

Performance Audit Report

**State Transit Authority
Department of Transport**

Bus maintenance and bus contracts

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Foreword

This performance audit examined:

- the efficiency and effectiveness of the State Transit Authority of New South Wales' (State Transit) approach to maintaining its bus fleet
- the Department of Transport's role in overseeing State Transit's operations and obligations under the *Passenger Transport Act* and contracts for the provision of passenger bus services.

The results of the audit are presented in two parts.

Part 1 contains the findings relating to State Transit

Part 2 contains the findings relating to the Department of Transport.

The responses from the agencies are included in the part of the report that relates to them.

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Part one

State Transit - bus maintenance

Executive Summary

Executive Summary

State Transit is the largest bus operator in NSW and one of the few remaining government bus operators in Australia. It has a fleet of 1,899 buses valued at around \$230 million.

The State Transit bus fleet is maintained by garages that operate as part of depots. Garages are staffed by State Transit employees with most routine maintenance and repairs completed on site.

Audit opinion

State Transit has developed fleet management plans and maintenance standards that meet its regulatory and contractual obligations as a bus operator and are consistent with vehicle manufacturers' standards and best practice.

However, assumptions used in fleet management plans to forecast fleet growth may not result in the most efficient and effective outcome for State Transit. Forecasts fail to take account of opportunities to redesign or reduce services where they exceed contract requirements and are difficult to justify on a commercial basis.

Of greater concern are the consequences arising from bus maintenance practices not meeting State Transit's own standards.

Both poor management and poor practice have contributed to the current situation where defects are missed, buses repeatedly fail in service and there are significant increases in the backlog of repairs.

As a consequence, State Transit now faces reduced vehicle reliability arising from poor quality maintenance.

Because it is a government business, State Transit faces greater public scrutiny of its services than private operators. Commentary on government bus services is generally based on publicly available sources of information such as annual reports.

However, State Transit's data on the performance of bus services is not always accurate and reliable. And published data on bus performance was found to be incomplete, inaccurate and potentially misleading.

Audit findings

Maintaining buses State Transit considers fleet maintenance as one of the primary inputs to reliable and safe bus services. In fact, the NSW Government has established passenger bus maintenance standards due to the safety risks associated with poor vehicle maintenance.

Although State Transit has appropriate maintenance standards in place, the audit found:

- practices that were inconsistent with standards and consequently may not comply with regulatory requirements
- a 65% increase in the number of repairs that have not been completed by garages and significant delays in rectification
- an increase in the number of buses breaking down in service which is estimated to cost State Transit over \$5 million each year
- a doubling of the number of defects identified during maintenance audits
- 48% of buses inspected as part of the maintenance audit program immediately stopped and not returned to service as they failed to meet State Transit's standards for bus safety and reliability.

Ageing fleet The average age of the fleet has increased in the last decade from around 7 years to nearly 12 years.

While the increasing age of the State Transit bus fleet contributes to an overall increase in the volume of repair work, maintenance practices should have controlled the impact of ageing and prevented any overall deterioration in fleet condition.

Furthermore, in reviewing State Transit's approach to managing the maintenance function, the Audit Office found:

- inadequate monitoring of garage performance and no targets against which to assess maintenance outcomes
- uncertainty regarding whether or not maintenance by garages represents best value for money
- a lack of business planning for maintenance outcomes
- inadequate responses to issues raised in maintenance audits to prevent recurrence
- ineffective garage based quality control systems
- inaccurate records of the condition of the fleet.

Conclusion

State Transit is aware of the issues raised in this performance audit and has been responsive in dealing with the immediate problems of the backlog of repairs and improving the quality of safety inspections and services.

These efforts may be enough to improve the condition of the fleet and remove any threat to service reliability but will not necessarily address the underlying causes or provide State Transit with the best outcomes for the future.

Summary of recommendations

A number of recommendations have been made to improve the way State Transit currently undertakes fleet maintenance. These recommendations are presented in the following chapters.

However, improvements to the current system may not provide State Transit with the best long term outcomes. Rather, it is recommended that State Transit consider expanding its use of external providers as a means of achieving best value from its investment in bus maintenance.

It is further recommended that State Transit:

Improve fleet management and reliability by:

- **reviewing the fleet growth target to take account of opportunities to redeploy buses from areas where services exceed contract requirements and are difficult to justify**
- **determining, in consultation with the Department of Transport, the appropriate fleet profile in order to comply with contractual obligations for maximum average fleet age**
- **improving the quality of fleet condition records**
- **further progressing the implementation of strategies recommended in the 1999 review of bus changeovers.**

Improve depot business planning and accountability by:

- **developing business plans that include strategies, performance indicators and targets for garages**
- **implementing formal agreements with garages that outline garage performance standards and operational requirements**
- **monitor garage performance using a range of efficiency and effectiveness indicators similar to those used in other jurisdictions and develop quantifiable targets to judge garage performance.**

Enhance the effectiveness of maintenance audits by:

- **developing an annual audit program for approval by the Board or the Audit Committee**
- **increasing the coverage of audits until the number of defects identified by audit reach an acceptable level**
- **report to the Board, or the Audit Committee, and executive management on the outcomes of maintenance audits.**

Improve transparency and accountability by:

- **reporting on key performance indicators and targets for maintenance in the annual report and, in particular, highlight performance in terms of the safety and reliability of buses**
- **including in the 2002 annual report, correct data on bus changeovers, fleet age and fleet size for 2001 and commentary explaining the change.**

Response from State Transit Authority

Thank you for the opportunity to comment on your office's audit of State Transit's bus maintenance functions.

Our response will be found in the attached document and we ask that this be appended to the audit report when tabled in the Parliament.

This response has been submitted to the Minister for Transport.

(signed)

*JOHN STOTT PSM
CHIEF EXECUTIVE*

Dated: 15 May 200

Summary Response.

State Transit views this report as unnecessarily alarmist. It is, essentially, a desktop review of maintenance documentation. There was no actual inspection by qualified inspectors of buses in the fleet.

State Transit is satisfied that its bus fleet is safe for use and will compare favourably with that of any other Australian route bus operator.

State Transit acknowledges that some workshops need to improve their attention to administration and has taken action to ensure that this occurs - a senior executive has been assigned to ensure compliance with all records procedures and to ensure consistency of process across all depots.

Comment.

1. Route Network and Profitability.

The Audit notes that 69% of State Transit routes are unprofitable and suggests that these be reduced. It is hard to see how this relates to a review of bus maintenance; presumably, the idea is that fewer routes mean fewer buses to service and better bus serviceability.

State Transit considers this view to be naive considering the important role public transport plays in the economic, social and environmental well-being of the community.

The plain fact is that fleet size and the route network are driven by community need and government's expectations - not by "the most efficient and effective outcome for State Transit".

What the audit does not acknowledge is that public transport is a community service which is expected to operate at times and in places where there is no possibility of full cost recovery, and that it does so in the public interest.

Moreover, this economic rationalist view of route profitability is based on a misconception. The audit does not recognise that the 30% of services that are profitable carry many, many more passengers than the rest and that cross-subsidisation of services is a fundamental plank of any bus operator's service contract with the Director General of Transport NSW.

Overall, State Transit's Sydney Buses services operate at or near to full cost recovery. Maintenance resources are not limited by profitability considerations.

State Transit's approach to service reviews is to continually seek to better align services with community needs through its "Better Buses" service development program. This may sometimes reduce services in some local areas (within contract obligations); it often increases services, but the overriding objective is to meet community needs.

2. Fleet Age and Disposition.

The audit points out that the average age of the State Transit fleet has risen from 7 years to 12 years over the past decade and implies that this threatens reliability and increases maintenance costs. It says that private sector operators aim to keep average age at 8-10 years although no evidence is provided for this claim.

What is not stated in the audit report is that the service contract limit of 12 years was adopted by Government at the request of the private sector. Nor is it mentioned that the average age formula makes no allowance for bus size or type. Thus, some operators can reduce their average age by holding a few new low-cost mini-buses in their fleets - whilst the balance of their fleets comprise buses which are older than those at State Transit.

State Transit's fleet of 1900 buses is almost entirely made up of full sized buses or high capacity long buses. Reducing fleet age by purchasing low cost mini buses is not an available option in State Transit's operating area.

The fact is that, in the early 1990s, State Transit was disposing of buses with several years of service still ahead of them, at unrealistically low prices. Following extensive research, it was shown that the community got best value for money by holding buses for the whole of their lives with a mid-life refurbishment.

The Audit has also criticised the uneven spread of average age across depots. However, the reason for this is simple - with the Government-endorsed move from diesel to Compressed Natural Gas (CNG) powered buses, it was necessary to make major investments in gas compression and dispensing stations.

These could not be provided at all depots at one time, so CNG buses had to be warehoused at specific sites. Kingsgrove Depot has had 100 gas buses since 1994 and, more recently, 250 new generation gas buses have been housed at Port Botany and Ryde. An additional gas station is now being commissioned at Waverley and a new station will shortly be built at Leichhardt.

More depots will be added as the number of gas buses increases and, over the next five years, the age distribution will again become homogeneous.

3. Bus Maintenance Issues.

Turning to actual maintenance practices, which were stated to be the objective of this audit, there is a number of issues to be clarified.

Firstly, the fact that a large proportion of the bus fleet has work programmed is not a fundamental indicator of an under-maintained fleet.

State Transit inspects each bus every six weeks and makes an assessment of all work that is either necessary or desirable. This is the most comprehensive inspection program in Australia; there are few operators worldwide who can match it.

Work identified may be safety or environment-related, in which case it is fixed on the spot. Other work may be cosmetic or indicative of wear and tear and may not have reached a point where immediate intervention is required. In such cases, the work is scheduled for later attention. Every 6 and 12 months, buses undergo a planned maintenance program, at which time programmed repair work is carried out.

The Audit Office has reported that 90% of buses have work programmed against them - this is not unusual. It is an outcome of the six weekly inspection process, one purpose of which is to track wear and tear. What is more relevant, in terms of workload assessment, is the number of tasks on the program.

It is true that, through 2001 the number of tasks increased. However since late 2001, that number has been halved and is back at a reasonable level.

State Transit considers that, at any given time, on average, there should be about six tasks programmed for each bus. The current figure is six. It is important to note that these are not safety-related and that all buses on the road are fit for use.

It is also important to note that, for April 2002, failures of buses in service (which are inevitable even in the best-maintained fleet) were at a five year low. April 2002 is 19% down on April 2001 and 28% down on April 2000 (in terms of bus changeovers per 100,000 km). The audit report does not acknowledge those improvements and instead highlights that between 1999 and 2000 total changeovers increased from 19,333 to over 20,000. Moreover, it implies that, despite State Transit having special maintenance programs in place, the changeover performance deteriorated. In fact Table 1 in the report shows that changeover performance improved by 4% as the changeover rate per 100,000 km fell from 20.4 to 19.6. A simplistic comparison of total changeovers is invalid because of an increase in total kilometres travelled.

The Audit also notes that State Transit's internal maintenance auditors stopped 48% of buses that they checked. This figure, out of context, may seem alarming but it must be considered in the following context:

- *The auditors visit depots and randomly examine buses after varying periods in service; buses are rarely checked straight after the six weekly inspection. This means that wear and tear items have had time to appear.*
- *It is State Transit's policy to stop all buses which are found on audit to have faults in certain categories; notwithstanding that, in most cases, safety is not at risk.*
- *Of the 405 buses stopped by internal auditors, 98.5% would have been given time to repair if inspected, in service, by the RTA. Only six buses would have been stopped and these for oil leakage, not for any safety-related issues.*

Overall, whilst satisfied that the bus fleet is in safe condition, State Transit concedes that its depots need to give more attention to administration, record keeping and reporting. In this regard, State Transit accepts the recommendations of the Audit to:

- *Improve fleet records.*
- *Improve performance indicators and targets for depot garages.*
- *More clearly specify performance requirements and procedures for garage staff.*
- *Increase garage monitoring processes.*
- *Further refine the maintenance internal audit program and have it report to the State Transit Board's Audit Committee.*
- *Adjust audit coverage as necessary according to audit outcomes.*
- *Report on maintenance outcomes in the Annual Report.*

To ensure that administration, reporting and audit systems are improved, State Transit has upgraded the status of its Engineering Policy and Standards group to ensure that it has the authority to drive the necessary changes and to improve auditing and reporting. Also, as already mentioned, a senior executive has been assigned full-time to ensure the rapid implementation of these initiatives.

In regard to the improvement of process, it should be noted that State Transit is now in the final stages of developing a new quality management system which will guarantee the implementation of approved policies and procedures for all areas of the Authority including maintenance, and which is expected to be certified under ISO standard 9001 in the near future.

State Transit does not see any value in the Audit's recommendation that bus maintenance should be contracted out. This is not consistent with the Government's expectations, nor is it a practice employed by other operators.

4. Other Issues.

- *The report indicates that an increase in bus breakdowns last year cost State Transit \$5M. In fact, total breakdown costs were \$5M in a maintenance budget of \$40M. (p5)*
- *The report states that of 98,000 trips per week, 390 trips (0.4%) were cancelled because of breakdowns plus another 400 trips missed, with the implication that all are maintenance related. This is not so; many trips are not completed due to traffic conditions or circumstances relating to passenger loadings which require buses to be directed to perform other services.*
- *An important performance indicator not mentioned in the report is that 99.6% of all trips are delivered successfully and 97% run on time. This is a very good result for a road-based public transport operator.*
- *State Transit does not deny that there was an increase in workload in 2001. This was not due to poor management but to an overall increase in bus utilisation during and after the Sydney Olympics (it will be recalled that over 20% of the State Transit fleet had to be diverted to Olympic services at very short notice). The number of programmed work orders in the system is currently 50% of that at the end of 2001.*
- *It is incorrect to call work orders raised on inspection a 'back log' - it is in fact work that has been identified and scheduled for action as a result of six-weekly inspections. Work that is not urgent is scheduled for when buses are next due into the garage. This method of scheduling maintenance is efficient and sensible as it allows buses to have a number of jobs carried out at the same time rather than to have buses booked in separately for each fault.*

Conclusion.

State Transit appreciates the effort that has been put into this review by the Audit Office, and has already committed to improve the administration of its maintenance processes as recommended.

State Transit stresses that its inspection and maintenance standards are sound, its maintenance staff are qualified and competent, and that its fleet is safe and comfortable.

State Transit rejects suggestions that its services should be cut back simply to improve cost-recovery, or that its basic bus maintenance should be contracted out.

1. State Transit

1.1 Introduction

The State Transit Authority (State Transit) comprises three business groups: Sydney Buses, Sydney Ferries and Newcastle Services (bus and ferry services). Sydney buses provide city and suburban bus services. Newcastle buses provide services in Newcastle and Lake Macquarie.

State Transit's objectives are defined in the *Transport Administration Act* as:

- to operate efficient, safe and reliable bus and ferry services
- to be a successful business and maximise the net worth of the business
- to exhibit a sense of social responsibility by having regard to the interests of the community
- to operate in an environmentally responsible manner
- to exhibit a sense of responsibility towards regional development and decentralisation.

Each of the objectives is of equal importance.

1.2 Snapshot of services

State Transit's bus services are provided from eleven depots operating in Sydney and two in Newcastle. In June 2001, the fleet consisted of 1,899 buses valued at around \$230 million.¹

In 2000-01, patronage increased in Sydney by 1.8% but has declined in Newcastle over the last four years.

On an average week, State Transit operates 98,000 bus services with over 95% of services running on time. However, also in an average week there are around 390 bus changeovers where buses were unable to complete a trip and an additional 400 trips missed.

Funding arrangements

The majority of State Transit's revenues are derived from fare paying passengers and fares paid by the NSW Government on behalf of people entitled to free or concessional travel.

State Transit bus fares are regulated by the Independent Pricing and Regulatory Tribunal (IPART) and are determined annually.

¹ Data provided by State Transit. State Transit Annual Report indicates fleet size was 1,926 buses as at 30 June 2001.

For the past ten years, State Transit has operated under the same funding model. This model specifies that State Transit receive reimbursement for:

- free and concessional travel
- pricing Community Service Obligations (CSOs) for fares set below commercial levels
- service CSOs for some non-commercial services operated in excess of minimum service levels in Newcastle.²

Service CSOs for Sydney buses were discontinued in 1995.

The NSW Government reimbursement to State Transit for free and concessional travel, pricing CSOs and service CSOs was \$193.4 million in 2000-01.³

1.3 Regulatory framework

Requirements for bus operators in NSW are outlined in the *Passenger Transport Act 1990* and the *Passenger Transport (Bus Services) Regulation 2000*.

The Act, administered by the Department of Transport, requires all bus operators, including State Transit, to be accredited to ensure they meet the NSW Government's standards of financial viability, safety and vehicle maintenance.

In addition, bus operators can only provide passenger bus services under contract with the Department of Transport.

Commercial contracts for the provision of passenger bus services outline minimum service levels and other obligations such as maintaining the average fleet age at 12 years.

State Transit currently operates under 27 separate commercial contracts with the Department of Transport.

² State Transit Submission to the Independent Pricing and Regulatory Tribunal of NSW 2001-02

³ NSW Treasury Budget Papers 2001-02; State Transit submission to IPART March 2001. Free and concessional travel \$137.8 million, pricing CSO \$36.7 million and service CSO \$19.3 million.

2. Fleet management strategy

2.1 Introduction

Fleet management framework

State Transit's fleet management framework consists of:

- a fleet management strategy that guides decisions on fleet growth, replacement, disposal and refurbishment
- maintenance guidelines and standards
- policies and procedures to standardise maintenance practices
- controls of maintenance processes.

The fleet management strategy is aimed at providing reliable and safe bus services which meet contractual and statutory requirements and maximise patronage potential, service efficiency and service effectiveness.

State Transit's bus fleet has been progressively improved over the last 10 years to introduce wheel chair accessible, air conditioned services. The latest purchase was 300 Mercedes compressed natural gas powered (CNG) buses costing \$120 million which have progressively been introduced since 1999.⁴

2001-2005 fleet management plan

State Transit's 2001-2005 fleet management plan addresses:

- the need to comply with contractual requirements that the average fleet age not exceed 12 years
- anticipated increases in patronage
- service improvements.⁵

The current plan proposes that 300 new buses be purchased over the next 5 years at a total cost of \$143 million. Refurbishment plans identify 217 buses to be refurbished at a cost of \$4.3 million.

2.2 Complying with the maximum average age

State Transit manages the average age of the fleet through the number of new vehicles purchased and the number of vehicles sold each year.

⁴ State Transit Authority Annual Report 2001. Total project cost provided by State Transit.

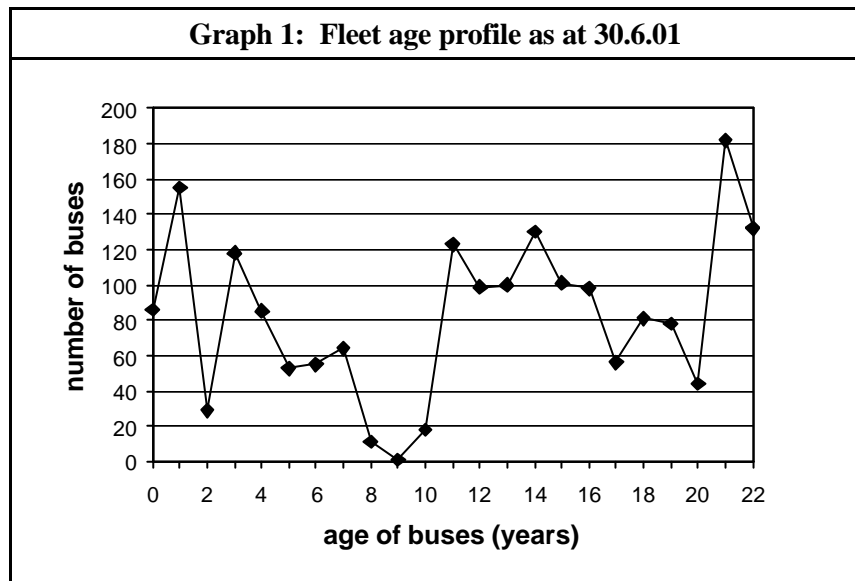
⁵ State Transit Authority Bus Fleet Management Strategy to 2005

State Transit indicated in its 2001 annual report that the fleet did not comply with the maximum average age requirement as the average age of buses was over 12 years. Since raising this issue with State Transit, the Audit Office was advised that the method used to calculate average age, although more meaningful to State Transit, was not in accordance with the Department of Transport's methodology.

Average age of the fleet

Using the Department of Transport's method for calculating average age, State Transit reports that the average age of the fleet would have decreased to 11.83 years.

It has not been possible for the Audit Office to verify whether this new data provides an accurate profile of fleet age. Nevertheless, the data indicates that the average age of the bus fleet has increased over the last decade from around 7 years to the current level of nearly 12 years old. At present, 3 out of 5 buses are 12 years or older (the oldest buses are 22 years old).⁶



Source: State Transit Bus Fleet Management Strategy 2001-2005. Fleet age calculated using Department of Transport methodology. This data has not been verified by the Audit Office.

⁶ Ibid

Impact of fleet age Ageing buses can expose State Transit to additional risks in regard to service reliability and passenger safety and can incur additional maintenance costs.⁷ For the next five years, the average age of the State Transit fleet will be between 11 and 12 years. Most private sector operators aim to keep the average age at around 8 to 10 years.

Furthermore, new buses have not been equitably distributed to depots. In eight out of twelve depots, the average age of buses used to provide services to the local community currently exceeds 12 years. The allocation of new CNG buses has compounded the problem as these buses can only be provided to depots with refuelling facilities. However, differences in the depot fleet age profiles existed prior to this.

There is also a risk that State Transit does not comply with the average age requirement as the Department of Transport assesses age in respect of the buses used to perform each contract, not on a whole of fleet or depot basis which is used by State Transit.

However, the Audit Office has raised concerns with the method used by Department of Transport to calculate the average age of the fleet. For example, the average age calculation does not establish a maximum age limit for any vehicle across the fleet. This is discussed in more detail in Part 2 of this report.

Recommendation **State Transit determine, in consultation with the Department of Transport, the appropriate fleet profile in order to comply with contractual obligations for maximum average fleet age.**

2.3 Determining the appropriate fleet size

Fleet growth targets State Transit's fleet growth targets have fluctuated over the last 10 years to address service improvements such as changes in bus design to improve accessibility, comfort and capacity, the introduction of new services and additional buses required for the 2000 Olympic Games.

⁷ Arthur Andersen Report on the Economic Evaluation, Risk and Sensitivity Analysis for the Acquisition of new buses, 1996, commissioned by State Transit. The report estimated a 35% increase in maintenance costs between a 16 year old bus and a new bus.

The 2001-2005 plan sets fleet growth at 1% per annum. This target is based on projected population increases, the impact of initiatives to reduce private vehicle use and planned improvements to services.⁸

This target may not provide the most efficient and effective outcome for State Transit. At present, 69% of State Transit bus routes are unprofitable suggesting that services on some routes may exceed demand or are inefficient.⁹ In addition, State Transit reports that services are provided that exceed minimum service levels and do not attract compensation from the NSW Government through specific CSO payments.¹⁰

It may be possible to improve the efficiency of services through redesigning or reducing unprofitable services where services exceed contractual obligations and are difficult to justify.¹¹

State Transit's "Better Bus" community consultation program is progressively redesigning services across Sydney and Newcastle and results so far indicate that service changes are leading to increases in patronage rates and a reduction in the number of buses required for services during peak demand periods.¹²

Recommendation **State Transit review the fleet growth target to take account of opportunities to redeploy buses from areas where services exceed contract requirements and are difficult to justify.**

⁸ State Transit Bus Fleet Management Strategy to 2005

⁹ NSW Auditor-General's Report to Parliament 2001 Volume 7

¹⁰ State Transit Submission to the Independent Pricing and Regulatory Tribunal of NSW 2001-02

¹¹ SKM Economics STA Bus Costs March 1998; Ibid

¹² Stage 1 of the Better Bus review of Sydney's north western region was completed in March 2001. State Transit reported that within 9 weeks patronage increased by 7.5 % or 21,000 passengers per week (State Transit Annual Report 2001). In Newcastle, changes to route structure should see a reduction in the overall fleet size (The Audit Office 2001)

3. Fleet maintenance strategy

3.1 Fleet maintenance

State Transit's bus fleet is maintained by garages that operate as part of each depot. Garages are staffed by State Transit employees who undertake routine maintenance and repairs.

Until 1988, bus maintenance and major repairs, including bus refurbishments, were performed by staff in a central workshop in Sydney. Since 1988 bus maintenance was devolved to garages in the depots. All routine maintenance and minor body repairs are completed by garage staff with major engine rebuilds and overhauls contracted out.

State Transit employs 325 engineering staff with maintenance costs of around \$42 million a year.

Maintenance strategy

State Transit's maintenance strategy reflects a mix of planned and unplanned activities and includes preventative and corrective or breakdown maintenance. The principal objectives of the strategy are to improve reliability, safety and service standards using the most economical and cost effective maintenance solutions available.

State Transit has established standards for bus maintenance that meet operational and regulatory requirements and are consistent with industry standards and best practice.

State Transit's Bus Maintenance and Inspection Manual provides detailed instructions to guide maintenance staff. A standard fleet maintenance program is in place in all garages and is based on:

- manufacturers' recommendations
- State Transit's own standards for vehicle reliability and safety
- Department of Transport's accreditation standards for operators
- Roadworthiness standards.¹³

The preventative maintenance program is a mix of safety inspections and services carried out in accordance with time or distance intervals and includes:

- safety inspections every 6 weeks
- minor services every 24 weeks or 30,000 km
- major services every 48 weeks or 60,000 km.¹⁴

¹³ State Transit is accredited under the Roads and Traffic Authority's alternate compliance scheme for heavy vehicles which exempts State Transit buses from bi-annual roadworthiness inspections.

¹⁴ Some services differ from these standards based on manufacturer's recommendations. For example, Volvo buses have minor services at 25,000 and major services at 50,000 kms.

Each safety inspection and service is guided by a checklist that includes the steps to be performed by maintenance staff. Checklists contain regulatory requirements (mandatory safety and accreditation requirements), State Transit's own maintenance standards and manufacturer's standards for vehicle maintenance.

In addition, special maintenance programs to address common fleet problems that affect reliability such as electrical component failures and engine overheating are initiated centrally for implementation in all garages.

Safety inspections

As a minimum, buses are scheduled for a safety inspection every six weeks. Safety inspections, while not uniformly practiced across all State Transit depots, are typically carried out by a team of three trades staff; a mechanic, an electrician and a vehicle body repairer.¹⁵

Safety inspections drive much of the work performed by garage staff as the inspection identifies defects that need to be repaired. The only defects that will be repaired at the time of inspection are those that render the bus unsafe or unreliable (category 4 defects).

Safety inspections are supposed to take up to 2.75 hours to complete. However the Audit Office found that depots will allocate up to 6 hours for each safety inspection allowing additional time for staff to repair some defects.

Safety inspections form the basis of alternate compliance arrangements between State Transit and the Roads and Traffic Authority (RTA). These arrangements mean that the State Transit fleet, unlike private bus operators, is exempt from bi-annual roadworthiness inspections by RTA. The Department of Transport accreditation standards also require vehicle examinations every 5000 km.

Despite this high frequency of safety inspections and the focus on repairing safety related defects immediately, State Transit's maintenance audits reveal an increasing number of defects and no improvement in service reliability.

¹⁵ Safety inspections at Newcastle are undertaken by a mechanic only.

3.2 The backlog of repairs

The majority of defects identified during a safety inspection are recorded as jobs in the maintenance management system. These jobs remain in the system as outstanding work or repair backlog until completed.

Increases in the backlog of repairs

The estimated number of repair jobs that have not been completed increased by 65% in 2000-01 to 15,287 jobs. The estimated resources needed to complete these repairs also increased to 40,140 hours and is valued at over \$2 million (equivalent to 20 staff years).¹⁶

In all four depots visited as part of the audit, over 90% of the fleet required repair work. In some cases, jobs had remained on this list for over a year.

State Transit has reported productivity improvements since 1999 as demonstrated by declines in the ratio of staff to buses and the ratio of staff to bus kilometres travelled.¹⁷

Any reported improvements in productivity should now be considered in light of the significant increase in the backlog of repairs.

3.3 Key performance indicators and targets

State Transit management routinely monitor depot fleet age and cost indicators (cost per kilometre and cost per bus) and quality indicators (number of breakdowns). The results of maintenance audits are also referred to executive management.

Performance indicators used in other jurisdictions to routinely monitor maintenance include:

- staff productivity using benchmark jobs
- response time for breakdowns
- bus downtime arising from maintenance
- missed services due to maintenance
- planned and unplanned work ratios
- backlogs of maintenance work.¹⁸

¹⁶ Only estimates of the backlog of repairs based on the results of maintenance audits are available. Although State Transit's MIMS computer system maintains data on bus repairs, State Transit does not consider these to be valid and reliable records of outstanding work. Staffing requirement is based on normal hours worked by trades staff in a year estimated at 2080 hours (from State Transit Work Backlog Analysis 2001). Cost is estimated using State Transit's standard \$50 per hour labour costs.

¹⁷ Auditor-General's Report to Parliament Volume 7 2001; IPART Public Transport Fares Determination, July 2001

State Transit does not adequately monitor all aspects of garage performance and has not developed quantifiable, annual targets against which the garage's performance can be judged.

Recommendations

State Transit:

- **monitor garage performance using a range of efficiency and effectiveness indicators similar to those used in other jurisdictions and develop quantifiable targets to judge garage performance**
- **report on key performance indicators and targets for maintenance in the annual report and, in particular, highlight performance in terms of the safety and reliability of buses.**

3.4 Improving fleet reliability

Bus changeovers

Bus changeovers are used as an indicator of fleet reliability. Bus changeovers impact on passengers when a bus breaks down during a run or a trip is missed. The causes of changeover can be either maintenance factors (mechanical or electrical failure) or operational factors (such as driver assault, driver falling ill, failures with the Automatic Fare Collection system etc).

The 1998 review of State Transit's bus costs found that changeovers had reduced in recent years to 7.4 per bus per year but were still considered high by industry standards which were around 2 to 5 changeovers per bus.¹⁹

The high changeover rate may, in part, be due to the road conditions in Sydney. For example, the narrow traffic lanes result in wing mirrors being damaged and congested traffic conditions contribute to buses overheating.

Towards the end of 1999, State Transit engaged consultants to identify and report on the causes of changeover and recommend changes to improve performance. The review found that on average, 85% of all changeovers were the result of maintenance problems.

¹⁸ Department of Environment, Transport and the Regions Bus Quality Indicators UK 2000; Western Australian Audit Office Bus reforms: Further Down the Road June 2000

¹⁹ SKM Economics Analysis of State Transit Bus Costs March 1998

Recommendations from the 1999 report have not yet been fully implemented, but numerous strategies to address maintenance related changeovers have been introduced since the 1998 review. For example, there are fleet wide preventative maintenance programs for selected items and reports are available to garage management to help identify problems with the quality of repair work and common causes of breakdowns.

However, total changeovers have increased from 19,335 in 1999-2000 to over 20,000 in 2000-01.²⁰ The cost of changeovers is estimated at over \$5 million per annum.²¹

Changeovers due to maintenance

State Transit data indicates that the number of changeovers due to poor maintenance has also increased over the last two years.

Period	Total changeovers	Changeovers per 100,000 km	Average changeovers/bus
1999-2000	14,586	20.4	7.6
2000-01	15,577	19.8	8.2

Source: State Transit data on changeovers February 2002. Fleet size in 2000 was 1,906. Fleet size in 2001 was 1,899.

Depot managers report that, since receiving a directive from the Chief Executive Officer in January 2001, more attention has been paid to changeover reports and garage staff were working with operational staff to identify causes and reduce the frequency of changeovers.

Although it is too early to judge whether these changes have been effective, the Audit Office found examples where management had not addressed common causes of repeated breakdowns.

Case study: Addressing the causes of breakdowns
In one garage, the Audit Office found 27 buses which had the same or similar repair work done 10 or more times over the last 6 months. Seven of these buses had repeated problems with flat batteries.
In one case, the bus had to be started by a mechanic on 10 occasions over a six month period before a decision was eventually taken to replace the batteries.
Buses that have had the same repairs repeatedly carried out are more likely to be unreliable and breakdown in service.

Source: Depot findings reports, Audit Office 2001

²⁰ Total changeovers from State Transit Radio Room Log (ST6), February 2002

²¹ Based on State Transit's estimated cost in 1999 of \$260 per changeover.

A recommendation from the 1999 report was for managers to have access to a report that captures data on repeat repairs. This report has been available since September 2001, allowing managers to identify repeat failures and intervene with better maintenance solutions to prevent recurrence.

Roadside service Roadside servicing of buses following a breakdown is undertaken by garage staff. State Transit indicated that this represents a significant opportunity cost to the garage and is examining options to outsource roadside services.

Recommendations **State Transit:**

- **further progress the implementation of strategies recommended in the 1999 review of bus changeovers**
- **examine opportunities to outsource roadside servicing.**

3.5 How big is the problem?

Problems with data accuracy The 1999 review also raised problems with the accuracy and completeness of changeover data. The review found different definitions of changeover used across State Transit resulting in changeovers being underreported.

A recent project at Port Botany depot to improve the accuracy and reliability of changeover data has found that up to 30% of maintenance related changeovers are not presently captured by the system.

The Audit Office also had difficulties obtaining accurate and reliable data on changeovers with results varying depending on the data source. For this report, the Audit Office obtained the 2002 report on changeovers which State Transit considers is accurate but has not been verified by the Audit Office.

Reporting breakdowns In comparing this data to earlier reports on changeovers it was found that data in earlier reports varied significantly and could mislead the reader. For example, changeover results in State Transit's 2000-01 annual report understated total changeovers by 39%. Also, changeover data from garage statistical reports used by management to monitor garage performance understated maintenance related changeovers by 42% for the same period.

Changeovers are recognised as a serious problem by State Transit. Improvements in data accuracy and reliability may indicate that the problem is much greater than originally thought and improvements to date may be marginal.

Recommendations

State Transit:

- **develop definitions of key performance indicators that identify the data source and how results are calculated**
- **adopt a financial year framework for reporting fleet performance data to align with data published in the annual report**
- **include in the 2002 annual report, correct data on bus changeovers, fleet age and fleet size for 2001 and commentary explaining the change.**

4. Garage practices

4.1 Introduction

Since 1992, all depots follow State Transit's maintenance standards and use common checklists to guide maintenance staff through the steps to be performed in safety inspections and services.

Depots are responsible for monitoring fleet condition and maintaining the fleet in accordance with State Transit's maintenance standards.

4.2 Compliance with maintenance standards

The review of garage practices by the Audit Office identified numerous examples of non compliance with the standards set by State Transit for both safety inspections and services.

Audit findings

Problems included incomplete safety inspections, incomplete services, no indication whether the bus was roadworthy following a safety inspection or service, buses not receiving services when due and inconsistent grading and recording of defects.

Inconsistent and poor quality safety inspections and services lead to defects being missed, repeat failures and repair backlogs.

Although the maintenance standards set by State Transit meet or exceed regulatory requirements, where maintenance practices do not comply with these standards there is a risk that State Transit is not complying with regulatory requirements.

Table 2: Summary of findings from the review of four State Transit garages	
State Transit standard	Finding
Safety inspections include mechanical, electrical and body checks.	Not all safety inspections included a body or electrical check.
All items on the safety inspection and service checklists are completed.	Not all items on checklists were marked as completed or marked as not required.
All defects are recorded and prioritised according to the rating system.	Depots used ratings that were not part of the standard. The majority of defects were incorrectly rated as priority 3. Some recorded defects did not have ratings assigned.
Safety inspection and service checklists are signed by an authorised officer. The authorised officer must indicate whether or not the bus is roadworthy.	Checklists were not always signed by the authorised officer. In one depot, the safety inspection checklists were signed by the authorised officer but in most cases the officer had not marked whether or not the bus was roadworthy.
All defects that are not rectified are recorded in the bus history in the maintenance management system. All recorded defects are prioritised.	Practices at depots were not consistent. Not all depots recorded all defects even where the checklist was signed by an authorised officer.
Safety inspection and service checklists record defects rectified during process.	Some depots used manual work sheets to record bus maintenance information (stopped buses) yet these records were not retained.
All services are completed on a kilometre basis or within maximum time limits.	Most depots have moved to kilometres travelled as the only means of identifying when a service is required. Problems with recording equipment in 2001 resulted in services being delayed.

Source: Findings based on the review of 60 bus history files conducted by the Audit Office 2001

4.3 Planned and unplanned maintenance

One measure of the success of a maintenance program is the amount of unplanned or emergency repairs that are undertaken. Planned preventative maintenance should keep these levels to a minimum.²²

Time spent on safety inspections and services

The Audit Office found the average amount of time spent by trades staff on planned safety inspections and services was around 17% of total time (results ranged from 9.7% to 24%). The remaining time was generally used to complete repairs identified during safety inspections or complete emergency repairs.

State Transit does not monitor the ratio of planned to unplanned maintenance or examine trends to see if circumstances change.

Without data, it is not possible to conclude whether the garages are spending more time on safety inspections, services and repairs than on emergency repairs and breakdowns.

4.4 Managing the garage

Only one of the depots visited by the Audit Office (Port Botany) had prepared a business plan that included strategies that directly related to maintenance. The remaining depots did not have business plans in place.

In all cases, there were no targets established against which the performance of the garage could be judged and the key performance indicators used to monitor the garage were inadequate.

For example, benchmark times for 50 routine repair jobs developed by State Transit in 1998, were not used by any of the depots to monitor and benchmark staff productivity. Indeed, the audit found staff times for the same tasks varied significantly from depot to depot.

In addition, indicators of effectiveness such as missed trips due to maintenance, bus downtime, maintenance backlogs, planned and unplanned work ratios and the results of maintenance audits were not adequately monitored by management.

²² According to the State Transit Bus Maintenance and Inspection Manual, unplanned corrective maintenance or breakdown maintenance, occurs when a vehicle fails on the road or has a defect which renders the bus unroadworthy.

Also, routine maintenance jobs completed by garages have not been compared to other providers to measure efficiency or determine whether current arrangements represent value for money.

Recommendations **To improve accountability and transparency, there is a need for each State Transit depot to:**

- **develop business plans that include strategies, performance indicators and targets for garages**
- **implement formal agreements with garages that outline garage performance standards and operational requirements**
- **monitor garage performance using a range of efficiency and effectiveness indicators similar to those used in other jurisdictions and develop quantifiable targets to judge garage performance.**

To enhance the efficiency and effectiveness of bus maintenance, State Transit:

- **examine options for introducing one person safety inspections**
- **market test garage maintenance tasks to see if best value for money is achieved from current arrangements.**

4.5 Maintaining maintenance records

State Transit has a computerised maintenance management system which is used to forecast and schedule maintenance activities and record repairs that need to be completed.

Reports are available from the system on defects that have not been repaired for each bus. However, not all depots follow the same procedures for recording defects identified during safety inspections.

The audit found inconsistencies in practices for recording repairs including not all defects being recorded in the maintenance management system and defects recorded with incorrect priority ratings.

Generally, managers considered the amount of rectification work in the maintenance management system to be overstated.

According to one manager:

There is also a generally held opinion amongst tradesmen that booking everything as priority “3” will give an impression of a lot of work to be done therefore justifying staff numbers or overtime.

State Transit does not have an accurate and reliable picture of the amount of rectification work that is needed for the fleet. Instead, State Transit relies on an estimate using the number of defects identified in maintenance audits.

State Transit advised that in 2001 it identified problems with data integrity and commenced a program to improve its records.

Recommendation **State Transit improve the quality of fleet condition records.**

5. The quality of maintenance work

5.1 Introduction

Alternate compliance arrangements

State Transit is the only bus operator in NSW that is exempted from bi-annual roadworthiness inspections of its fleet by the RTA under an alternate compliance arrangement.

As part of this arrangement, State Transit completes six weekly safety inspections and conducts maintenance audits to examine vehicles for safety problems and ensure that garages comply with maintenance policies, procedures and standards.

Maintenance audits are undertaken by inspectors employed by State Transit. The inspection procedures are based on the RTA's inspection standards for passenger vehicles. The Department of Transport also conducts maintenance systems audits to ensure compliance with accreditation standards.

Types of defects

Defects identified during maintenance audits are classified by State Transit inspectors as either:

- safety related defects or A type defects where the bus is withdrawn from further service until repairs are complete
- defects which will cause the vehicle structure and components to deteriorate if not rectified but which is not a safety related defect called B type defects
- defects which are cosmetic called C type defects.²³

Inspectors conduct follow up inspections 6 weeks after the initial audit to check that defects identified in the audit have been rectified by the garage.

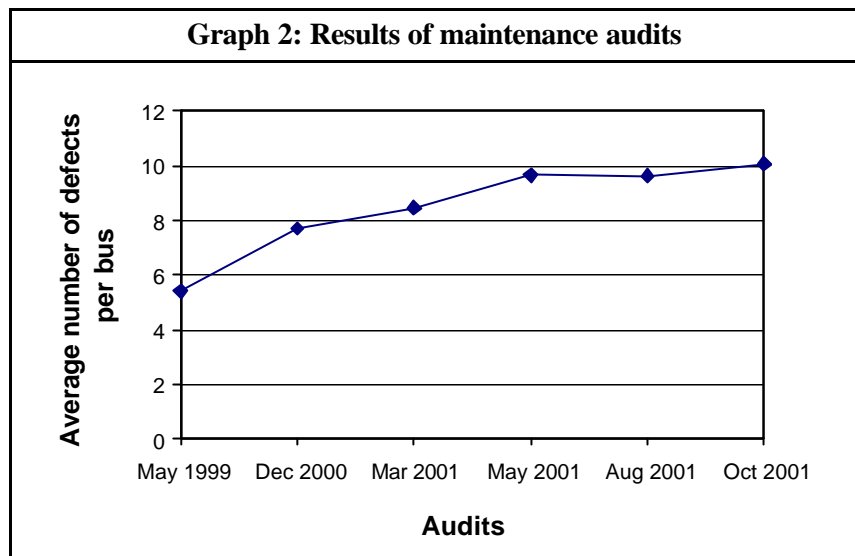
5.2 The maintenance audit program

Audit program

Since 1995, State Transit has implemented a program of maintenance audits that review a sample of up to 20% of the fleet each year. There was a gap in the audit program with no audits conducted from September 1999 to November 2000 due to preparations for the Olympics.

The current audit program commenced in November 2000. Results from the first samples showed an increase in the number of defects per bus since the last audit in 1999. In response, State Transit increased the audit sample size to around 45% of the fleet to determine if these results were valid and reliable.

²³ State Transit Bus Maintenance and Inspection Manual



Source: Maintenance Compliance Reviews 1999 and 2000-01

Results of audits

Since 1999, the average number of defects identified by maintenance audits have nearly doubled in all garages from around 5 to 10 per bus. Results now range from 6 to over 12 defects per bus indicating a decline in the quality of maintenance work by garages.

Also, of the 847 buses inspected, 405 or 48% had A type safety defects. These buses were immediately stopped and not returned to service as they failed to meet State Transit's own standards for bus safety and reliability.

State Transit has reviewed these results and compared these ratings to the ratings used by RTA inspectors. State Transit has advised that 6 of the 405 buses would have been immediately stopped by RTA and towed away with major safety defects (red label offences).

The remaining buses, depending on the nature and severity of the defect and having regard to the driving conditions at the time of inspection, could have resulted in buses being withdrawn from service by RTA or State Transit would have been given time to repair.

Recommendations

State Transit:

- **develop an annual maintenance audit program for approval by the Board or the Audit Committee**
- **increase the coverage of maintenance audits until the number of defects identified by audit reach an acceptable level**
- **report to the Board, or the Audit Committee, and executive management on the outcomes of maintenance audits.**

5.3 Problems with quality

There is an overall reliance on maintenance audits to identify problems with the quality of safety inspections rather than the garage's own quality control system.

The current system used by garages requires an officer to sign off that the safety inspection was completed, that defects have been repaired or can be deferred to a later date and that the bus is roadworthy.

The Audit Office found that not all officers adhere to these requirements, rendering the garage based quality assurance system ineffective.

A 1996 review of bus maintenance for Sydney buses recommended State Transit introduce AS/ISO 9001 quality standards as a mechanism for ensuring consistency in maintenance practices.²⁴ State Transit has advised that the system will be in place by June 2002.

Furthermore, garages have not been entirely successful in addressing issues raised in maintenance audits to prevent recurrence.

For example, the audit found practices such as incomplete checklists and inappropriate categories used to prioritise repairs that had been reported in earlier maintenance audits.

If safety inspections are incomplete and maintenance practices are not subject to effective quality control, there is a risk that defects will not be identified and consequently, an increased risk of safety related accidents.

Recommendation **State Transit garages obtain AS/ISO 9001 certification as a mechanism for ensuring consistency of maintenance practices.**

²⁴ Indec Consulting Report on Technical Services and Maintenance in Depots-Sydney Buses, 1996

Part two

Department of Transport - bus contracts

Executive Summary

Executive Summary

The specific requirements for bus operators in NSW are outlined in the *Passenger Transport Act 1990* and the *Passenger Transport (Bus Services) Regulation 2000*.

The Act, administered by the Department of Transport, requires all bus operators, including State Transit, to be accredited to ensure that operators meet the NSW Government's standards of financial viability, safety and vehicle maintenance.

In addition, bus operators can only provide passenger bus services under contract with the Department of Transport.

During the course of this audit, a number of issues relating to the way in which the Department of Transport administers contracts for the provision of bus services in NSW were identified.

Many of the issues concerning contracts were raised by the NSW Public Accounts Committee in its report on the School Student Transport Scheme.²⁵ Indeed, the Department of Transport is aware of these issues and is currently examining alternate regulatory and contractual regimes for NSW.

Audit opinion

Despite several attempts, the Department of Transport has not implemented the necessary reforms to establish a performance assessment regime for commercial bus contracts proposed as part of the 1997 amendments to the *Passenger Transport Act*. There is now an urgent need to finalise that.

However, there is also a need for further legislative amendment to enable a more contestable regime to be put in place. Current arrangements do not provide incentives for operators to optimise service levels. As a consequence there is no guarantee that best value for money is being achieved.

There is also a lack of reliable data on operator performance and limited auditing of operator compliance. As a consequence, the Department of Transport cannot give adequate assurance that operators are complying with accreditation standards and contract conditions.

²⁵ Inquiry into the School Student Transport Scheme NSW Public Accounts Committee February 2002

In addition, the majority of State Transit commercial bus contracts expired in 1998 and were not signed until 2002. The Department of Transport should ensure that current written contracts are in place for all operators.

Audit findings

Audit findings are detailed in the following chapter.

Summary of recommendations

It is recommended that the Department of Transport:

- **introduce the necessary reforms, both legislative and contractual, to establish contestability for NSW bus services**
- **progress the review of the minimum service level policy**
- **expand the reporting requirements for all bus operators to include data on performance outcomes and service quality**
- **consider alternate compliance arrangements to complement audit activities and the use of operator risk profiles to target interventions**
- **review the method used to calculate the average age of buses to provide a more sound and transparent basis for the regulation of fleet age.**

Response from the Department of Transport

Thank you for the opportunity to respond to the segment of the above report concerning Transport NSW. I am pleased to note that the report highlights the need for legislative and contractual reforms to establish contestability for the provision of bus services in NSW. Significant difficulties have been encountered in effectively contracting for bus services due to the limitations posed by the Passenger Transport Act (PTA) and the current contract for commercial services.

These limitations arguably give operators rights of contract renewal on the same terms and conditions. This significantly limits Transport NSW's ability to test the market, ensure value for money and negotiate changes or improvements. While it was intended that the introduction of a Performance Assessment Regime (as envisaged by amendments to the Passenger Transport Act in 1997) would address these issues, it appears that further legislative amendment would be required for this scheme to be effective.

For these reasons, your recommendation that the Department introduce the necessary reforms to establish contestability is strongly supported. A comprehensive review is currently underway to identify possible reform options that will enhance the regulatory and contracting framework. This involves: mapping the current system; exploring other models in place both in Australia and overseas; and identifying options for NSW that will achieve a greater focus on patronage growth, customer needs, service standards, value for money, transparency and accountability. The options to be examined will include competitive tendering for bus services and a best practice performance assessment regime. We are also seeking legal advice on issues associated with reform of the PTA.

This review process will assist in addressing other issues raised by the performance audit such as the need to review the minimum service level and average age of bus policies, expand reporting requirements/data collection in respect of operators' performance, and improve monitoring and auditing activity.

It is anticipated that the review will be completed over the next few months. It will then be presented to the Minister for Transport for his consideration and to determine the next stage of the reform process.

(signed)

*Michael Deegan
Director General*

Dated: 16 May 2002

1. Contractual arrangements

1.1 Introduction

Regulating bus services

The specific requirements for bus operators in NSW are outlined in the *Passenger Transport Act 1990* and the *Passenger Transport (Bus Services) Regulation 2000*.

The Act, administered by the Department of Transport, requires all bus operators to be accredited to ensure that operators can meet the NSW Government's standards of financial viability, safety and vehicle maintenance.

Bus service contracts

Bus operators can only provide passenger bus services under contract with the Department of Transport.

Five year contracts were progressively introduced from 1991. There are now 231 commercial bus contracts in NSW and over 1,800 non commercial contracts administered by the Department of Transport. State Transit operates under 27 separate commercial contracts. The remaining contracts are held by private operators.

The Department advised that significant difficulties have been encountered in effectively contracting for the provision of bus services in NSW due to limitations posed by the Act and current contractual arrangements. Under commercial contracts, the operator will have a right of contract renewal for a further period of five years if the operator has met the objectives and standards prescribed in the performance assessment regime. As the regime is not in place, the operator is arguably entitled to contract renewal under existing terms and conditions (subject to minimum service levels and other contract requirements being met).

These arrangements limit the ability of the Department of Transport to negotiate changes to the contract. Even minor or insignificant variations can be opposed by the operator.

State Transit contracts

This may, in part, explain why the majority of State Transit commercial contracts (24) expired in 1998 and were not signed until February 2002.

1.2 Minimum Service Levels (MSL)

Commercial contracts between the Department of Transport and bus operators include minimum service levels to ensure bus services are provided to the community.

The MSL policy was agreed between the Department of Transport and the Bus and Coach Association in 1991. The policy estimates demand for buses based in part, on the total population in the contract area discounted by the number of cars and proximity to other forms of public transport.

The most reliable and consistent method for measuring demand for bus services is patronage data. The Department has advised that reliable patronage data will not be available until integrated ticketing is introduced which is expected to be in 2005.

Under the current MSL policy, there is a risk that the level of service in some contract areas is poorly or inconsistently related to demand. The Department of Transport is reviewing the MSL policy to develop an improved model for determining MSLs.²⁶

Recommendation **The Department of Transport progress its review of the minimum service level policy.**

1.3 Performance assessment regime

Other State Governments (Western Australia and South Australia) have introduced competitive tendering for bus services to improve operator efficiency and effectiveness and achieve value for money.

National competition policy During 1996, the regulatory framework for NSW bus services was reviewed to assess its compliance with national competition policy.

In response, the *Passenger Transport Act* was amended in 1997 to include a more contestable form of market entry for commercial bus service contracts. Amendments included the introduction of a performance assessment regime to be administered by the Department of Transport for the renewal of commercial contracts.

The performance assessment regime was to allow bus operators to avoid competitive tendering for bus routes only if a series of best practice objectives and standards of service were met.²⁷

²⁶ Department of Transport Briefing note on Bus Industry in the Sydney Area 2001.

²⁷ NSW Parliament Second Reading Speech on the Passenger Transport Amendment Bill Hansard 28.5.97

**Performance
assessment regime**

The intended outcomes of the performance assessment regime were:

- the development of best practice standards in service provision
- data on patronage rates for better targeting of services
- better reporting on performance outcomes
- improvements in service efficiency, effectiveness and value for money
- improved accountability of bus operators.

A discussion paper on the regime was released by the Department of Transport for comment in September 1998 with phased implementation from July 1999. Following consideration of the submissions received, the performance assessment regime was amended and a second discussion paper released in October 2000.

The Bus and Coach Association and some private operators have opposed the introduction of the performance assessment regime largely on the basis of the perceived compliance costs.

More recently, the Department has identified problems with the *Passenger Transport Act* that would limit the effectiveness of the performance assessment regime.

For instance, if an operator has failed to meet the standards and objectives in the performance assessment regime in the commercial contract, the Department is not able to extend the contract for a period while disputes are heard or a replacement operator is found. There is also a lack of flexibility in that standards and objectives can not be altered during the life of the contract and there is no opportunity to test the market at the end of the contract if the standards and objectives have been met.

As a consequence, the performance assessment regime has not been implemented. Under current arrangements, commercial contract renewal is not contested, best practice standards for bus services are not included in contracts and operators are not required to provide detailed performance reports to the Department.

Recommendation

The Department of Transport introduce the necessary reforms, both legislative and contractual, to establish contestability for NSW bus services.

1.4 Audit and compliance

The contract performance of bus operators is supervised by the Department of Transport using several methods:

- bi-annual roadworthiness inspections undertaken by the Roads and Traffic Authority (RTA)
- random roadside inspections by the RTA
- investigations of accidents involving buses
- compliance audits (desk, field, on road)
- complaints from passengers.

There are currently over 2,000 service contracts in place (commercial and non commercial contracts). The Department's goal is to audit all bus operators against the accreditation standards and their contractual obligations at least once during the contract's 5 year term. Additional audits may be undertaken if some issue or problem is brought to the attention of the Department.²⁸

According to the Department, the last compliance audit of a State Transit depot was conducted in November 1998.

Gaining assurance An earlier performance audit report on the Department of Transport's approach to regulating passenger transport services found a need for more regular auditing of bus operators and recommended alternate approaches for obtaining assurance such as operator self-assessment and third party certification.²⁹

The current system does not provide the Department adequate assurance that operators are complying with accreditation standards and contractual obligations due to limited audit coverage and the lack of valid and reliable data on operator performance.

This is particularly relevant to State Transit. State Transit is the only operator accredited by the RTA under an alternate compliance scheme which exempts State Transit buses from bi-annual roadworthiness inspections.

²⁸ PricewaterhouseCoopers NSW Department of Transport SSTS Bus Contract Review January 2001

²⁹ The Audit Office of NSW NSW Department of Transport Management of Road Passenger Transport Regulation, September 2000.

The alternate compliance arrangements between State Transit and the RTA mean that, unlike private sector operators, the Department is not advised of any safety or maintenance issues in the State Transit fleet. The Department does, however, receive copies of accident investigation reports where the accident has resulted in an injury or has prevented the bus from continuing its journey.

Recommendation **The Department of Transport consider alternate compliance arrangements to complement audit activities and the use of operator risk profiles to target interventions.**

1.5 Calculating the average age of the fleet

Bus age impacts on both reliability and passenger safety. In NSW, each commercial contract requires the average age of vehicles not to exceed 12 years.

In determining whether State Transit complied with this requirement, the Audit Office examined the Department of Transport's approach to assessing the average bus age which was developed in conjunction with the Bus and Coach Association.

The methodology involves assessing the age of the bus based on the anniversary of a contract. This means that when a bus is registered and begins operation, its age is not assessed according to the anniversary of the registration but rather from one contract year to the next. In practice, this means a new bus could operate for 23 months before being deemed to be 1 year old.

The average age calculation also does not establish a maximum age limit for any vehicle across the fleet.

Furthermore, the age of a bus fleet is not routinely monitored by the Department but is only assessed when a compliance audit is conducted. At any time during the term of the contract, an operator's fleet can exceed the average age but the operator must bring the fleet age to compliance at the time of audit.

This approach to assessing average age undermines the best intentions of the policy which is to ensure bus service reliability and passenger safety. The Department recognises that the method used for calculating bus age requires review but the policy has not changed since first agreed in 1996.

Recommendation **The Department of Transport review the method used to calculate the average age of buses to provide a more sound and transparent basis for the regulation of fleet age.**

Appendices

Appendix 1 About the Audit

Scope and objectives

The audit examined the efficiency and effectiveness of State Transit's approach to maintaining buses in order to contribute to efficient, safe and reliable services.

The audit has focused on:

- planning for bus maintenance
- approach used to maintain buses
- monitoring the condition of the fleet
- meeting standards of customer service.

In addition, the audit examined the Department of Transport's role in overseeing State Transit's operations and obligations under the *Passenger Transport Act* and contracts for the provision of bus services.

The aim of the audit was to identify issues arising from maintenance practices that may impact on the efficiency, safety and reliability of bus services.

Criteria

1. Planning for bus maintenance

Hypothesis being tested: State Transit prepares bus maintenance plans and programs to ensure service requirements are met.

Issues examined:

- plans and programs for bus maintenance
- monitoring and reporting
- maintenance budgets and expenditures.

2. State Transit's approach to maintenance of buses

Hypothesis tested: State Transit has established standards for bus maintenance that meet service and regulatory requirements, contractual obligations and ensure value for money is achieved.

Issues examined:

- maintenance standards
- monitoring performance against standards
- approach to maintenance.

3. Adequacy of information on the condition of buses

Hypothesis tested: State Transit has accurate and reliable information on the condition of buses to support maintenance decisions.

Issue examined:

- ❑ accuracy and reliability of information on bus condition
- ❑ State Transit's systems for recording and maintaining data on bus condition.

Field work

Depots visited during field work:

- ❑ Burwood (24 and 26 September 2001)
- ❑ Mona Vale (2 and 3 October 2001)
- ❑ Newcastle (15, 16 and 17 October 2001)
- ❑ Port Botany (24, 25 and 26 October 2001).

The team also visited private bus operators, Busways Pty Ltd and Westbus Pty Ltd, and met with representatives from the Bus and Coach Association and the Department of Transport.

Cost of the Audit

The cost of the audit was \$263,622. This figure includes the estimated cost of printing the report (\$5000).

Acknowledgements

The Audit Office gratefully acknowledges the cooperation and assistance provided by representatives of the Department of Transport and State Transit.

Audit team

Bettina Ocias and Jane Tebbatt

Appendix 2 References

- Arthur Andersen, *Economic Evaluation, Risk and Sensitivity Analysis for the Acquisition of New Buses*, 1996
- Auditor-General for Western Australia, *Competition Reform of Transperth Bus Services*, 1997
- Auditor-General for Western Australia, *Bus Reform: Further down the road*, 2000
- Brewer A. and Hensher D., *Operating a Bus and Coach Business*, 1997
- Department of the Environment, Transport and the Regions, *Transport Statistics Bulletin*, UK, 2000
- Indec Consulting, *Review of the Activities of Sydney Buses Engineering and Maintenance*, 1996
- Indec Consulting, *Review of Bus Changeovers*, 1999
- Indec Consulting, *Bus Changeover Reforms, Audit Paper*, 2001
- Indec Consulting *Maintenance Structure Workgroup-Preliminary Report*, 2001
- Independent Pricing and Regulatory Tribunal of NSW, *City Rail and STA Buses and Ferries, Public Transport Fares*, 2001
- Independent Pricing and Regulatory Tribunal of NSW, *City Rail and STA Buses and Ferries, Public Transport Fares*, 1999
- Independent Pricing and Regulatory Tribunal of NSW, *City Rail and STA Buses and Ferries, Public Transport Fares*, 1998
- NSW Department of Transport, *Annual Report 2000, Annual Report 2001*
- NSW Public Accounts Committee, *Inquiry into the School Student Transport Scheme*, 2002
- NSW Treasury, *Policy Statement on the Application of Competitive Neutrality*, 2001
- PricewaterhouseCoopers, *NSW Department of Transport, SSTS Bus Contract Review*, 2001
- Price Waterhouse Urwick, *State Transit, Efficiency and Effectiveness Audit of Technical Services*, 1996
- Roads and Traffic Authority, *Heavy Vehicles in New South Wales, What to Expect: RTA Inspections*
- Roads and Traffic Authority, *Maintenance Management Accreditation Guide*
- Roads and Traffic Authority, *National Heavy Vehicle Accreditation Scheme*
- SKM Economics, *Analysing State Transit Bus Costs*, 1998
- State Transit Authority, *Annual Report 2000*
- State Transit Authority, *Annual Report 2001*
- State Transit Authority, *Bus Fleet Management Strategy 2001- 2005*
- Waterways Authority of NSW, *Review of Operations of Sydney Ferries*, 2001

**Performance Audits by
the Audit Office of New South Wales**

Performance Auditing

What are performance audits?

Performance audits are reviews designed to determine how efficiently and effectively an agency is carrying out its functions.

Performance audits may review a government program, all or part of a government agency or consider particular issues which affect the whole public sector.

Where appropriate, performance audits make recommendations for improvements relating to those functions.

Why do we conduct performance audits?

Performance audits provide independent assurance to Parliament and the public that government funds are being spent efficiently and effectively, and in accordance with the law.

They seek to improve the efficiency and effectiveness of government agencies and ensure that the community receives value for money from government services.

Performance audits also assist the accountability process by holding agencies accountable for their performance.

What is the legislative basis for Performance Audits?

The legislative basis for performance audits is contained within the *Public Finance and Audit Act 1983, Division 2A*, (the Act) which differentiates such work from the Office's financial statements audit function.

Performance audits are not entitled to question the merits of policy objectives of the Government.

Who conducts performance audits?

Performance audits are conducted by specialist performance auditors who are drawn from a wide range of professional disciplines.

How do we choose our topics?

Topics for a performance audits are chosen from a variety of sources including:

- ❑ our own research on emerging issues
- ❑ suggestions from Parliamentarians, agency Chief Executive Officers (CEO) and members of the public
- ❑ complaints about waste of public money
- ❑ referrals from Parliament.

Each potential audit topic is considered and evaluated in terms of possible benefits including cost savings, impact and improvements in public administration.

If you wish to find out what performance audits are currently in progress just visit our website at www.audit@nsw.gov.au.

The Audit Office has no jurisdiction over local government and cannot review issues relating to council activities.

How do we conduct performance audits?

Performance audits are conducted in compliance with relevant Australian standards for performance auditing and our procedures are certified under international quality standard ISO 9001.

Our policy is to conduct these audits on a "no surprise" basis.

Operational managers, and where necessary executive officers, are informed of the progress with the audit on a continuous basis.

What are the phases in performance auditing?

Performance audits have three key phases: planning, fieldwork and report writing.

During the planning phase, the audit team will develop audit criteria and define the audit field work.

At the completion of field work an exit interview is held with agency management to discuss all significant matters arising out of the audit. The basis for the exit interview is generally a draft performance audit report.

The exit interview serves to ensure that facts presented in the report are accurate and that recommendations are appropriate. Following the exit interview, a formal draft report is provided to the CEO for comment. The relevant Minister is also provided with a copy of the draft report. The final report, which is tabled in Parliament, includes any comment made by the CEO on the conclusion and the recommendations of the audit.

Depending on the scope of an audit, performance audits can take from several months to a year to complete.

Copies of our performance audit reports can be obtained from our website or by contacting our publications unit.

How do we measure an agency's performance?

During the planning stage of an audit the team develops the audit criteria. These are standards of performance against which an agency is assessed. Criteria may be based on government targets or benchmarks, comparative data, published guidelines, agencies corporate objectives or examples of best practice.

Performance audits look at:

- processes
- results
- costs
- due process and accountability.

Do we check to see if recommendations have been implemented?

Every few years we conduct a follow-up audit of past performance audit reports. These follow-up audits look at the extent to which recommendations have been implemented and whether problems have been addressed.

The Public Accounts Committee (PAC) may also conduct reviews or hold inquiries into matters raised in performance audit reports.

Agencies are also required to report actions taken against each recommendation in their annual report.

To assist agencies to monitor and report on the implementation of recommendations, the Audit Office has prepared a Guide for that purpose. The Guide is on the Internet and located at <http://www.audit.nsw.gov.au/guides-bp/bpplist.htm>

Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian and international standards.

The PAC is also responsible for overseeing the activities of the Audit Office and conducts reviews of our operations every three years.

Who pays for performance audits?

No fee is charged for performance audits. Our performance audit services are funded by the NSW Parliament and from internal sources.

For further information relating to performance auditing contact:

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email: tom.jambrich@audit.nsw.gov.au

Performance Audit Reports

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
64*	Key Performance Indicators	<ul style="list-style-type: none"> • <i>Government-wide Framework</i> • <i>Defining and Measuring Performance (Better practice Principles)</i> • <i>Legal Aid Commission Case Study</i> 	31 August 1999
65	Attorney General's Department	<i>Management of Court Waiting Times</i>	3 September 1999
66	Office of the Protective Commissioner Office of the Public Guardian	<i>Complaints and Review Processes</i>	28 September 1999
67	University of Western Sydney	<i>Administrative Arrangements</i>	17 November 1999
68	NSW Police Service	<i>Enforcement of Street Parking</i>	24 November 1999
69	Roads and Traffic Authority of NSW	<i>Planning for Road Maintenance</i>	1 December 1999
70	NSW Police Service	<i>Staff Rostering, Tasking and Allocation</i>	31 January 2000
71*	Academics' Paid Outside Work	<ul style="list-style-type: none"> ▪ <i>Administrative Procedures</i> ▪ <i>Protection of Intellectual Property</i> ▪ <i>Minimum Standard Checklists</i> ▪ <i>Better Practice Examples</i> 	7 February 2000
72	Hospital Emergency Departments	<i>Delivering Services to Patients</i>	15 March 2000
73	Department of Education and Training	<i>Using computers in schools for teaching and learning</i>	7 June 2000
74	Ageing and Disability Department	<i>Group Homes for people with disabilities in NSW</i>	27 June 2000
75	NSW Department of Transport	<i>Management of Road Passenger Transport Regulation</i>	6 September 2000
76	Judging Performance from Annual Reports	<i>Review of eight Agencies' Annual Reports</i>	29 November 2000
77*	Reporting Performance	<i>Better Practice Guide A guide to preparing performance information for annual reports</i>	29 November 2000
78	State Rail Authority (CityRail) State Transit Authority	<i>Fare Evasion on Public Transport</i>	6 December 2000
79	TAFE NSW	<i>Review of Administration</i>	6 February 2001
80	Ambulance Service of New South Wales	<i>Readiness to respond</i>	7 March 2001
81	Department of Housing	<i>Maintenance of Public Housing</i>	11 April 2001
82	Environment Protection Authority	<i>Controlling and Reducing Pollution from Industry</i>	18 April 2001
83	Department of Corrective Services	<i>NSW Correctional Industries</i>	13 June 2001

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
84	Follow-up of Performance Audits	<i>Police Response to Calls for Assistance The Levying and Collection of Land Tax Coordination of Bushfire Fighting Activities</i>	20 June 2001
85*	Internal Financial Reporting	<i>Internal Financial Reporting including a Better Practice Guide</i>	27 June 2001
86	Follow-up of Performance Audits	<i>The School Accountability and Improvement Model (May 1999) The Management of Court Waiting Times (September 1999)</i>	14 September 2001
87	e-government	<i>Use of the Internet and related technologies to improve public sector performance</i>	19 September 2001
88*	e-government	<i>e-ready, e-steady, e-government: e-government readiness assessment guide</i>	19 September 2001
89	Intellectual Property	<i>Management of Intellectual Property</i>	17 October 2001
90*	Better Practice Guide	<i>Management of Intellectual Property</i>	17 October 2001
91	University of New South Wales	<i>Educational Testing Centre</i>	21 November 2001
92	Department of Urban Affairs and Planning	<i>Environmental Impact Assessment of Major Projects</i>	28 November 2001
93	Department of Information Technology and Management	<i>Government Property Register</i>	31 January 2002
94	State Debt Recovery Office	<i>Collecting Outstanding Fines and Penalties</i>	17 April 2002
95	Roads and Traffic Authority	<i>Managing Environmental Issues</i>	29 April 2002
96	NSW Agriculture	<i>Managing Animal Disease Emergencies</i>	8 May 2002
97	State Transit Authority Department of Transport	<i>Bus maintenance and bus contracts</i>	May 2002

* Better Practice Guides

Performance Audits on our website

A list of performance audits tabled or published since March 1997, as well as those currently in progress, can be found on our website www.audit.nsw.gov.au



THE AUDIT OFFICE MISSION

Assisting Parliament
improve the
accountability and
performance of the State

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