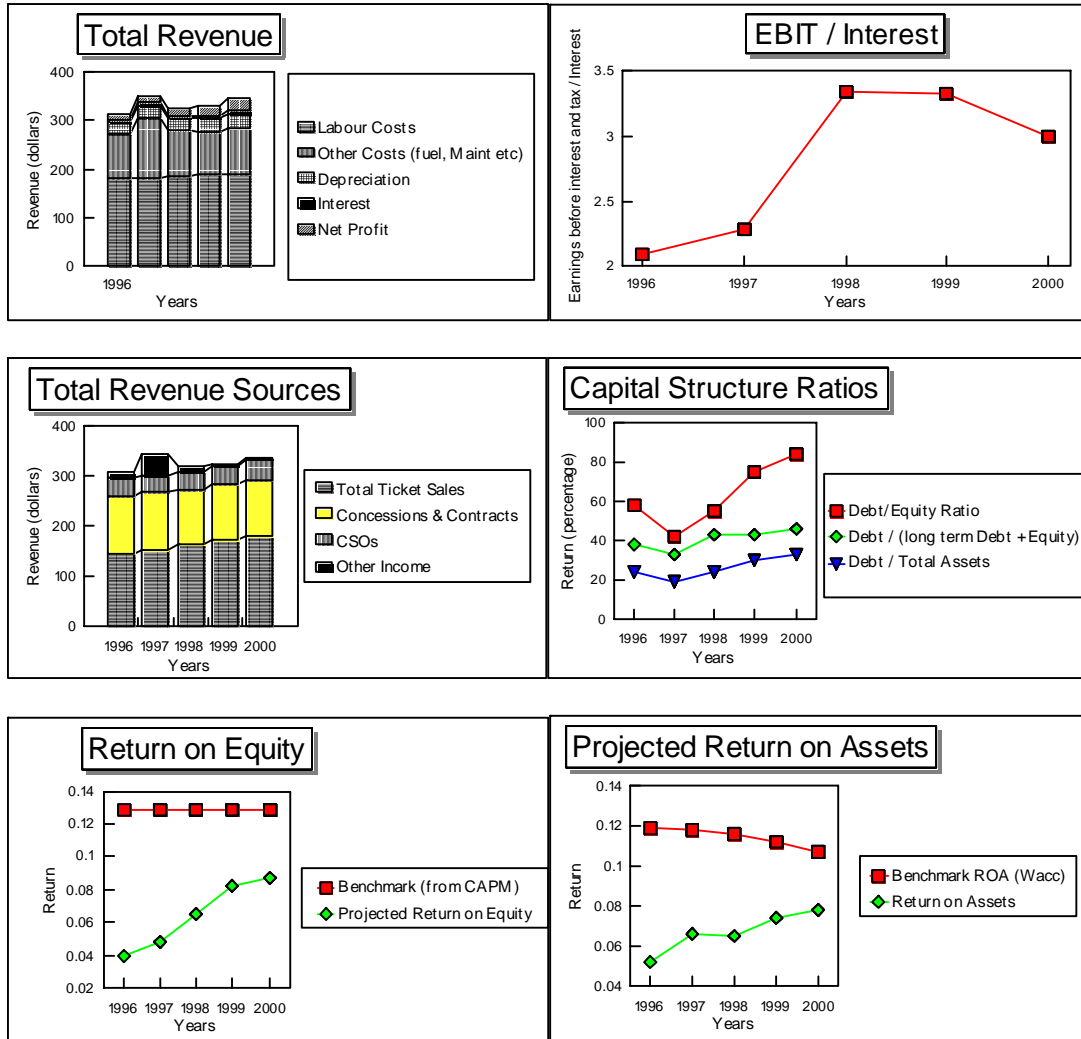
9.1.1.5 Base case

Base case forecasts for the sensitivity analysis are shown in Figure 1.3. Table 1.5 shows the total contribution of pricing and service CSOs towards total revenue.

Table 1.5 Contribution of CSOs to total revenue

	1995	1996	1997	1998	1999	2000
Pricing Level CSO (\$mil)	22.47	19.123	20.015	21.021	22.026	23.03
Service Level CSO (\$mil)	25.84	16.329	13.774	13.774	13.774	13.774
Total CSO payments as a percentage of Total Revenue %	15.96	11.44	9.78	10.85	10.99	10.89

**Figure 1.3 Sensitivity analysis base case:
five year constant dollar financial projections for STA⁸**



9.1.1.6 Results

As reflected below, The STA's profit and rate of return forecasts appear to be very sensitive to labour costs and revenue estimates.

⁸ These projections are based on the assumptions derived from STA projections. As with STA projections all figures are expressed in constant 1995/96 dollars.

Table 1.6 Summary of sensitivity analysis

	Base Case	Labour costs increase by 5 per cent		Raw material costs increase by 5 per cent		Capital Expenditure increases by 50 per cent		Total Revenue achieved - 5% below expectations	
		Actual value	% change	Actual value	% change	Actual value	% change	Actual value	% change
1996 Return on Net Assets	5.2%	1.4%	-73	4.6%	-%	5.2%	0%	2.7%	-48%
2000 Return on Net Assets	7.8%	4.4%	-44%	7.3%	-6.4%	4.2%	-46.2%	5.9%	-26 %
1996 EBIT (\$m)	12.305	3.299	-73.2%	10.923	-11.23%	12.305	0%	6.466	-47.5%
2000 EBIT (\$m)	22.712	13.149	-42%	21.144	-6.9%	15.815	-30.4%	17.0954	-24.9%
Debt/Equity ratio (2000)	83.4%	115%	38%	87.5%	5%	163.3%	95.8%	99.9%	19.8%

In the earlier years, the forecasts are relatively insensitive to changes in capital expenditure (since capital expenditure is not expensed immediately and simply increases the asset values in the short term). Even in the long term, by the year 2000, if estimates of capital expenditure are underestimated by as much as 50 per cent, the EBIT would be reduced by only 30 per cent (22.7 to 15.8) in the year 2000. This assumes that revenue is not affected by the increased capital expenditure. The capital structure is drastically affected. With such an increase in capital expenditure over the next 5 years, by the year 2000 the debt -to-equity ratio will rise from 83.4 per cent to 163 per cent (an increase of 96 per cent).

Thus, a sensitivity analysis reveals that only minor deviations from the original assumptions regarding labour costs and revenue projections may have substantial effects on the bottom line.

1.3 An alternative strategy - cost minimisation

The sensitivity analysis above is based on STA's assumptions and preferred strategy. It is prudent to consider other scenarios based on alternative strategies. A cost minimisation strategy warrants analysis. This strategy focuses on establishing efficient costs without assumptions of patronage growth or price increases. In particular, the scenarios considered include:

1. *Cost minimisation*: assumes 10 per cent reduction in costs over 5 years, with no increase in fares, zero per cent inflation.
2. *Cost minimisation with Pricing CSO removed* assumes 10 per cent reductions in costs, with no fare increases, zero per cent inflation and pricing CSOs removed.
3. *Cost minimisation with inflation* assumes 10 per cent cost reduction with, 3 per cent inflation, and no fare increases.

The various scenarios are presented below.

1.3.1 Cost minimisation scenario

9.1.1.7 Assumptions

This scenario is based on the following assumptions:

- 10 per cent reduction in labour costs from 1996 to 2000. That is a 2 per cent reduction per annum over the five years
- no fare increases over the period
- zero inflation (to allow comparison with STA base case results)
- *capital expenditure* set at half original STA forecasts. It is assumed that 50 per cent of STA's planned capital expenditure would be required to maintain zero growth.

9.1.1.8 Results

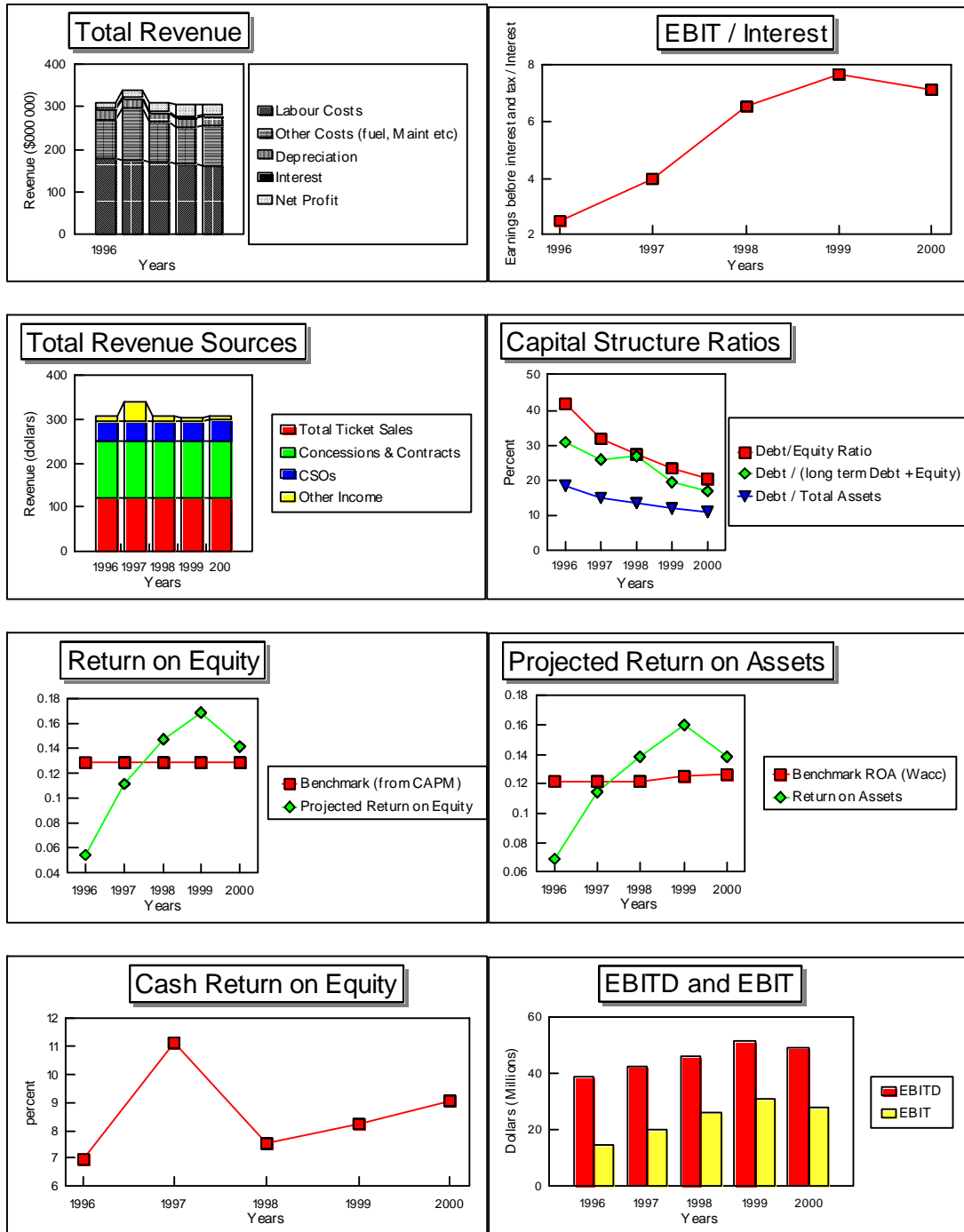
This scenario replaces the patronage growth strategy with a sole focus on cost minimisation. No growth in patronage is assumed. It is a lower risk strategy which is not reliant upon achieving high patronage growth. A patronage growth strategy would require a higher forecast return to justify the risk return trade-off.

The results summarised below in Figure 1.7 reveal that STA can substantially improve its financial status by a cost reduction strategy alone. The model predicts increasing returns to achieve a 13.9 per cent return on assets and a 14.2 per cent return on equity by the year 2000 under this strategy. These increased returns are a result of increased profit as reflected in EBIT rather than a decrease in assets.

The cash flow projected in this scenario appears healthy as well. Excluding the unusual result of 1997, the graphs below show that cash return on equity and EBITD will increase steadily over time. The 1997 returns are higher due to the planned assets sale. The additional increase in free cash flow allows a significant reduction in debt as reflected in the improvement in the capital structure ratios. This ability to reduce debt is also reflected in the EBIT/interest ratio. This ratio shows a projected increase in the five year period reflecting improved ability to cover interest payments.

In summary, it appears that a cost minimisation scenario can achieve equal if not better, results than the riskier patronage growth strategy advocated by STA.

Figure 1.7 Cost minimisation strategy



1.3.2 Cost minimisation scenario with CSOs removed

9.1.1.9 Assumptions

This scenario is based on the following assumptions:

- pricing CSOs are no longer paid
- 10 per cent reductions in labour costs from 1996 to 2000, that is, a 2 per cent reduction per annum over the five years
- no fare increases over the period
- zero per cent inflation (to allow comparison with STA results)
- *capital expenditure* set at half original STA forecasts. It is assumed that 50 per cent of STA's planned capital expenditure would be required to maintain zero growth.

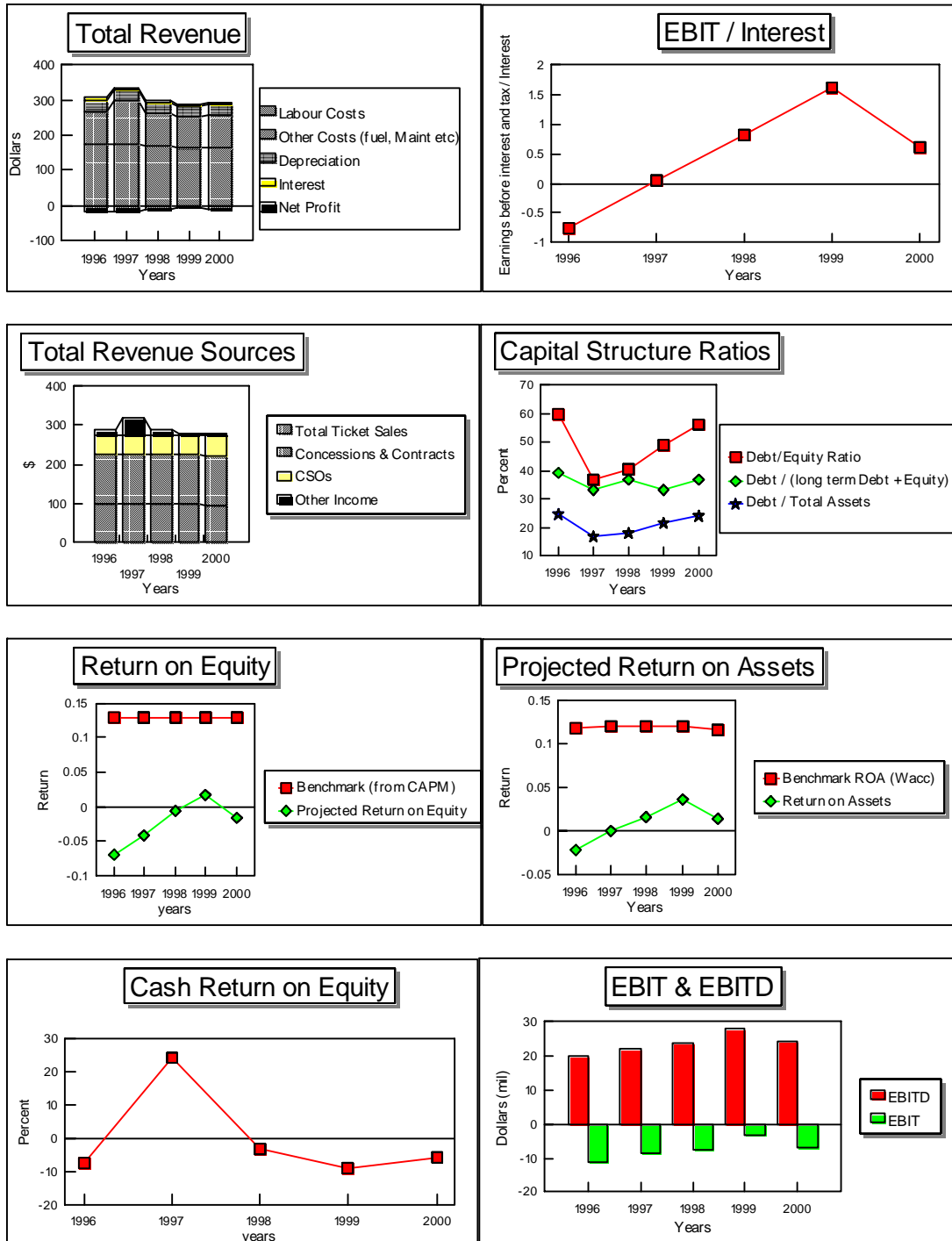
9.1.1.10 Results

This scenario is the same as the previous cost minimisation scenario, with pricing CSOs removed. One of STA's goals is to eradicate the need for pricing CSOs.

As shown below, the removal of pricing CSOs has a drastic effect on the financial position of STA over the five years. While it appears that profits as reflected in EBIT and EBITD are increasing over the period, they are still significantly below commercial levels (as measured by WACC). The capital structure ratios show a slight increase reflecting the overall lack of free cash flow. While there appears to be increasing cash flow as reflected by EBITD, it is insufficient to cover capital expenditure. This is emphasised in the negative cash return to equity over the five years.

In summary, removing the pricing CSO places considerable strain on the business, even given a 10 per cent reduction in costs.

Figure 1.8 Cost minimisation strategy, with no pricing CSOs



1.3.3 Cost minimisation with inflation scenario

9.1.1.11 Assumptions

This scenario is based on the following assumptions:

- 10 per cent reductions in labour costs from 1996 to 2000, that is, a 2 per cent reduction per annum over the five years
- no fare increases over the period
- 3 per cent inflation per year
- *capital expenditure* set at half original STA forecasts. It is assumed that 50 per cent of STA's planned capital expenditure would be required to maintain zero growth.
- no asset revaluation
- CSOs maintained at STA's projected levels

9.1.1.12 Results

It is interesting to analyse the effect inflation has on the financial status of STA if a cost minimisation strategy is employed.

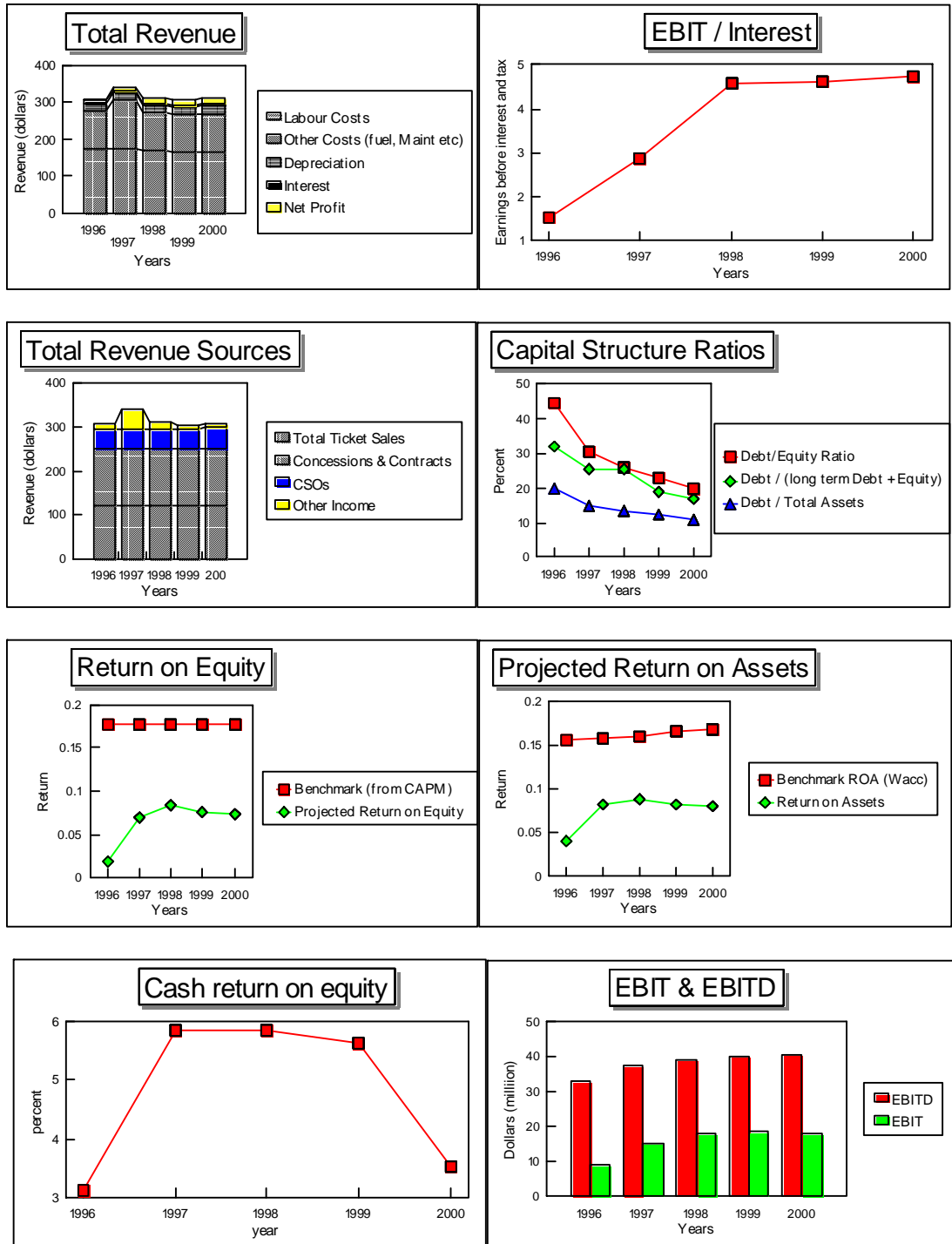
As expected, the cost minimisation with inflation scenario is less optimistic than the scenario with zero inflation. In this last scenario, operating costs and capital expenditure are increased by an inflation rate of 3 per cent⁹. At the same time, revenue has been held constant by a price freeze on tickets. In effect, the real revenue has decreased.

The graphs below show improving financial status for STA over the five years. Profits as reflected in EBIT, return-on-equity and return-on-assets are projected to increase over the period. However, returns do not reach commercial levels.

Cash flow looks particularly healthy. Cash return on equity remains positive and increases over the period. The increased cash flow facilitates a repayment in debt which is reflected in the improving capital structure ratios.

⁹ No revaluation of assets for inflation is assumed. This accords with the historical cost convention currently followed by STA. For this reason, depreciation does not fluctuate with price movements.

Figure 1.9 Cost minimisation, inflation adjusted



1.4 Conclusion

The analysis highlights alternative strategies for improving STA's financial performance. STA's projections for improved patronage and associated costs need to be analysed closely to ensure the reasonableness of the underlying assumptions. To satisfy higher patronage, additional expenditure would have to be committed. If the anticipated increase in patronage does not occur, either paying customers or the Government will be faced with higher payments.

As an alternative strategy, a cost minimisation program may offer the opportunity for improved financial results with lower risk. Such an approach requires a view to be adopted regarding government versus private transport options, along with the opportunities for STA to grow its share of the transport market.

APPENDIX 2 OUTLINE OF STA'S PROPOSED FARE CHANGES FOR SYDNEY BUSES

OPTION	CASH	TRAVELTEN	TRAVELPASS
OPTION 1 (BASE CASE)	STATUS QUO	STATUS QUO	STATUS QUO
OPTION 4	STATUS QUO	DISCOUNT REDUCED TO 15%	EXISTING RANGE REPLACED BY THREE PRODUCTS PRICED ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE
OPTION 6C	REVISED FARE BANDS AND FARES 1-2 SECTIONS 3-4 SECTIONS 5-6 SECTIONS 7-10 SECTIONS 11-15 SECTIONS 16-21 SECTIONS 22+ SECTIONS	REVISED FARE BANDS AS PRICED PER CASH AND DISCOUNT REDUCED TO 15%	EXISTING RANGE REPLACED BY THREE PRODUCTS ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE
OPTION 6D	REVISED FARE BANDS AND FARES 1-2 SECTIONS 3-4 SECTIONS 5-6 SECTIONS 7-10 SECTIONS 11-15 SECTIONS 16-21 SECTIONS 22 + SECTIONS	REVISED FARE BANDS AS PER CASH AND DISCOUNT REDUCED TO 15%	EXISTING RANGE REPLACED BY THREE PRODUCTS PRICED ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE

**OUTLINE OF STA'S PROPOSED FARE CHANGES FOR SYDNEY BUSES
(continued)**

OPTION	CASH	TRAVELTEN	TRAVELPASS
OPTION 7	FLAT FARE	TRAVELTEN	EXISTING PASS RETAINED BUT PRICED USING "TVT" CONCEPT RED, GREEN, YELLOW, PINK, BROWN, PURPLE
OPTION 8	ZONAL FARES BASED ON EXISTING TRAVELPASS ZONES JOURNEYS INCLUDING ZONE 1 AND ZONE 1 ZONE 2 ZONE 3 ZONE 4 ZONE 5 ZONE 6 ZONE 7 PITTWATER JOURNEYS WITHIN 1 ZONE (EXCLUDING ZONE 1) JOURNEYS WITHIN 2 OR MORE ZONES EXCLUDING ZONE 1	AS PER CASH OFFERING 15% DISCOUNT TRAVELTEN INCLUDING ZONE 1 AND ZONE 1 ZONE 2 ZONE 3 ZONE 4 ZONE 5 ZONE 6 ZONE 7 PITTWATER JOURNEYS WITHIN 1 ZONE (EXCLUDING ZONE 1) JOURNEYS WITHIN 2 OR MORE ZONES EXCLUDING ZONE 1	EXISTING RANGE REPLACED BY THREE PRODUCTS PRICED ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE
OPTION 9	ZONAL FARES BASED ON 3 TRAVEL PASS ZONES ZONE 1 ZONE 2 ZONE 3 ZONES 1 & 2 ZONES 2 & 3 ALL ZONES	AS PER CASH OFFERING 15% DISCOUNT ZONE 1 ZONE 2 ZONE 3 ZONES 1 & 2 ZONES 2 & 3 ALL ZONES	EXISTING RANGE REPLACED BY THREE PRODUCTS PRICED ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE
OPTION 10	TIME BASED	NOT YET EVALUATED	

**OUTLINE OF STA'S PROPOSED FARE CHANGES FOR SYDNEY BUSES
(continued)**

OPTION	CASH	TRAVELTEN	TRAVELPASS
OPTION 12	FREE TRAVEL	FREE TRAVEL	EXISTING PRODUCTS PRICED ACCORDING TO FERRY AND RAIL TVT
OPTION 13	PRIVATE FARE SCALE	PRIVATE FARE SCALE	EXISTING RANGE REPLACED BY THREE PRODUCTS PRICED ACCORDING TO "TVT" CONCEPT ZONE 1 CURRENT RED ZONE 2 CURRENT GREEN AND YELLOW ZONE 3 CURRENT PINK, BROWN AND PURPLE