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Performance Audit

Defence's Project Bushranger: Acquisition of Infantry Mobility Vehicles

Department of Defence

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Australian National
Audit Office

Canberra ACT
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Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken a performance audit in the Department of Defence in accordance with the authority contained in the *Auditor-General Act 1997*. Pursuant to Senate Standing Order 166 relating to the presentation of documents when the Senate is not sitting, I present the report of this audit and the accompanying brochure. The report is titled *Defence's Project Bushranger: Acquisition of Infantry Mobility Vehicles.*

Following its presentation and receipt, the report will be placed on the Australian National Audit Office's Homepage—http://www.anao.gov.au.

Yours sincerely

Oliver Winder
Acting Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

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Contents

Tables and Figures

Tables

Figures

Abbreviations

ADF	Australian Defence Force
ADI	ADI Limited
AEA	Army Engineering Agency
AGS	Australian Government Solicitor
AHQ	Army Headquarters
AII	Australian Industry Involvement
ASVS	Australian Specialised Vehicle Systems
ATEA	Army Technology Engineering Agency
BOP	Basis of Provisioning
BJPL	Boral Johns Perry Limited
CCP	Contract Change Proposal
CDR	Contract Deliverable Requirement
CEO	Chief Executive Officer
CEPMAN 1	Capital Equipment Procurement Manual version 1
COTS	Commercial off the Shelf
DAO	Defence Acquisition Organisation
DCCC	Defence Concept and Capability Committee
DCIC	Defence Capability Investment Committee
DEFPUR 101	Defence Purchasing Manual 101
DMO	Defence Materiel Organisation (formerly DAO)
DSDC	Defence Source Definition Committee (renamed DSSB)
DSSB	Defence Source Selection Board
EAS	Equipment Acquisition Strategy
ECP	Engineering Change Proposal
FAT	First Article Testing
FIC	Fundamental Inputs into Capability
FMA Act	*Financial Management and Accountability Act 1997*
GAO	General Accounting Office

GS	General Service
IIMV	Interim Infantry Mobility Vehicle
IIS	Introduction Into Service
IIS FIC	Introduction Into Service Fundamental Inputs into Capability
IMTV	Infantry Mobility Troop Variant
IMV	Infantry Mobility Vehicle.
ITR	Invitation to Register Interest
LCC	Life Cycle Costing
MCE	Major Capital Equipment
MCS	Major Capability Submission
MOTS	Military Off the Shelf
MPMS	Master Project Management Schedule
PRAT	Production Reliability Acceptance Test
SER	Source Evaluation Report
SOP	Standard Operating Procedure
SOW	Statement of Work
SPO	System Program Office
RAAF	Royal Australian Air Force
RCCP	Request for Contract Change Proposal
RFT	Request for Tender
RQT	Reliability Qualification Test
TEP	Tender Evaluation Plan
TLS	Through Life Support
TLSC	Through Life Support Contract
WBS	Work Breakdown Structure
WLAV	Wheeled light Armoured Vehicle

Summary and Recommendations

ADI Bushmaster Production Vehicle

Source: Defence.

Summary

Background

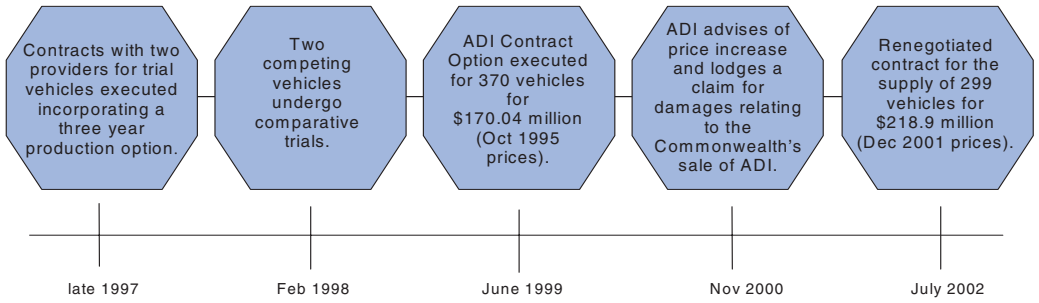
1. In order to protect important civilian and military assets and infrastructure, Defence identified the need to mobilise the infantry through the procurement of both unprotected and protected vehicles. The initial phase of the project procured 268 unprotected Land Rover vehicles and 25 support vehicles, delivered in service by mid 2000 at a project cost of $57.69 million, in order to cover the interim period until protected vehicles could be procured.

2. The second phase of Project Bushranger involved the trial and evaluation of protected vehicles by the then Defence Acquisition Organisation (DAO), for an approved cost of $11.6 million. Requests for Tender (RFT) were issued in September 1995, and trial vehicle contracts were signed with ADI Limited (ADI) for the Bushmaster vehicle, and Australian Specialised Vehicle Systems (ASVS) for the Taipan vehicle, in late 1997. The trial vehicle contracts included an option for full-scale production (see Figure 1).

3. In late 1998, Defence undertook comparative trials of the two tendering vehicles. Neither vehicle fully met all of the requirements of the specification, and performed with varying success over the course of the trials. The ADI Bushmaster vehicle was selected as the preferred vehicle in March 1999. The third phase of the project is the full rate production of the protected vehicles. The Production Contract Option was executed on 1 June 1999 with ADI, for the supply of 370 Bushmaster vehicles by December 2002. Shortly after the Production Option was exercised, a range of problems emerged with design enhancements, cost, and schedule slippage in the contract, leading to renegotiation of the Contract in July 2002 for 299 vehicles.

Figure 1

Contractual Acquisition of Bushmaster Vehicles



Source: ANAO analysis of Defence documentation.

4. The performance characteristics of Project Bushranger vehicles were to be optimised to, among other things, provide opportunities for Australian Industry Involvement (AII), including manufacture and through-life support (TLS). The approval documentation highlighted some of the risks associated with the design and development of an Australian vehicle. The target for AII in Project Bushranger was stipulated within the original 1999 Contract as around 70 per cent. Currently 68 per cent is being achieved. Defence advised ANAO that, at the time of audit, ADI was on track to meet the AII amount specified in the contract.

5. Defence advised ANAO in April 2004 that:

> The Bushmaster Infantry Mobility Vehicle has been designed, developed and built in Australia by ADI Limited to meet a niche requirement of Australian forces. The vehicle is a world class design and has integral protection levels unparalleled by any comparable vehicle in operation anywhere in the world today; the Bushmaster protects against anti-vehicular and anti-personnel blast mines, mortar splinters and small arms ammunition. The Bushmaster has been designed to provide exceptional mobility to Australian forces and carries three days supplies for extended operations. The vehicles range is between 600–800 km dependent on terrain. There has been significant international interest in the capability, which has seen ADI and the Commonwealth work towards developing mutually supportive strategies to meet this demand.

6. The trial and initial production contract management for the project were undertaken by the DAO. In 2000, the DAO was merged to form the Defence Materiel Organisation (DMO). In mid 2002, Project Bushranger staff relocated from Canberra to Melbourne after the major changes to the contract were completed.

Audit Approach

7. The objective of the audit was to provide an independent assurance on the effectiveness of Defence's management of the acquisition of armoured infantry mobility vehicles (IMV) for the Australian Defence Force (ADF). The audit sought to identify the initial capability requirements; analyse the tendering and evaluation process; and examine the management of the project by Defence. As such, this was not an audit of contractor performance, but of the formation and contract management of the acquisition project by Defence.

Key Findings

Formation of the Contract (Chapter 2)

8. Whilst initial Defence requirements provided for a number of infantry mobility solutions, it was generally considered by Defence that a modest lightly armoured vehicle with commercial truck components was to be procured. During the course of the project the number of battalions to be equipped has been reduced from eight to two. The vehicle ultimately procured by Defence was largely of an unproven design and capability, and was far more developmental than originally intended. However, Defence initially managed the project as though it was a Commercial Off the Shelf (COTS) procurement, rather than recognising the developmental nature of the project.

9. In September 1996, the company which originally tendered for the Defence contract novated its tender to ADI. Although ADI had been assessed in the initial Invitation to Register Interest (ITR), there is no evidence that it was assessed in the context of providing the unproven Bushmaster vehicle.

10. The ANAO found that Defence had generally complied with relevant pre-project approval and post-project approval phases required of major capability acquisition projects. In selecting a preferred tenderer, a comprehensive Tender Evaluation Plan (TEP) was developed and the probity risk arising from the pending sale of ADI was specifically addressed. The Australian Government Solicitor (AGS), in the role of independent monitor, advised Defence that no conflict had arisen during the tender process relating to the sale of ADI.

11. On the basis of the Source Evaluation Report (SER), the Bushmaster vehicle was assessed as superior in performance and cost criteria. The ADI tender to supply 341 vehicles was assessed by the Tender Evaluation Board to cost $183.8 million in October 1995 prices. The actual Production Contract Option that the Commonwealth executed was for an additional 29 vehicles (an eight per cent increase in capability), yet cost seven per cent less than that outlined in the SER for fewer vehicles.

12. During contract negotiation, a number of rectification and enhancement issues identified during the trials were discussed. Defence documentation indicates that agreement was reached on all of the issues with ADI. However, prior to signing the Production Contract Option in June 1999 for $170.04 million (October 1995 prices), Defence did not formally amend the contract to take into account these rectifications. The likelihood of cost overruns by the contractor was considerable and recognised by Defence prior to contract signature. The oversight of incorporating the rectifications before executing this option, exposed the Commonwealth to considerable risk, in efforts to

enforce contractual terms and seek delivery in accordance with the contract schedule.

13. An advance payment of 20 per cent of the contracted price was initially agreed to by Defence. However, after selection of preferred tenderer, and before contract execution, Defence increased the advance payment to ADI by a further five per cent to an estimated $42.5 million. The reason given by Defence was to assist Defence spend their Budget allocation in 1998–99. In reality, because of exchange rate movements, and the rates applied in the contract, this resulted in an additional payment of $0.711 million which equated to a 26 per cent advance payment being made to ADI.

14. The advance payment of $43.2 million was made to ADI in June 1999 (an additional $1.3 million was paid in 2000 for price variations). At that time there was no requirement for the contractor to use the advance payment for the actual milestones for which it was advanced. In this instance, Defence paid a significant amount of money to a contractor, in order to lessen budgetary pressures, yet received no identifiable benefit in return for the advance payment. Some years after the payment was made, the contractor still had not delivered the product in accordance with the initial contract.

Contract Management (Chapter 3)

15. Defence exercised the Production Contract Option 18 months before it was due to expire. The Department indicated that the timing of selection of preferred tenderer was to achieve contract signature in 1998–99, and to account for the timing of the sale of ADI.[1]

16. The contract stipulated that full rate production of the vehicles would commence almost directly after the prototype vehicles had passed testing. These vehicles were fundamentally different to those tested during the original trials. The Production Contract and the Statement of Work (SOW) did not adequately reflect the changed nature of the project.

17. ANAO considers that the development and testing of prototypes is a sound approach for projects with material developmental components. However, Defence moved to contract signature and full production before development work was finalised. Defence did not have a system in place to adequately ensure that the project was technologically ready to move through to high rate production. Also, even with significant changes in the contract in 2002, the project was still hovering around technology readiness level seven in

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[1] On 17 August 1999 Transfield Thomson–CSF Investments Pty Limited was selected as preferred buyer of the Commonwealth's shares in ADI. The Commonwealth announced in July 1997 that the Office of Asset Sales and IT Outsourcing was to commence the sale process of ADI. Final settlement occurred on 29 November 1999 and the gazetted price was $346.78 million.

early 2004.[2] This is a less than satisfactory outcome for a project that was scheduled to start production in February 2001 under the initial Production Contract.

18. Defence advised ANAO that the failure to start production in 2001 had nothing to do with technology readiness. Rather, it related to delays being caused by the time required to establish contractual conditions that were acceptable to both parties. This is indicative of an inherent deficiency in the framing of contract deliverables, which needed to be addressed prior to the exercising of the Production Contract Option.

19. The Commonwealth had a significant forward commitment, having already paid out $44.5 million in advance payments. This was before having a proven product capable of meeting demonstration standards, let alone full rate production of 15 vehicles per month.

20. After contract signature and before renegotiation, Defence continued to make changes to the required capability. Internal contract management process allows for changes to the contract, through Engineering Change Proposals (ECPs) and Contract Change Proposals (CCPs). Throughout the course of the project a number of changes were required. However, in some instances, the formal process of CCPs was not followed. For example, in October 1999 a number of rectification and enhancement issues were discussed with the contractor, including reducing vehicle numbers. However, no CCPs or ECPs were developed at that stage.

21. ADI is contractually bound to provide a number of reports and plans to Defence as part of their management of the project. These project monitoring and reporting tools are deliverables in the contract. Some have already been delivered to Defence and subsequently paid for. Payments made for non-vehicle deliverables, by early 2004, amounted to $8 million.[3] Excluding the advance payment these comprise one-third of all payments made for contract deliverables. A number of these contract deliverables, with regard to the early stages of the project, were not kept in a complete and consolidated form by the Program Office.

Review of the Contract by DMO (Chapter 4)

22. Before going to full rate production of the IMVs, ADI was required to supply prototype vehicles in January 2000 for testing. ADI were some four

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[2] Technology readiness level seven is described as: system technology prototype demonstration in an operational environment. Technology readiness level eight is described as: system technology qualified through test and demonstration.

[3] ADI informed ANAO that these non-vehicle deliverables included: Joint Design Reviews; Reliability and First Article Testing; Maintenance and Support Analyses; Maintenance and Support Handbooks; Driver and Maintainer Training Packages; and Support and Test Equipment.

months late in providing the vehicles, which were fundamentally different to those tested during trials. In November 2000, ADI lodged a claim against the Commonwealth, stating that the vehicle unit price had escalated, which would result in a total cost increase of $38 million. In addition, ADI lodged a further claim for $38 million against the Commonwealth, for non-disclosure of contract problems relating to the sale of ADI in 1999.

23. In the early phase of the contract, when it became apparent that the project was incurring difficulties, the Program Office informed senior Defence management and the Minister through a series of internal minutes. Over the course of contract renegotiation, the Program Office and the Department fully informed the Minister of issues and options available to the Government in respect of the contract. In December 2001, the Defence Capability and Investment Committee (DCIC) recommended to the Minister that the contract be terminated. Following the Minister's consideration, Defence sought to resolve concerns through negotiation rather than termination. The CCP negotiations addressed: vehicle numbers and performance; cost; termination exit costs; schedule; ADI Sale Claim; ADI key staff; advance payment; and performance securities; reliability testing; test and evaluation; risk; ADI contingency; and warranty.

24. The Minister was informed of the DCIC consideration of the CCP, which considered that they had been able to resolve all significant issues. Subsequently, the Department undertook to provide to the Minister a paper highlighting costs for contract renegotiation, termination, and alternative capability options. Defence advised the Minister that, whilst termination had been discussed with ADI, it would be a high risk option for Defence. They continued to explore contract renegotiation.

Revised DMO Production Contract (Chapter 5)

25. During contract renegotiation, the cost of the contract with ADI increased to $218.9 million (December 2001 prices). This increase was made up of a combination of price supplementation from automatic updates of $6.6 million, and exchange and real price variations totalling $42.2 million. The Government agreed to a transfer of funds between various elements of the project, to ensure that the project budget did not increase. The cost of the project has remained constant in real terms at $295 million (December 1998 prices).[4]

26. Timing of delivery of the last vehicle has been extended by 49 months compared with that of the original contract. The details of the slippage in the project schedule are outlined in Table 1.

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[4] At December 2001 this represented a project cost of $323.18 million.

Table 1

Revised Milestones for Original Contract and Renegotiated Contract

Key Milestones	Original Contract June 1999	Renegotiated Contract July 2002	Slippage months
First Prototype Vehicle	7 Feb 2000	n/a	
First Initial Production Vehicle	14 Aug 2000	18 Sept 2003	37
First Production Vehicle	17 Sept 2001	23 Dec 2004	39
Last Production Vehicle Delivered	26 May 2003	5 July 2007	49
Note: n/a not applicable			

Source: Defence.

27. Defence advised ANAO that, prior to signing the renegotiated contract, a number of improved management practices and procedures have been implemented, including: a selection of standard operating procedures; formalising the CCP and ECP process; weekly management discussion of contract deliverables; and engagement of legal specialists.

28. The renegotiated contract provides two exit points at which ADI must demonstrate that the IMVs meet required standards or face contract termination. These exit points are the Reliability Qualification Test (RQT) and the Production Reliability Acceptance Test (PRAT). The RQT is conducted to achieve a specified level of basic reliability and operational mission reliability. The PRAT assesses the reliability of three actual production vehicles delivered under the low rate initial production phase. The Minister for Defence announced, on 22 June 2004, that the vehicles had successfully passed the final stage of reliability tests. The contract provides that, in the event that ADI failed to pass either of the tests, the Commonwealth may have, at its sole discretion, terminated the contract. The Final Acceptance Test is due to be completed by the end of July 2004.

29. ANAO analysis of the advance payment, indicates that, by late July 2002 (just after the major contract amendment was finalised), only one per cent had been discharged from the advance payment in relation to contract deliverables. In effect, ADI has had the use of some $44 million of Commonwealth funds, interest free. ANAO has estimated the opportunity cost forgone by the Commonwealth, as at 30 June 2003, as a result of the advance payment made to ADI, and the delay in the contract being satisfied to amount to some $9 million. Defence has advised ANAO that, as at March 2004, some $2.37 million has been discharged from the advance payment. Further, the advance payment will not be fully consumed, and the advance payment security returned, until the last vehicle deliveries are made.

30. ADI advised ANAO in May 2004 that:

> ADI has expended significantly more than it has recovered from its sales and would have a negative cashflow without advance funding.
>
> As, to date, ADI has expended significantly more than it has recovered from its sales, the full amount of the advance payment is not available to ADI to recover interest from.
>
> The report totally overlooks the point that ADI is not allowed to claim cost escalation on the proportion of the contract value covered by the advance funding. Cost escalation for the proportion of the contract value has to be provided for by interest received on the balance of any advance payments made.

31. Defence advised ANAO that offsetting the foregone interest of the advance payment has been a large cost saving to Defence, associated with a delayed introduction into service of the capability. The ANAO considers the quantum of the advance payment, resulted in a significant shifting in fiscal advantage to the contractor at the expense of the Commonwealth. The characterisation of delays in delivery as a cost saving to Defence budgeting position, merely increases the size of the cost to future Defence budgets, and delays the capability to the ADF.

32. When Defence is entitled to claim liquidated damages, the amount is considered a debt owed to the Commonwealth under section 47 of the *Financial Management and Accountability Act* (FMA Act) *1997*. Under this section, an agency must pursue recovery of each debt for which it is responsible, unless: the debt has been written off; or the Chief Executive is satisfied that the debt is not legally recoverable; or he/she considers that it is not economical to pursue recovery of the debt.

33. The calculation of the potential liquidated damages, claimable by Defence for delay in receiving the identified items of supply, amounted to some $28 million by mid 2002. Due to the capping of damages within the contract, and complexities associated with whether they could be claimed, the maximum amount of damages that could have been claimed by Defence amounted to some $6.8 million. The ANAO found no documented evidence that Defence considered pursuing the debt arising from liquidated damages, when they became available.

Overall audit conclusion

34. This legacy procurement project incorporated minimal incentives for effective contractor performance. The large advance payment made by Defence, combined with systematic scope creep in the initial stages of the contract, resulted in a minor transference of contractual risk. Accordingly, the

project was initially characterised by unwelcome surprises surrounding cost, time, schedule, performance and the risk of litigation.

35. The ANAO found that, despite the project having a lengthy demonstration phase, the requirement definition had not been fully developed at the time the Production Option was exercised. The outcome of this, combined with overly optimistic projections on deliverables, has been a nominal vehicle unit cost increase of 39 per cent, a forecast slippage of 49 months in delivery, and the need for Defence to commit significant management resources to turn around this project.

36. Significant under achievement in performance occurred in the initial contract on unit cost, delivery schedule and recoverability (see Table 5.3), which arose from a combination of Defence transference of capability and overly optimistic timeframes. Defence has managed the overall cost increase associated with the contract renegotiation within the approved project budget. This has been achieved by decreasing capability through the reduction of the number of vehicles by one-fifth, and reducing requirements, such as those relating to systems engineering funding, which was decreased by 93 per cent. Further, the ability of the vehicles to self-recover has been diminished, through the reduction of the number of vehicle winches.

37. The ANAO found that a large amount of administrative effort has been expended throughout this project, in order to fix problems which may not have occurred, with better management of the planning and implementation phases of the project. In 2002, Defence renegotiated the contract with ADI involving a reduction in contractual conditions, an increase in contract price, and a four year extension of delivery time. The renegotiation also saw the capability of the individual vehicles drop from that originally contracted of 370, down to 299. Defence maintains that the capability which they will receive is superior to that originally contracted and that, despite the problems in the past, Project Bushranger is now seen as a model project.

38. The ANAO considers that the renegotiated contract, signed in July 2002, has provided a generally improved framework for Defence to progress the project to completion. In the development of the renegotiated contract, Defence escalated issues as they arose, effectively, with Ministers, fully informing them of the various options, including recommending termination of the original production contract. The less than effective collaborative contract management approach, adopted with the contractor during the initial phase of the Production Contract, has now been replaced by one that is more commercially oriented. The Program Office's initial deficiency in contract management has now been addressed within the Office by:

- strengthening control over user requirements to prevent scope creep which contributes to slippage in time and cost schedules;

- elevating contractual problems effectively with the contractor and with senior Defence management;
- managing the contract in accordance with the terms of the contract;
- managing the contractual performance, using reports provided by the contractor; and
- providing and retaining appropriate records of dealings with the contractor that protects the Commonwealth's commercial interests.

Response to the Report

39. The ANAO made seven recommendations directed towards the improvement of Defence's project and contract management. Defence agreed with all recommendations.

Recommendations

Set out below are the ANAO's recommendations, with report paragraph references and the Defence response. The recommendations are discussed at the relevant parts of this report. ANAO considers that the highest priority should be given to implementing recommendations 3, 4, 5 and 7.

Recommendation No.1
Para. 2.37

The ANAO *recommends* that, when a new company is substituted for a tenderer during the tendering process, Defence conduct an analysis of the new company's management, relevant experience and financial capacity to undertake the contractual requirements adequately.

Defence response: Agreed.

Recommendation No.2
Para. 2.76

The ANAO *recommends* that, in the management of advance payments for capital acquisition projects Defence:

a) re-examine expenditure processes to ensure that advance payments are made in accordance with Commonwealth policy of obtaining value for money, rather than meeting a budget expenditure target; and

b) ensure that exchange rate payments stipulated in contracts, relate to wholesale currency market rates at the time of the payments rather than historical rates stipulated at the time the contract was devised.

Defence response: Agreed.

Recommendation No.3
Para. 3.8

The ANAO *recommends* that Defence develop a quality assurance program to provide appropriate sign-off independent of the Project Office on the time, cost and performance schedule for major capital acquisition projects, prior to commencing production.

Defence response: Agreed.

Recommendation No.4 Para. 3.15

The ANAO *recommends* that Defence:

a) develop and implement a comprehensive project maturity assessment framework to assess at each stage or phase of a project, whether intervention is required or whether it is mature enough to progress; and

b) develop a system of independently monitoring and approving, through a formal sign off, each key phase of a project to ensure project maturity levels are achieved before proceeding to the next phase.

***Defence response*:** Agreed.

Recommendation No.5 Para. 3.29

The ANAO *recommends* that Defence contracts include all items of rectification and enhancement, identified in initial stages and trials, prior to contract signature, to better identify implementation risks.

Defence response: Agreed.

Recommendation No.6 Para. 5.27

The ANAO *recommends* that Defence, in keeping with value for money requirements, ensure that material advance payments be fully expended by the contractor before additional payments against contract deliverables are forthcoming.

Defence response: Agreed.

Recommendation No.7 Para. 5.35

The ANAO *recommends* that Defence ensure that System Program Offices:

a) document the process of decision-making when considering actions in respect to the treatment of liquidated damages, on all relevant contracts; and

b) report to Defence senior management when a decision is made in respect to the treatment of liquidated damages.

Defence response: Agreed.

Audit Findings and Conclusions

1. Introduction

This chapter provides an overview of Project Bushranger, including a detailed timeline of events, and a summary of the first phase of the project - the procurement of unprotected interim infantry mobility vehicles. It also examines the environment in which this project was developed and sets out the scope and objectives of the audit.

Background

1.1 The 1991 Defence Force Structure Review commented on the need to provide protection to important civilian and military assets and infrastructure. It also noted that the ADF could be required to respond to land incursions across the north, from the Pilbara to north Queensland. It identified the need to enhance mobilisation planning, to provide options for increasing readiness and expanding the Defence Force when necessary. One of the specific requirements of the Army was to develop proposals for a new IMV to support independent brigade group operations. The Force Structure Review foreshadowed approximately $340 million to enhance mobility of the land force, especially its infantry battalions. Some 90 per cent of this was attributed to Project Bushranger.

1.2 By 1992, the Defence Concepts and Capability Committee (DCCC) had considered and endorsed a proposal regarding the need for increased infantry mobility. The 1994 White Paper, *Defending Australia*, noted that new land force vehicles would be acquired, to give greater mobility and better personnel protection during land operations. One of these projects was a lightly armoured transport vehicle acquired to provide mobility to infantry brigades. It also noted that these vehicle projects would be managed, to provide opportunities for Australian industry, and to reduce subsequent through-life costs, including adopting civil standards to the maximum extent practicable.[5]

1.3 Project Bushranger was developed to procure both protected and unprotected vehicles. Unprotected vehicles were to be identified and procured in a short period of time, to enable doctrine to be developed for the protected vehicles.[6] The September 1993 endorsed Equipment Acquisition Strategy

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5 *Defending Australia*, Defence White Paper 1994, Australian Government Publishing Service, Canberra, Preface, p. iii.

6 Doctrine was not developed at this time. However, the draft 'Army Concept for Employment of the Motorisation Capability' was the basis for development of motorisation doctrine and was to be drafted in late 2000 and issued as developing doctrine to motorised units and selected training units in early 2001. The ANAO notes that this developing doctrine was not issued until August 2003. Lower level doctrine was being developed in late 2003 but Defence advised it cannot be finalised until the protected IMVs are introduced into service.

(EAS), confined the unprotected Interim Infantry Mobility Vehicles (IIMV), procured under this first phase, to the Perentie[7] vehicle family.[8]

Provision of unprotected and protected vehicles

1.4 The unprotected vehicles and equipment were sole-sourced, under the terms and conditions of existing contracts.[9] This was decided on the understanding that Defence could use contract options to maximise the economies of scale established by the initial procurements, due to the smaller numbers being procured in this phase. A budget of $63.90 million was approved, in November 1993, for the purchase of 293 vehicles. This included 268 IIMVs and 25 support vehicles, with delivery of vehicles commencing in October 1995. The final cost was $57.69 million, with 268 vehicles delivered in service by March 2000, and the support vehicles delivered by June 2000.[10]

1.5 The third phase of Project Bushranger now seeks to acquire from ADI 299 'Bushmaster' IMVs, at a current project cost of $333.98 million (December 2002 prices). The project, when complete, will provide vehicles for two motorised infantry battalion groups within Army, and quick reaction forces within three Royal Australian Air Force (RAAF) airfield defence squadrons.

1.6 The cost capped project, which was initiated in 1991 as a result of the Defence Force Structure Review, has undergone many challenges since the mid 1990s (see Table 1.1). In 1998, the Government approved Phase 3 of the project, with a budget of $295 million. At this time, the project had completed the tendering and evaluation of possible vehicle solutions,[11] and was undergoing trials of the vehicles of two selected tenderers. In June 1999, Defence entered into a production contract with ADI for the delivery of 370[12] protected IMVs,

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7 Perentie was the name of the Project (MES 76) for the acquisition of Land Rover 4x4 and 6x6 vehicles. Land Rover 4x4 and 6x6 were also acquired for Project Parakeet, Comsec, AUSTACCS, MES50, Bushranger Phase 1, as well as vehicles for Navy and RAAF.

8 This would: ensure commonality with the battalion of 6 Brigade (later named 7 Brigade) already partially motorised and the Landrover fleet of 3700 vehicles; allow the infantry section to remain a complete tactical entity; and allow the use of the extant support (maintenance, training, Commonwealth and Contractor logistics) system for the vehicle.

9 An options clause in the existing Perentie Contract was exercised in May 1994 to award the IIMV production to Rover Australia. At that time, Rover Australia no longer had an established production line for Perentie vehicles (in service since 1987) and subcontracted the work to British Aerospace Australia to manufacture the IIMV.

10 The technical risk with the purchase of these vehicles was assessed as low, given the procurement was of additional quantities of an in-service vehicle. The contractual risk associated with the individual procurements was also assessed low, as the project was exercising options under existing contracts.

11 Phases 2A and 2B (tender and evaluation) had previously been approved by Government at a cost of $11.6 million.

12 The number of 370 vehicles was reduced by the Project Board in October 1999 to 341 to fit within the Project cost cap. However, there is no evidence that this was formally agreed to, and no change was ever made to the contract.

with trial vehicle delivery to be in 2003, for a cost of $170.04 million (October 1995 prices). At this time, a Through Life Support Contract (TLSC) was also due to have been negotiated.[13]

1.7 Due to problems with the ability of the Contractor to produce the vehicles within the contracted time, quality and cost, Defence considered both termination and renegotiation of the contract. Defence put to Government both options and proceeded to negotiate a CCP. This CCP was signed in mid 2002 for 299 vehicles, with reduced capability. The real prime contract price was increased by $42.2 million. The final vehicle is now not expected to be in-service until mid 2007. Two exit point tests were also included in the revised contract. ADI is currently completing the second of these tests.

Table 1.1 Acquisition of Protected Infantry Mobility Vehicles

Year	Activity
Concept Development	
May 1991	Defence's Force Structure Review
Capability Requirement	
Nov 1992	Major Capability Submission endorsed
Sept 1993	Equipment Acquisition Strategy endorsed
Invitation to Register Interest and Request for Tender	
Feb 1994	Draft Specification Army (Aust) 5286 (Development Specification DD(X)) released
July 1994	Invitation to Register Interest issued
Oct 1994	Invitation to Register Interest closed
Sept 1995	Request for Tender issued to the five companies shortlisted in the Invitation to Register Interest process
Nov 1995	Request for Tender closed
May 1996	Tender evaluation recommends Defence negotiate contracts with 2 of the 3 submitted tenderers and notify the third tenderer that their offer had been declined
Aug 1996	Defence Source Definition Committee rejected tender board's recommendation and decided that Defence negotiate with all three tenderers
Sept 1996	All tenderers advised that their vehicles were proceeding to trial

[13] This did not occur at the time. However, an Initial In Service Support CCP has recently been agreed.

Year	Activity
Trials and Evaluation	
Sept 1996	Defence gave consideration to an evaluation baseline to be used to assess the tendered vehicles
Sept 1996	Sale of Intellectual Property Rights of the Bushmaster to ADI
Oct 1996	Evaluation baseline was released to all three tenderers
Dec 1996	Commonwealth accepted the substitution of ADI to provide Bushmaster vehicles for trial
Jan 1997	Foxhound vehicle withdrew from vehicle trial process in negotiation phase
July 1997	Office of Asset Sales and IT Outsourcing commence the sale process of ADI
Nov/Dec 1997	Contracts for the supply of three trial vehicles were executed with remaining tenderers, each providing a three year option to proceed to production at the discretion of the Commonwealth
Feb 1998	Companies provide Defence with trial vehicles for assessment
Feb/Nov 1998	Bushmaster and Taipan vehicles were assessed
December 1998	Equipment Acquisition Strategy version 2 endorsed
March 1999	ADI preferred tenderer for the procurement of Infantry Mobility Vehicles
Contract Execution	
June 1999	The Commonwealth exercised the option for the production and supply of 370 'Bushmaster' infantry mobility vehicles in a number of variants for a price of $170.04 million (Oct 1995 prices)
	An advance payment of $ 43.2 million made to ADI (an additional amount of $1.3 million was paid in 2000 for price variation)
Aug 1999	Transfield Thompson-CSF Investments Pty Limited was selected as preferred buyer of the Commonwealth's shares in ADI
Oct 1999	Project Board agreed to reduce the number of vehicles to 341, no contract change was executed
Nov 1999	Final settlement occurred on the sale of ADI and the gazetted price was $346.78 million
Late 1999	Bushmaster trial vehicles used in East Timor for VIP transport duties
April 2000	ADI delivered the first prototype, an Infantry Mobility Troop Variant
Nov 2000	ADI advised that the unit cost of the Infantry Mobility Troop Variant had escalated, thereby adding $38 million to the contracted price
	ADI lodged a claim for $38 million against the Commonwealth, non-disclosure of contract problems in the sale of ADI
May 2001	Defence would not approve production until vehicle non-conformances were rectified in the Infantry Mobility Troop Variant prototype
Dec 2001	The Defence Capability Investment Committee recommended to Government that the contract be terminated and the Minister was advised

Year	Activity
Contract Renegotiation	
Jan 2002	Defence requested ADI to submit a contract change proposal to try to overcome problems with the contract
July 2002	Defence signed Contract Change Proposal 14.2 which transferred some additional activities into the contract, reduced vehicle numbers to 299 for a contract price of $218.9 million (Dec 2001 prices) and as a result allowed the project to remain within Government approved funding
Testing of Production Vehicles	
Mar 2003	Two prototype Bushmaster vehicles passed the Reliability Qualification Test in the re-baselined contract (Contract Change Proposal 14.2)
Aug 2003	Project Board confirmed the need to conduct a mine blast test of the production vehicle for reasons of safety and suitability for service
Nov 2003 to Mar 2004	Production Reliability Acceptance Test conducted on three production vehicles
Oct 2003 to April 2004	First Article Testing (FAT) conducted on the first Troop Variant production vehicle
June 2004	Minister for Defence announced that Production Reliability Acceptance Test successfully passed.
Delivery of Production Vehicles	
Mid 2005	Delivery of the first Bushmaster vehicles to Army units
Mid 2007	Delivery of final Bushmaster vehicle

Source: ANAO analysis of Defence Documentation

Project Management

1.8 In 2000, the then Minister for Defence approved for the DAO, Support Command Australia and part of the National Support Division to be amalgamated into the DMO.

1.9 The creation of DMO was to improve the delivery of equipment, systems and related goods and services to the ADF, by integrating acquisition and through life support activities into a whole of life management system. To achieve this, separate acquisition project offices and support units were replaced by integrated System Program Offices (SPOs). These offices were to be located near their ADF customers (Force Element Groups) and, therefore, it was necessary for some project offices to move out of Canberra into regional areas.[14]

[14] The latest Defence Annual Report states that now about 50 System Program Offices are collocated with Force Element Groups and industry and that this approach of collocation is now standard business practice.

1.10 Project Bushranger moved from Canberra to Melbourne, to be located with the majority of Army support functions in Victoria Barracks in mid 2002. While the relocation presented some risks, including loss of corporate knowledge, Defence informed ANAO in March 2004, that it also provided benefits in terms of proximity to engineering and contracting support, and wider SPO skills.

1.11 Further changes followed in 2003, with the release of the reports of two significant reviews into DMO. The first was by the Senate Foreign Affairs, Defence and Trade References Committee in March 2003. The second was the Government initiated Defence Procurement Review, chaired by Mr Malcolm Kinnaird AO (the Kinnaird Review). This review recommended, amongst other matters, the establishment of the DMO as a prescribed agency under the FMA Act, to facilitate its evolution towards a more business-like identity.[15]

1.12 Since 2003, the Army Headquarters Development Cell, based within the Army Preparedness and Plans, Force Structure Group, has been providing a single senior Army point of contact to assist in planning and monitoring the introduction of new capabilities into Army. The principal mechanism for undertaking this task is through the coordination of Introduction Into Service Fundamental Inputs into Capability[16] (IIS FIC) Planning Groups.

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[15] Other key decisions flowing from the Government's adoption of this Review can be summarised as follows:

- strengthening the capability development and assessment process before projects are handed to the DMO through forming a new Capability Group within Defence headquarters to be managed by a three star official (military or civilian) reporting directly to the Secretary and Chief of the Defence Force;
- establishing an eight-member Advisory Board to provide advice to the head of the DMO on strategic issues and to report to the Ministers for Defence and Finance and Administration at regular intervals on the implementation of the Kinnaird recommendations;
- giving the Chief Executive Officer (CEO) of the DMO an expanded range of powers to make improvements to the delivery of Defence projects and the management of the DMO, including empowering the CEO to revise DMO staffing and remuneration policies in order that the CEO is able to attract and retain high quality project managers from the military; industry or public service on the basis of merit and for extended tenures;
- strengthening the current two-pass approval system to facilitate early engagement with industry and provide a better basis for project scope and cost;
- establishing cost centres in Defence and the Department of Finance and Administration, which will build on Defence's decision earlier this year to establish a Cost Assessment Group;
- strengthen the review of project costs and risks; and provide a quality assurance role for the Government; and
- extending the role of Project Governance Boards to advising the CEO of the DMO on through-life support issues in order to provide greater recognition of the importance of managing the whole-of-life of a particular capability. Source Media Release by the Minister for Defence, *Further Reforms to Defence Acquisitions*, 18 September 2003.

[16] The FIC's are: personnel, organisation, support, facilities, collective training, major systems, supplies and command and management.

1.13 The IIS FIC Planning Groups outline the Introduction Into Service (IIS) of all new equipment capabilities, and tasks the stakeholders to meet specific Fundamental Inputs into Capability (FIC) milestones, to synchronise the delivery of new equipment into Army. The Planning Groups formally bring together the key stakeholders of the individual capability, such as: the Capability Systems staff; DMO project staff; Army Headquarters FIC Managers; and the three functional commands within Army. This Group develops and issues a formally endorsed Army Headquarters (AHQ) IIS FIC Plan. The Project Bushranger Plan clearly identifies tasks, responsibilities, timeframes and budget considerations and is updated yearly.

Audit approach

1.14 The objective of the audit was to provide an independent assurance on the effectiveness of Defence's management of the acquisition of armoured infantry mobility vehicles for the ADF. The audit sought to identify the initial capability requirements; analyse the tendering and evaluation process; and examine the management of the project by Defence. As such, this was not an audit of contractor performance, but of the formation and contract management of the acquisition project by Defence.

1.15 Audit fieldwork was conducted from August 2003 to February 2004. The audit team met with areas within Defence, including: the Program Office at Defence's Victoria Barracks, Melbourne; Land Command at Victoria Barracks, Sydney; 7 Brigade at Gallipoli Barracks, Enoggera; and various areas within Army based at the National Office in Canberra.

1.16 ANAO examined documentation relating to concept development, and subsequent phases of the project, as well as the preparation and management of the contract. The Project Bushranger Program Office commissioned an external review in March 2003 into the lessons learnt from the project.[17] The lessons learnt totalled 66 and can be summarised under the main headings of: capability definition and management; leadership; tender, source selection and contracting; technical issues; risk management; project setup and management; and legal issues.

1.17 A series of discussion papers consolidating the findings of the audit were provided to Defence during March and April 2004. Comments on the discussion papers were considered in the preparation of the proposed report. The Proposed Report was provided to Defence in May 2004. The audit was conducted in conformance with ANAO audit standards at a cost to ANAO of $380,000.

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[17] Project Outcomes, Land 116 Project Bushranger Lessons Learnt Report, Issue 1.0 of 31 March 2003.

Report Structure

1.18 The remainder of this report is structured into four chapters. Chapter 2 outlines the formation of the initial contract by DAO. Chapter 3 discusses contract management by DAO. Chapter 4 covers the review of the contract by DMO. Chapter 5 examines the management of the revised production contract by DMO.

2. Formation of the Contract by DAO

This chapter examines the capability requirement of the project, clearly shows the planned and actual timeline of major events and discusses the tender and evaluation of suitable vehicles, the selection of the preferred tenderer and the development and signing of the production contract.

Background

2.1 At the time of Project Bushranger's inception, Defence's procurement policies and procedures were set out in the Capital Equipment Procurement Manual version 1 (CEPMAN 1). CEPMAN 1 notes six approvals required in the major capital equipment (MCE) acquisition process. These approvals permit a major capital equipment project to progress, and provide an auditable trail.

2.2 The acquisition process is separated into two phases:

- pre-project approval involving endorsement of capability; program approval; and project approval; and
- post-project approval involving approval to a proposal to spend monies; approval to the method of procurement; and approval to commit the Commonwealth.

2.3 The pre-project approval phase refers to a proposal undergoing consideration; from original force development activities through to having a statement of requirement and approved equipment acquisition strategy. This results in an approved project in context of the Budget. The financial provision for the materiel solution is transferred from the Pink Book (now called the Defence Capability Plan) into the White Book.[18]

2.4 The post-project approval phase of the major equipment acquisition process, consists of those activities necessary to procure equipment which will satisfy the operational requirement, and ensure it is acquired within the approved cost, schedule and procurement objective.[19]

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[18] Defence Instruction (General) ADMIN 05-1 (16 Jan 1992 version) defines the 'Pink Book' as the Force Structure Policy and Programming Committee agreed program of unapproved Major Capital Equipment proposals. The 'White Book' lists all approved Major Capital Equipment projects and provides both planned commitment and actual expenditure on each project.

[19] CEPMAN 1, para 3.44.

Capability Requirements

2.5 Definitional work commenced on the project in mid 1992. The introduction in the project's initial Major Capability Submission (MCS),[20] explained that the project was required to enable the ADF to fulfil the principal Defence roles of protecting important civilian and military assets, and defeating incursions in the vast areas of northern Australia. The MCS explored broad options for motorisation, on the basis of identifying the number of motorised battalions that could be deployed on operations in accordance with assigned readiness levels.[21] Cost estimates were calculated for a light General Service (GS) vehicle, a medium GS vehicle and a Wheeled Light Armoured Vehicle (WLAV).[22] The MCS noted that the WLAV could not be introduced into service until later in the decade, whereas GS vehicles could be introduced as early as 1994.

2.6 The MCS noted that the project would be carried out in three phases:

- Phase 1: Interim Motorisation with GS vehicles;
- Phase 2: Evaluation of suitable protected vehicles; and
- Phase 3: Procurement of Protected Vehicles.

2.7 Phase 2 was to commence concurrently with Phase 1. The aim of Phase 2 was to determine the IMV to be procured in Phase 3. The endorsed EAS split Phase 2 into two sub-phases, 2A—Project Development and 2B—Trials. Vehicles to be procured through Phase 3 were to enhance the mobility of selected infantry battalions, by enabling them to move their personnel, weapons, equipment and supplies without external assistance.

2.8 The DCCC approved the Land 116 Infantry Mobility Vehicle Project in November 1992. The MCS separately identified the performance characteristics of the WLAV:

> On balance, a modest, economical but functional wheeled light armoured vehicle with a high commonality of components with commercial vehicles will provide a suitable capability within funding and other constraints. Such a

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[20] A MCS draws on the Defence Force Capabilities Proposal approved by the DCCC. It includes refined arguments on resource aspects such as indicative acquisition and operational costs, manpower, facilities, training, research and development, test and evaluation, life cycle costing, scope for AII and planned phasing of the project. The MCS Executive Summary supports inclusion of the project in the Pink Book.

[21] Up to eight battalions were originally identified. However, during the course of the project the number has been reduced to two.

[22] Due to funding constraints and the large number of vehicles planned to be procured, option scenarios noted that the WLAV was to be based on acquiring a modest but functional vehicle rather than the Light Armoured Vehicle-Personnel Carrier being procured at the time (which was later named the ASLAV).

vehicle should be manufactured and, if appropriate, designed and developed in Australia.

2.9 The MCS further identified that the performance characteristics of Project Bushranger vehicles were to be optimised to:

- meet the demands of widely dispersed operations in low and escalated low level conflict in northern Australia;
- minimise life cycle costs;[23] and
- provide opportunities for AII, including manufacture and through life support.

Equipment Acquisition Strategy (EAS)

2.10 CEPMAN 1 notes that the EAS is a high level document which describes the acquisition strategy, by covering issues such as scope, budget, schedule, how value for money will be achieved, tendering, contracting, risks, industry aspects, support, and delegations for approval authorisations. The EAS is normally considered by the Defence Source Selection Board (DSSB), whose primary role is the consideration of acquisition strategies and source selections for major projects.

2.11 The strategy and timings developed in the EAS, provides the basis for the Project Management and Acquisition Plan used by the Program Office.

2.12 The EAS was endorsed by the Defence Source Definition Committee in September 1993, with an actual project cost of $371.7 million (April 1992 prices), comprising 293 unprotected vehicles in Phase 1. The final phase was for the acquisition of 432 protected vehicles, plus support vehicles costed at $371.7 million. The aim of this EAS was to identify the strategy for procurement and through life support for the procurement of IIMVs, and for the evaluation of IMVs.

2.13 Phase 3 is a production phase based on Phase 2 source selection. A latter EAS for Phase 3 was prepared for DSDC endorsement in December 1998, based on information current at that time.

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[23] The MCS states that the introduction of a motorised capability would incur short and medium term costs in the areas of capital investment (including research and development); capital facilities; operating cost increases (less manpower); and manpower salaries. The document highlighted that there may have been a need for research and development costs in both Phase 1 and Phase 2 of the project. For Phase 1 this was identified as modifications to the base vehicle to produce up to three specialist variants with 5 per cent of the Prime Equipment Cost allocated to fund the modifications. Phase 2 evaluation was highlighted as an area which would require considerable research to identify the optimum solution for Australian conditions and to test potential solutions against the goal. It estimated Phase 2 costs at $10 million, should a proven design be adopted.

2.14 The planned timetable as set out in the 1993 endorsed EAS. The actual timetable are detailed in Figure 2.1. It shows the initial time span for the project was nine years, from the issue of the ITR to the last production vehicle delivery. In comparison, the actual time span shows that the last vehicle is expected 14 years from the ITR. The delay of five years is a result of a range of schedule slippages, including the issue of the ITR in the trial Phase, and within the Production Phase, after contract signature in 1999.

Invitation to Register Interest (Phase 2A)

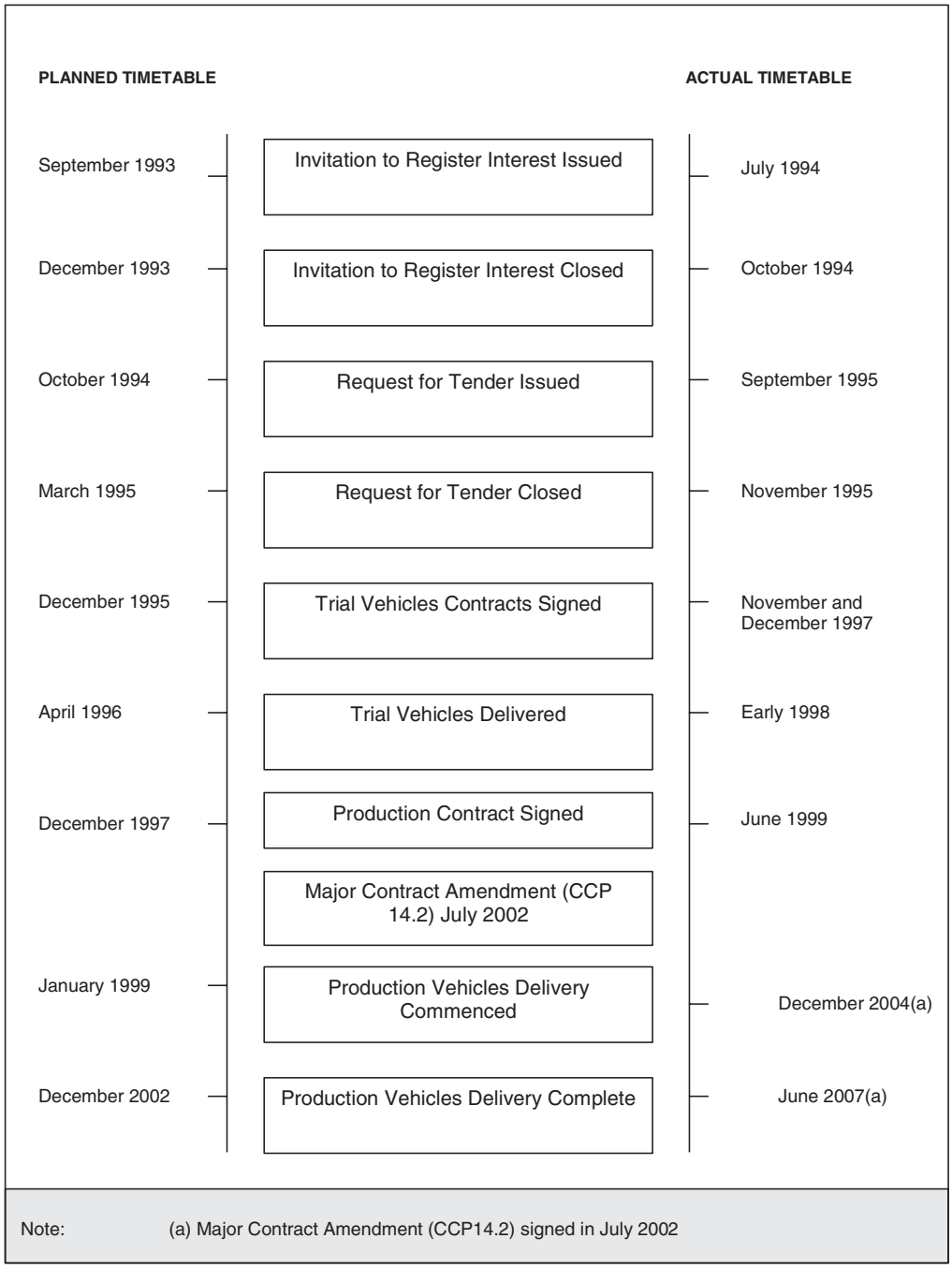
2.15 This phase comprised obtaining and assessing industry responses to an ITR issued both nationally and internationally, and was approved at $0.152 million. The documented aim of the ITR was to obtain sufficient information from industry to allow Army to progress the project. The ITR was to be released to assist in assessing interest from industry, and to ascertain whether there was an existing capability which companies were interested in providing.[24]

2.16 The MCS, approved in 1992, had noted that, although budget approval for Phase 2 could not be gained before August 1993, Defence intended to begin the evaluation of the responses to the ITR in January 1993. Phase 2A was, subsequently, deferred and rescheduled for the 1994–95 Budget deliberations.

[24] The Phase 2 Source Selection Strategy, AII implications, noted: The type of vehicle sought is not currently manufactured in Australia or New Zealand. Consequently, there could be significant time and cost implications associated with an Australian designed and developed solution. There is increasing evidence that Australian Industry does have the capability to design, develop and manufacture such a vehicle, given adequate time and resources.

Figure 2.1

Planned and Actual Timetable for Protected Vehicles



Note: (a) Major Contract Amendment (CCP14.2) signed in July 2002

Source: Defence

2.17 Defence released the draft Specification Army (Aust) 5286 (Development Specification DD(X)) in February 1994, before the ITR was released. Releasing the draft specification was to assist industry to establish whether it could tender for the project, and give Defence an early indication of suitability of the specification and interest in supplying the vehicle. The ITR was issued on 11 July 1994 and stated that:

> The base vehicle will be a simple, wheeled, lightly armoured vehicle based on commercial truck components (such as chassis, engine, transmission, axles and wheels), capable of off-road mobility and providing defined levels of protection.[25]

2.18 The endorsed EAS stated that the ITR would close four months after its release. However, industry was formally given three months to respond to the ITR, which closed in October 1994. At the time expressions were required to be lodged, there was no firm decision regarding final numbers of vehicles. The ITR stated that responses should include an option for 455 vehicles (Option 1) and 570 vehicles (Option 2).

2.19 There were 17 responses to the ITR from 13 companies/consortia. One response was rejected, as it made only a part offer. The remaining 16 were appraised under the ITR Evaluation Plan. The ITR Evaluation Report recommended that five companies be invited to submit a tender for the production of the infantry mobility vehicle. The Minster for Defence endorsed this recommendation.

Request for Tender and Trial (Phase 2B)

2.20 This phase was approved in May 1995[26] and involved the release and evaluation of a RFT, and the conduct of a trial, to determine the production vehicle to be procured. The more detailed responses to the RFT were to be used to:

- identify the vehicles to be trialed;
- further refine the IMV specification;
- further refine the life cycle cost model and estimates;
- further refine the MCS for Phase 3 with emphasis on AII and programming considerations;

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[25] ITR Issue 4, July 1993.

[26] Phase 2B was approved for $9.0 million in the context of the 1995–96 Budget. This approval was increased to a maximum of $11.642 million in July 1998, to reflect global prices updates. At December 2000, the approved budget for Phase 2B was revised to $10.329 million. In the January 2002 Phase 2B Closure Report it was concluded that a financial reconciliation of the Phase 2B funds had occurred.

- assess the facilities implications of the vehicles; and
- prepare a SER for the procurement of the trial vehicles.

2.21 The RFT was issued, on 4 September 1995, to the five companies shortlisted from the ITR process. The approved EAS stated that the RFT was to close five months from the date of release. Tenders closed on 27 November 1995.

2.22 Four companies submitted tenders. Subsequently, evaluation of the three remaining tenders against the approved TEP, disclosed that none of the tenders met all of the specified criteria. In particular, the vehicles did not provide complete protection, as specified, and needed either thicker or different armour over the whole body of the vehicle or parts of the vehicle. The May 1996 SER recommended that Defence proceed to negotiate contracts with two of the tenderers, and notify the third that their offer had been declined.

2.23 In August 1996, the DSDC decided that, as a trial process was needed, all three vehicles would go to trial, with the qualification that one trial tender price be reduced in order for the particular tenderer to be included.

2.24 The DSDC also agreed that an evaluation baseline needed to be developed prior to trial contract negotiation commencing. The baseline was to be common to all tenderers and comprise at least the tendered basic and essential requirements. The DSDC further agreed that, during contract negotiations for vehicle trials, the companies would be required to meet the trial baseline requirement.

2.25 The TEP for Phase 2B contained two discrete steps in determining which vehicle was to be procured under Phase 3. These steps were the tender evaluation resulting in the Phase 2B SER, and then a final evaluation that included the results of the trial.

Baseline evaluation

2.26 The DSDC agreed baseline for assessing trial vehicles, which the tenderers were required to meet, was released on 3 October 1996.

2.27 Issue 2 of the specification required that the vehicles being offered in the RFT 'shall be equipped with either a manual or an automatic transmission'. All tenderers had offered and costed an automatic transmission, but only two of the three companies provided for a manual transmission. As part of the evaluation baseline, the 'Commonwealth opted for automatic transmission equipped vehicles as this presented a training and operational advantage to the capability.' Defence considered that the vehicles offered met the necessary criteria in the RFT without modification.

Substitution of Bushmaster tenderer

2.28 During September 1996, one week before companies were notified that their vehicles were chosen to go to trial, Perry Engineering (Boral Johns Perry Limited, BJPL) proposed that ADI be substituted as the tendering company for Project Bushranger. Perry Engineering proposed that, if their tender was successful, ADI be its agent for negotiation, and any contract signed with Perry be novated to ADI after signature.[27]

2.29 Defence noted that there was no reason for this substitution not to take place, as the only change was the company providing the vehicle. On 18 November 1996, Defence wrote to ADI and Perry to advise them that the Commonwealth would accept the substitution of ADI as tenderer, provided that all three parties enter into a Deed of Substitution.

2.30 The tender evaluation process assessed each company in terms of its ability to provide the vehicles being offered. This included an analysis of the company profile and project management ability, and specific experience. These discriminators were based on the particular tenderer. Although ADI had been assessed in the initial ITR, there was no evidence available on Project Bushranger files, reviewed by the ANAO, to show that ADI was assessed in the context of providing the Bushmaster vehicle. Whilst Defence records note that Defence is ADI's core business, ADI had no specific experience in delivering a product such as the Bushmaster. [28] There is no evidence that Defence conducted an in-depth assessment of ADI's project costing data.

2.31 The Land 116 Phase 2B—Project Bushranger—Contract Negotiating Directive, dated 25 October 1996, provided the authority to negotiate a contract for the provision of trial IMV, with an option to proceed to contract with the three successful tenderers.

2.32 British Aerospace Australia withdrew its offer of the Foxhound vehicle for the Phase 2 trials, in January 1997, prior to formal contract negotiations commencing with them.

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[27] Instead, Defence proposed and subsequently undertook the following steps: a response was sent to Perry and ADI to seek more information as to the reasons and justification for the change; all stakeholders were informed when the substitution was accepted; the other two tenderers were informed and asked to confirm their preparedness to negotiate; and a deed was prepared and signed between ADI and Defence to ensure substitution as well as ADI acceptance of all of the conditions of the tendered bid.

[28] As part of the RFT assessment, Army Technology Engineering Agency (ATEA) was commissioned by the Project Office to undertake an assessment of the technical aspects of the tenders and tenderers. The ATEA report based on visits undertaken in January and February 1996 assessed the tenderer's capability in regards to Design, Development and Manufacture. The report also assessed the developmental status of all respondents. The report states that 'all three remaining respondents have produced developmental vehicles and are in varying stages of proving their product.' The report also states that the Bushmaster was the most developmental of the three vehicles offered.

2.33 Contract negotiations commenced with both ASVS and ADI during December 1996 and February 1997. Both the trial and production components of the contract were negotiated. The Stage 2 production component of the contract was an option, exercisable solely by the Commonwealth, on the trial component of the contract. Stage 1 was a fixed price contract, and Stage 2 was a variable price contract. The Contract clearly stated that, if the Commonwealth intended to exercise the option, it was to be done within three years of the effective date that is 12 December 1997. This meant that Defence had until 11 December 2000 to exercise this option.

2.34 The EAS of July 1993 noted that the Trial and Production contracts were originally to be negotiated separately. However, in August 1996, the DSDC decided to pursue parallel production contracts with competing tenders, to minimise the production cost increasing, once a preferred vehicle was chosen.

2.35 The Contract Negotiating Directive noted that the production phase was planned for approval in May 1999. The decision of which IMV was to be procured during this phase was expected to be made following trials, with deliveries commencing in 2001. Between the time that tenders were submitted and the trial commenced, the proposed vehicle designs were being refined to meet the trial evaluation baseline provided to the tenderers in October 1996. As a result, the vehicles provided for trial were different to those documented in the tender responses.

2.36 The trial contracts for the supply of three trial vehicles were executed in November 1997 with ASVS and December 1997 with ADI.

Recommendation No.1

2.37 The ANAO *recommends* that, when a new company is substituted for a tenderer during the tendering process, Defence conduct an analysis of the new company's management, relevant experience and financial capacity to undertake the contractual requirements adequately.

Defence response

2.38 Defence agreed with the recommendation.

Test and Evaluation

2.39 In accordance with the MCS Land 116, the Directorate of Trials (part of the Defence Science and Technology Organisation) was tasked with the conduct of a Defence trial to assess the suitability of the contending IMV's for introduction into service into the ADF. ASVS and ADI provided Defence with trial vehicles in February 1998, and the Bushmaster and Taipan vehicles were assessed from then until November 1998.

2.40 Testing included the following:

- User testing—undertaken by D Company in 25/49 Royal Queensland Regiment (part of 7 Brigade). Neither vehicle was found to be suitable for introduction into service without modification.
- Engineering performance testing—undertaken by ATEA. Both vehicles were found to be compliant but were considered unsuitable for introduction into service without modification. Defence considered it low risk to successfully modify the Bushmaster to an acceptable standard.
- Durability testing—conducted by ATEA. Neither vehicle was found to be suitable for introduction into service without modification. Rectification of the identified deficiencies in the Bushmaster vehicle was considered low risk.
- Maintenance evaluation/reliability availability and maintainability assessments—undertaken by the Directorate of Maintenance Engineering (Army). Both vehicles were found unsuitable for introduction into service without modification.

2.41 The overall finding of the trials was that neither vehicle was suitable for introduction into service without modification. The trial identified proposed changes to the specification and the modifications, required by both Bushmaster and Taipan, to become suitable for introduction into service. The risk associated with the Bushmaster achieving the required standard was assessed as lower than the Taipan.

2.42 With regard to testing of dimensions for major compatibility requirements, such as fitness for purpose of transportation by RAAF aircraft, the trial report identified measurement in terms of height and width, and stated the following:

> **Air Transportability**. The vehicle is required to be transportable in the Medium Range Transport aircraft (Lockheed C-130E/H Hercules). A desirable requirement is for this transportation to occur without special preparation. The air transportability assessment was made by AMTDU [Air Movements Training and Development Unit]. Neither vehicle was placed in the C-130 during testing because of the axle weight of the vehicles.
>
> **Bushmaster Infantry Mobility Troop Variant (IMTV)**. Based on the AMTDU assessment, the Bushmaster will fit within the physical envelope of the aircraft interior when the CTIS [central tyre inflation system] air pressures are set to the 'sand' setting. The rear of the vehicle would foul the aircraft if reversed into the C-130. It should be capable of being driven into the aircraft in the forward direction without fouling. In order to be transported in the C-130, the Bushmaster must be fully unloaded of stores, equipment and CES [complete equipment schedule], water and fuel drained to 50% and several

heavy components removed from the vehicle including the spare wheels, front grille assembly, front access panel, windscreen and bonnet. The Bushmaster therefore complies with the essential criterion of being capable of transportation in a C-130. However, it fails to meet the desirable requirement of C-130 transportation without special preparation. The risk of achieving this latter requirement is very high because the required weight reduction is not feasible. The overall risk of meeting all specification paragraphs in the transportation criteria is therefore very high.

Selection of preferred supplier

2.43 In August 1998, the DSSB agreed that the source selection for the project should follow the normal process, and ideally occur before the ADI sale process was concluded. The DSSB also identified that, although the project would not delay the sale of ADI, it could affect the sale price. It was also agreed that through life support costs were important in the overall source selection consideration for the Project. The DSSB directed that proposals be sought from both parties, for a range of support tasks, on the basis of 'not to exceed' prices. These prices were received in October 1998 and the results included in the SER.

2.44 A separate EAS was required to be submitted for Phase 3 of Project Bushranger. The strategy proposed in the 1998 EAS was that which had been followed by the project since the decision to pursue parallel production contracts was made in 1997. Approval for the EAS for Land 116—Phase 3 was provided by the Government in December 1998.

2.45 The Phase 3 EAS noted that changes would need to be negotiated to the Stage 2 Production options. These changes were a result of no endorsed Basis of Provisioning (BOP) being provided by Army at the time the Stage 2 contracts were being negotiated; and feedback from the trial would likely necessitate design and configuration changes to the IMV trialed under the Stage 1 contracts.

2.46 The EAS outlined both a preferred strategy and a proposed strategy. The preferred strategy for progressing to production, aimed to maximise Defence's bargaining position and minimise identified risks. Specifically, the strategy suggested that Defence should negotiate necessary changes to the Stage 2 contract with both contenders, so that final costed production options could be presented to the DSSB for source selection. It also noted that any final contract change negotiations occur prior to the Stage 2 contract being activated. Under this strategy, Defence considered the Commonwealth was unlikely to complete a contract before late 1999.

2.47 The acquisition of the protected vehicle (Phase 3) was approved in late November 1998. In order to meet the time constraint, a proposed (and subsequently approved) detailed contracting strategy was developed.

2.48 The EAS outlined that this proposed contracting strategy contained some risk, which would affect both the Stage 2 production contract and the through life support contract. The EAS noted that a formal risk assessment had not been undertaken for Phase 3. However, a number of risks had been identified during the development of the EAS. It was noted that a possible risk was that changes to the BOP and vehicle configuration, that effect the Stage 2 contract, were yet to be quantified.

Evaluation

2.49 The SER, based on the outcomes of DSSB consideration, was approved in March 1999. The report detailed: the results of the trials undertaken by the contending vehicles; the proposals for through life support from each company and the associated life cycle cost implications; and the relative benefits to Defence of each company's production contract option taken into consideration by the DSSB in the evaluation of the contending vehicles.

2.50 Neither vehicle type fully met all the requirements of the Defence specification. Both vehicles performed only with varying levels of success over the trials. The SER recommended to the DSSB that ADI be the preferred tenderer for the supply of the IMVs.

2.51 The DSSB considered the commercial aspects of both company's production contract options. The major areas of difference were: the risks of achieving the local content required; likely total project cost; and the exposure of the Commonwealth to source currency. As a result, the DSSB agreed that the business proposal contained in ADI's offer was more advantageous to the Commonwealth.

2.52 An internal Defence minute, dated 4 March 1999, states that:

> The Board noted the disparity between the adjustments added to the Production Contract Price for each vehicle to meet the Top Level Requirement (ADI - $24.02 million, ASVS - $53.10 million). These estimates include all negotiated options in the contract to bring the two vehicles up to a common baseline and reflect ADI's inclusion of many of these options in their baseline offer. The Board also noted the $14.88 million difference between ADI's ($272.99 million) and ASVS's ($287.88 million) probable total project cost and that the ASVS price includes a larger percentage of foreign currency than that of ADI with consequent greater Commonwealth exposure to currency fluctuations. The Board further noted that the proposed cash flow for both ADI and ASVS was neutral.

2.53 As part of the trial, both contractors were required to provide life cycle costing (LCC) modelling input data as a contract deliverable. This data was validated and amended to reflect actual data or results achieved over the course of the vehicle trials. Noting the small sample size of data, all things

being equal, the LCC analysis, based on both companies' data and trials data, resulted in a preference for ADI's Bushmaster.[29]

2.54 The DSSB agreed that, on balance, after considering all aspects of both contenders, ADI's Bushmaster offer provided better value for money, and on this basis agreed that ADI was the preferred tenderer as the supplier of Phase 3 IMVs.

2.55 Before contract negotiations with ADI could commence, the DSSB recommended that a number of issues be resolved in relation to the current production contract option that resided in the extant contract for trials vehicles.[30] In March 1999, the Minister for Defence announced that ADI had been selected as preferred tenderer to manufacture and support approximately 350 IMVs.

2.56 During the ADI sale process the AGS acted as an independent monitor for Project Bushranger. The AGS in legal advice to Defence on 25 March 1999 stated that:

> Nothing has come to our attention to lead us to believe and we do not believe that the Tender Evaluation process to date conducted for the Bushranger Project has been adversely affected by any matter relating to the sale by the Commonwealth of it's interest in Australian Defence Industries Limited.[31]

2.57 On 25 March 1999, a Contract Negotiating Directive was issued to the Director of Vehicle Systems Projects to negotiate on behalf of Defence with ADI, changes to the previously agreed Stage 2 (Production) Option to supply IMVs. The objective of the contract negotiation was to: reach agreement on Terms and Conditions; amend the SOW as required; and recommend for signature, the Stage 2 (Production) Contract between Defence and ADI, for the provision of the IMV.[32]

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29 The ANAO Better Practice Guide notes that LCC is aimed at raising awareness of the need to consider future long term costs of major equipment acquisition. LCC is considered at the acquisition stage of the project to assist in making decisions between alternative solutions.

30 Specifically, these issues were: revised BOP which will result in amending the scope of supplies; transfer of some items of support to the TLSC; obtaining ADI's agreement to rectify, at its cost, the deficiencies (both against the Specification and fitness for purpose) identified in the 'Bushmaster' during vehicle trials; agreement to the vehicle specification that will form the basis of the Phase 3 contract; and incorporating into this Specification those proposed modifications identified as a result of vehicle trials.

31 The AGS undertook the following tasks: reviewed the draft Source Selection Report dated January 1999; participated as observers at the Tender Evaluation Board meeting to consider the draft Source Selection Report in January 1999; participated in a briefing officers meeting in February 1999; participated in a DSSB meeting to consider the SER in February 1999.

32 Specific objectives relating to this contract negotiation were: confirm the quantity of IMVs by variant that are to be manufactured, and confirm the price for the stated quantities; and clarify areas of rectification on the production IMV that are to be met by ADI Ltd.

2.58 In May 1999, a report detailing the outcomes reached to date between Defence and ADI regarding the Stage 2 (Production) Option was provided to senior Defence officials. This report noted that the revised BOP, reflecting the agreed position of the Capability Forum, had been incorporated into the draft contract.

2.59 The revised BOP took into account an increase of vehicle numbers from 341 to 370 to provide vehicles to the RAAF, and to ensure required numbers in the appropriate areas, for example training and maintenance pools.[33] This resulted in a Contract price increase of $8.13 million (See Table 2.1), and a revised contract price of $170.04 million (October 1995 prices). The report also noted that a total of 80 rectification or improvement issues were discussed with ADI as a result of the Stage 1 trials. Agreement was reached on all issues. ADI accepted responsibility for 67 of the rectifications. Defence accepted responsibility for the remaining 13. It was considered that these 13 were largely recommended improvements to the vehicle.

Table 2.1

Negotiated Price Increase Due to Revised BOP (October 1995 prices)

Stage 2 Production		Amount
Supply of 341 Vehicles		$161.24 m
• Plus: revised Basis of Provisioning for additional 29 vehicles	$8.13 m	
• Plus: Commonwealth funded improvements	$0.67 m	
Total Price Increase		**$8.80m**
TOTAL COST FOR SUPPLY OF 370 VEHICLES		**$170.04m**

Source: Defence.

2.60 The Contract Negotiation Report noted that the Production Specification, to be used in the Stage 2 (Production) contract, 'is a deliverable under the Stage 1 (Trial) Contract'.[34] The Stage 1 Contract, clause 4.5, specifies that: the primary output of the system engineering process is a complete set of system requirements, documented in a product/system specification; and also, the Contractor shall deliver a contract specification for each of the variants to be provided during Stage 2, in accordance with Contract Deliverable Requirement (CDR) 410.

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[33] Defence Minute, *Land 116 Project Bushranger Phase 3 Contract Negotiating Report and Proposal/Liability Approval, DGAP75/99*, 21 May 1999.

[34] Defence Acquisition Organisation (DAO), *Contract Negotiation Report Land 116 Project Bushranger Phase 3, BR-10568*, 18 May 1999, p.3.

2.61 In regard to the amended terms and conditions of contract, Clause 6.2.1 was included in order to incorporate the production specification (CDR 410 of the Stage 1 contract) into the Stage 2 (Production) Option. The wording of this clause included the statement: 'For the avoidance of any doubt, the Contractor accepts all responsibility for the design of CDR 410 of the Stage 1 Contract.'

Production Contract Execution (Phase 3)

2.62 Legal advice was obtained from the AGS in April 1999 in relation to achieving changes to the conditions of the Stage 2 Production Contract, including changes to the SOW. Advice provided to the Program Office by the AGS was that, since the Stage 2 (Production) Option was contained within a signed contract, the method for executing the Stage 2 (Production) Option was by Letter of Instruction to ADI. This letter exercised the Option in accordance with clauses contained in the Stage 1 (Trials) contract. The Effective Date to apply to the Stage 2 Production Contract was 1 June 1999. At the time of effect, the contract value was $170.04 million (October 1995 prices) for the delivery of 370 vehicles.

2.63 Assessment was undertaken by Defence officials, to ensure that matters raised in relation to the Contract Negotiating Report and draft contract amendment had been addressed. It also ensured that they were consistent with and reflected the relevant conclusions reached by the DSSB, prior to the Stage 2 (Production) Option being exercised.

Advance payment

2.64 The Contract Negotiation Report also noted that agreement had been reached with ADI to make a 25 per cent advance payment (up from 20 per cent, which was cost neutral to Defence) upon contract execution in order to assist Defence spend their Budget allocation in 1998–99.[35] Defence advised ANAO, in March 2004, that the 25 per cent advance payment was requested from outside the Program Office. The ANAO has found no evidence that points to an analysis that supports the statement that an advance payment was cost neutral. ANAO notes that the other tenderer offered a discount of $2.46 million for the payment of a 19 per cent advance payment.

2.65 FMA Regulation 8 states that:

> (1) An official performing duties in relation to the procurement of property or services must have regard to the Commonwealth Procurement Guidelines.
>
> (2) An official who takes action that is not consistent with the Guidelines must make a written record of his or her reasons for doing so.

[35] Accrual Budget reporting did not commence until 1999–2000.

2.66 The ANAO considers that, increasing the advance payment by a further five per cent to assist Defence spend their budget allocation, would not be consistent with the Commonwealth Procurement Guidelines.

2.67 ADI agreed to the increase in the advance payment to 25 per cent and it was incorporated in the Stage 2 (Production) Option Contract. The contract (milestone) payment schedule was adjusted to incorporate the increase in the advance payment.

2.68 Proposal and liability approval documentation for Phase 3 stated that the Department had a desire to make the advance payment, as provided in the contract, in the 1998–99 Financial Year. Subsequently, approval was granted for an advance payment of some $44.5 million to be made to ADI immediately upon the exercising of the Stage 2 (Production) Option. ADI had been requested to provide the invoice for the advance payment and associated financial security[36] by 31 May 1999.

2.69 The advance payment, made to ADI in June 1999 related to a number of specific 'milestone' payments in the contract payment schedule that were identified and subsequently paid in overseas 'source' currency.[37] The exchange rates used at the time of payment resulted in an additional $0.711 million being paid over the expected amount in Australian dollars, this effectively equated to a 26 per cent advance payment.

2.70 The exchange rates used to calculate the foreign currency component of the 25 per cent advance payment was based on late 1995 exchange rates. For example, Defence paid the US component based on a rate of $A 0.7495 when the market rate at June 1999 was $A 0.653. The outcome on the US component was a risk free return to ADI at the Commonwealth's expense of $1.276 million. A number of currencies moved in Australia's favour in the period to limit the total foreign currency arbitrage loss to Defence to $0.711 million.

2.71 The contract also allowed for price escalation from October 1995 prices to the time of payment in 1999. This price escalation component of some $1.32 million was paid to ADI in July 2000. Defence advised ANAO, in April 2004, that this amount did not include a foreign currency component.

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[36] Defence policy stated that Financial (Bank) Guarantees are the Commonwealth's preferred form of security because the dealings are through a third party and represent the lowest risk of default or litigation should circumstances require them to be called upon. As Financial Guarantees are the principal form of security within contracts, the term 'Bank Guarantee' and 'Security' are often used interchangeably. However, Bank Guarantees are but one form of security.

[37] The DEFPUR101 Handbook notes that the Commonwealth is obliged to make payment in source currencies where source currency amounts are identified in Attachment D in respect of supplies.

2.72 Defence's 1999 Defence Purchasing Manual 101 (DEFPUR101) notes that, for some projects, the Commonwealth might allow the Contractor one advance payment, usually at the beginning of the contract. Often the Commonwealth then develops a Milestone Payment schedule that provides a reasonable cashflow to the Contractor over the contract period, as well as paying for work as it is being performed. The policy noted that there are often commercial gains to be made by structuring the payment schedule to reduce contractor borrowing, because financing costs for the Commonwealth are usually lower than commercial rates available to contractors. The policy also noted, however, that the Commonwealth should not bear the risk of the contractor failing to complete the supplies. Therefore, a positive cashflow (ie contractor receiving payment in advance of their requirements or achievement) should be avoided, unless payments are fully justified and secured.

2.73 The Commonwealth bore the forward risk of the Contractor not meeting the terms of the contract. There was no demonstrated evidence that there was value for money to the Commonwealth from such a significant payment. Finance Circular 1995/3, which preceded guidelines for acquisition, provides for a standard contract clause[38] and controlled advance payment as outlined below:

> Where payments are made to a contractor in advance of delivery or a specified performance milestone it may be appropriate to require that the payment only be used by the contractor for the purposes of the contract. Payments should not be made in advance of need for those purposes. This would prevent the contractor from using the funds for unrelated purposes, or distributing the payment as a dividend to shareholders.

2.74 The ANAO was unable to identify any contractual obligation that specified that the advance payment monies were to be spent on the milestone activities, as noted in the payment schedule, or even to activities connected to the contract.

2.75 A new version of the standard contract that Project Bushranger was based on, (DEFPUR101 version 46, Amendment 3), was released in 1999. The advance payment clause was revised to ensure that where any Milestone Payment or part milestone payment paid by Defence is identified as an

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[38] The clause states:

> Any advance payments ('the moneys') made to the Contractor under the Contract shall be used by the Contractor strictly for the purposes for which they were advanced. The payment should be held in an account with a bank until expended. If the Contractor uses the moneys for any other purposes, without the prior written approval of the Commonwealth, the Contractor shall be liable to pay interest on the moneys to the Commonwealth at a rate of _____ from the date the Contractor receives the moneys to the date the moneys (or other funds replacing the moneys) are expended for the purposes for which the moneys were advanced.

advance payment, the Contractor shall use the amount paid strictly for the purposes for which it was advanced.[39]

Recommendation No.2

2.76 The ANAO *recommends* that in the management of advance payments for capital acquisition projects Defence:

(a) re-examine expenditure processes to ensure that advance payments are made in accordance with Commonwealth policy of obtaining value for money, rather than meeting a budget expenditure target; and

(b) ensure that exchange rate payments stipulated in contracts relate to wholesale currency market rates at the time of the payments rather than historical rates stipulated at the time the contract was devised.

Defence response

2.77 Defence agreed with the recommendation.

[39] DEFPUR101 v.46, AL3, Conditions of Contract, Cl.3.4 Expenditure of Advance Payments, p. 3–6.

3. Contract Management by DAO

This chapter outlines the production phase of the project and examines issues which occurred when the delivery of the prototype vehicles did not happen according to the contract.

Production Readiness

3.1 In December 1997, the Stage 1 Contract with ADI contained a three-year option for the Commonwealth to proceed to full production. The Department advised the Minister in March 1999, that the timing of source selection was primarily developed to achieve contract signature that financial year and, to a lesser extent, to account for the timing of the sale of ADI. The production option was exercised on 1 June 1999, 18 months before it was due to expire. At this stage, the Bushmaster vehicle had yet to demonstrate a technology level of maturity, sufficient for the production of vehicles to start in accordance with the contract schedule.

3.2 Late in 1999, the ADF, during its deployment to East Timor, used two Bushmaster trial vehicles as part of VIP transport. It has been reported that the performance of the vehicles at this time confirmed their capabilities and suitability for peace-keeping operations.

3.3 By March 2000, it was reported within Defence that there were delays in prototype delivery, and limited time available to evaluate the prototype vehicle. A Defence brief to the Minister expressed concern that ADI's production line was untested. Specific concern was noted regarding: planning for production; time to implement production of major capital works; production jigs; and test/quality procedures. In order to minimise the effect of these issues, Defence quality audit and surveillance was in place on site. As well, ADI was to provide planning detail, schedules and report on progress at the Technical Progress Meetings.

3.4 In April 2000, ADI delivered the first prototype an IMTV (some four months later than scheduled).[40] The vehicle presented contained some fundamental changes to those vehicles trialed earlier, as a result of addressing the required rectification and enhancement issues. In order to measure the effect on vehicle performance, and assess the acceptability of these changes, before production was authorised, a limited engineering and durability trial was conducted by the Army Engineering Agency (AEA, previously called ATEA).

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[40] The 2002 Phase 3 (Stage 2 Production) Contract identified six variants: Infantry Mobility Troop Variant; Infantry Mobility Command Variant; Infantry Assault Pioneer Variant; Infantry Mobility Mortar Variant; Infantry Mobility Direct Fire Weapon Variant; and Infantry Mobility Ambulance Variant.

3.5 The aim of the AEA assessment was to establish the baseline for the IMV family of vehicles by:

- measuring the performance parameters of the prototype and comparing them against the functional specification and the results obtained during the Phase 2B vehicle trials; and
- conducting limited durability testing to assess whether components that were assessed as unsatisfactory during the Phase 2B vehicle trials now had acceptable levels of reliability.

3.6 End users, occupational health and safety experts, and DMO staff undertook additional assessments of the prototype. Whilst these assessments were being undertaken on the IMTV prototype, work continued on the project.

3.7 An interim IMTV prototype report was provided to ADI in November 2000, with a final report being provided in April 2001. In conclusion, the evaluation found that the IMTV prototype provided to Defence for evaluation, remained non-compliant against a significant number of critical aspects of the functional specification related to: reliability; vehicle mass; noise limits; air-transportability; and suspension system/driveline design. Until these issues, along with others identified in the subsequent Prototype Review, were resolved to Defence's satisfaction, the Project Authority would not grant approval to proceed to manufacture of the Troop Variant Initial Production Vehicle. In addition to these technical issues, a number of other issues were to be addressed, prior to the Project Authority granting approval to manufacture.

Recommendation No.3

3.8 The ANAO *recommends* that Defence develop a quality assurance program to provide appropriate sign-off independent of the Project Office on the time, cost and performance schedule for major capital acquisition projects, prior to commencing production.

Defence response

3.9 Defence agreed with the recommendation.

Technology readiness level

3.10 The Report into the Defence Procurement Review of 2003 (Kinnaird Review) highlighted the Technology Readiness Level methodology devised in the United States. Nine technology readiness levels are highlighted, which describe the ability of a system to move to its next stage of production (see Table 3.1). Whilst the report does not make an explicit recommendation regarding the use of technology readiness levels, page 18 states that: 'We understand that DSTO [Defence Science Technology Organisation] would be

capable of using this methodology to rate technology risks for new capabilities.'

3.11 Whilst the Bushranger Project has not to date been assessed by Defence against these technology readiness levels, The ANAO considers that there is sufficient evidence to suggest that Defence did not gain the required readiness level before moving to the next stage of development. Project Bushranger did not provide adequate evidence that it could produce a production vehicle from the tender and trial process in Phase 2A and 2B to commence Phase 3 Production.

3.12 The ANAO considers that the adoption of assessment tools such as technology readiness levels, would assist in ensuring that a development product's design, that satisfied user requirements, was stable and capable of production in accordance with the contract schedule. Such approval would assist Defence in determining, and making explicit, the maturity of technology for decision-making and assessment purposes, and could be supported by a formal sign-off process.

Table 3.1

Technology Readiness Levels and their Definitions

Technology Readiness Level	Description
1.	Basic principles of technology observed and reported.
2.	Technology concept and/or application formulated.
3.	Analytical and laboratory studies to validate analytical predictions.
4.	Component and/or basic sub-system technology valid in laboratory environment.
5.	Component and/or basic sub-system technology valid in relevant environment.
6.	System/subsystem technology model or prototype demonstration in relevant environment.
7.	System technology prototype demonstration in an operational environment.
8.	System technology qualified through test and demonstration.
9.	System technology 'qualified' through successful mission operations.

Source: Defence Procurement Review, 2003

3.13 Defence advised ANAO in March 2004 that:

> The comments and conclusions are based on the GAO [General Accounting Office] Technology Readiness Levels. These baselines are constructed on the premise that the project to which they apply starts at level one and progresses

to level 9. For Bushranger this is not the case. The specification for the Bushmaster vehicle does not, and has never included the requirement to develop any new technology. The only technology not readily available 'off the shelf' was the welding of armour, for which there was only limited existing skills available in Australia. The technology was, and still is readily available from the manufacturer as well as from numerous sources in the United States. The Bushmaster vehicle, while not strictly a 'COTS' or 'MOTS' [Military off the Shelf] vehicle, is designed using 'COTS' and 'MOTS' technology, and thus cannot be easily categorised using the GAO method.

If it is necessary to use the GAO technology readiness level, then the technology level in 1999 was at level 7, since the trials vehicles had demonstrated the capability. In addition, a prototype was produced in 2001 that within certain limitations, achieved a level of performance that satisfied all of the major objectives of the vehicle Top Level Requirements, as well as a substantial part of the specified requirements. The shortfall in performance was not due to lack of technology understanding, but rather due to interpretation of the requirements and other issues not related to the level of technology.

The delays in the production of test vehicles from 2001 was one of the outcomes of the differing interpretations of the requirement. The Program Office, as part of the major contract changes at Contract Amendment 5, introduced a set of definitive performance requirements for each variant of the Bushmaster, thereby eliminating much of the risk of misinterpretation of the requirements specification. The failure to start production in 2001 had nothing to do with technology readiness, the delays being caused by the time needed to establish contractual conditions that were acceptable to both the Commonwealth and the Contractor.

3.14 Defence advised ANAO in May 2004 that:

Defence Materiel Organisation has already reviewed the practical applicability of adopting an assessment tool such as the US Technology Readiness Levels and has developed a comprehensive framework for assessing Defence Project Maturity Levels comprising ten maturity levels across five subject areas suitable for use in the Australian defence procurement environment. These maturity levels address the following areas: requirements; commercial; technical difficulty; technical understanding; and operation and support.

Use of the Defence Project Maturity Level framework at each stage and/or phase of a project as a 'gate' to assess and report the maturity of the overall project is already underway in the DMO. This will enable integrated and informed decision making about whether a project is, or is not, adequately mature to progress, or whether intervention is required. It is proposed to introduce the Defence Project Maturity Level assessment gates into the Acquisition processes in the DMO Quality and Environmental Management System.

Recommendation No.4

3.15 The ANAO *recommends* that Defence:

(a) develop and implement a comprehensive project maturity assessment framework to assess at each stage or phase of a project whether intervention is required or whether it is mature enough to progress; and

(b) develop a system of independently monitoring and approving, through a formal sign off, each key phase of a project to ensure project maturity levels are achieved before proceeding to the next phase.

Defence response

3.16 Defence agreed with the recommendation.

Risk treatment

3.17 In the May 2000 Highlight Report to senior Defence management, a combination of schedule slippage of both major and minor deliverables was noted. Further, there was an indication of an increasing risk of ADI not being able to meet the overall project schedule and quality requirements. Defence met with ADI in May 2000. In early June 2000, ADI advised that there was to be a new project organisation and the engagement of a new senior military vehicle expert. It was agreed at this time that ADI required additional time to review the current status of the project, and to make some detailed plans for project recovery.

3.18 In June 2000, an initial project recovery meeting was held between Defence and ADI. A subsequent meeting was held in July 2000 to discuss ADI's proposals for the way ahead. Specifically, Defence was interested in: the revised schedule for the remaining design activities; the inclusion of a critical design review process; the Contractor Work Breakdown Structure, hull fabrication and welding issues; Defence visibility of the Production Readiness Review; and ADI's revised project risk assessment.

3.19 In August 2000, Defence raised additional concerns with ADI on a range of project management, systems engineering and quality deficiencies, that had become evident during the first half of 2000. Defence noted that, having reviewed the recovery plan in the Contract Progress Report, it did not satisfactorily address the range of issues put to ADI.

3.20 Defence also considered that Contract Progress Report No.6 asserted that some of the blame for the delays rested with Defence, due to requested engineering changes and the nature of the Defence's test and evaluation program. Defence rejected this and stated that:

> By an large, the bulk of engineering changes required to be incorporated into the design baseline are the result of rectification of deficiencies and enhancements required to achieve compliance with the specification. In 1999, ADI agreed to the scope of the rectification and enhancements package which were subsequent[ly] incorporate[d] into the Stage 2 contract. Additionally, the current test and evaluation program being undertaken by the Commonwealth, is allowed for in the contract schedule and forms an important part of proving the vehicle design meets specification…
>
> The Commonwealth has requested on numerous occasions that ADI prepare costed ECPs for the Commonwealth's consideration in order to bring the final build-state to conclusion.

3.21 At a Contract Progress Meeting in September 2000, Defence highlighted to ADI a number of areas which were still of concern. These concerns were: a perceived lack of resources being directed toward contract management; systems engineering and integrated logistic support aspects of the contract; and changes to the production rate.

Contract documentation

3.22 ADI is contractually bound to provide a management function to the project, in the form of reports, plans and meetings. The revised Contract outlines the value of this management function and how much has been expended to date for these activities. Defence has currently paid ADI just over $8.45 million for a series of meetings, plans and reports out of the $26 million which has been paid to date for contract deliverables (not including the advance payment).

3.23 The ANAO has not been able to locate at Defence a number of plans and reports which were paid for by Defence in the early stages of contract management. ADI has advised ANAO that all plans and reports were submitted in accordance with the Contract. It is of concern that these contract deliverables, which are considered by the ANAO to be management monitoring and reporting tools, were not kept in a complete and consolidated form by the Program Office from 1999 to 2000.

3.24 Throughout Project Bushranger, a number of issues have surfaced in regards to Defence documentation of changes to the contract. Defence has an established process of ECPs and CCPs; these generally lead to a formal Contract Amendment. CCPs and ECPs can be initiated by either Defence, or the Contractor, and contain all details and costs of the change.

3.25 In October 1999, shortly after contract signature, and after it was considered that the BOP be increased from 341 to 370 vehicles, the Project Bushranger Project Board considered the BOP for the project. It was noted that, to include desired enhancements to the vehicle as indicated in the trial, the BOP of 370 would need to be reduced to 341 (see Table 3.2). This would allow

for the following enhancements: additional seat; secondary viewing device; run flat tyre inserts; grenade launchers; two gun ring roof; rear door enhancement; side-hatches; and water gauge. Defence advised ANAO in March 2004 that no CCP for the reduction in vehicles numbers was formally requested by Defence, and the reduction in vehicle numbers in the contract never occurred. ADI advised ANAO that:

> ADI expended significant effort in raising and submitting ECPs for these and other items. However, the preparation process could not keep pace with the continually evolving requirements and therefore ECPs took considerable time to prepare. At the time of contract amendment in 2002 approximately 100 ECPs were in various stages of preparation, submission and approval.

Table 3.2

Comparative Basis of Provisioning (vehicle numbers)

Infantry Mobility Variant	Basis of Provisioning			
	Stage 1 Contract Option	Stage 2 Contract June 1999	Stage 2 Contract October 1999 (a)	CCP 14.2 July 2002
Troop vehicle	167	188	186	142
Command vehicle	50	113	75	76
Supporting Arms vehicle	18	0	0	0
Assault Pioneer vehicle	14	15	23	21
Mortar vehicle	28	15	21	23
Ambulance vehicle	18	17	13	14
Recovery vehicle	18	0	0	0
Direct Fire Weapons vehicle	28	22	23	23
Total	**341**	**370**	**341**	**299**

Note: (a) Army Concept for Employment of the Motorisation Capability. A CCP was not developed and subsequently no change to the contract was made.

Source: Defence.

3.26 The enhancements were formally discussed in June 1999 (see Table 3.3). However, there is no evidence that the ECPs were developed. The contract does specify that the Commonwealth shall meet the reasonable cost of preparation of a change proposal required by the Commonwealth which is not implemented.

3.27 Defence was continually making adjustments to the vehicle's desired capability in the initial stages of the contract. This scope creep suggests that the initial need identification was not as rigorous as it should have been. The project management was not robust enough to stop or deter stakeholders from requesting changes to the capability.

Table 3.3

Requested ECPs and CCPs 1999

ECP Item	Initial Direction from Defence	Outcome
Run Flat Inserts	June 1999 SOW Meeting—request for ECP.	August 1999—to be fitted.
Additional Seat	June 1999 SOW Meeting—request for ECP.	August 1999—To be provided for all variants initially, and must meet mine blast criteria.
Secondary Viewing Device	June 1999 SOW Meeting—request for ECP.	August 1999—Agreed. November 2000—ADI advised device is still under development and yet to be agreed. February 2001 –Draft requirement for a secondary viewing device - final issue to be forwarded to ADI.
Water Tank Level Gauge	June 1999 SOW Meeting—request for ECP.	August 1999—ECP to be drafted to include 'low level alarm'.
Rear Door Enhancement	June 1999 SOW Meeting—request for ECP.	August 1999—ADI has ECP for wider door and will raise an ECP for assisting mechanism. November 2000—Commonwealth viewed mockup of new rear door - to provide feedback on the concept. February 2001—Commonwealth advised rear door to be identical to the original, with improved locking -formal advice of requirement at later date.
Hatch Layout & Number	June 1999 SOW Meeting—request for ECP.	August 1999—ECP to be submitted to the Commonwealth and will be viewed on mockup.
Weapon Ring	October 1999—ADI to finalise ECP.	October 1999—Commonwealth confirmed location for swing mount. July 2000—ADI completing ECP that includes different gun ring arrangement. February 2001—Commonwealth advised this issue is still under analysis - position will be detailed in the prototype review.
Fitment of Grenade Launchers	June 1999 SOW Meeting—request for ECP.	October 1999—ADI to revise proposal to reflect multi purpose unit.

Source: Defence.

3.28 Defence advised ANAO in March 2004 that:

> The level of rigour applied to the consideration of initial needs could only be open to criticism if the COD [Concept of Operation Document] and TLR [Top Level Requirement] contained sufficient detail to fully define the performance and characteristics of the IMV. Such a level of detail was not, and could not be available at such an early stage of the project. Therefore there is no doubt that scope creep did occur during the period 1999 to 2001. Given that the concept of an IMV with this level of capability (that did not exist anywhere in the world) was new to Defence, it was inevitable that the stakeholders would develop and refine their ideas for the application of the IMV to operational scenarios. The Program Office had a responsibility to consider all input from all stakeholders, and to provide the most proficient capability possible within the framework of the Concept for Deployment and the Top Level Requirements.

Recommendation No.5

3.29 The ANAO *recommends* that Defence contracts include all items of rectification and enhancement identified in initial stages and trials, prior to contract signature, to better identify implementation risks.

Defence response

3.30 Defence agreed with the recommendation.

4. Review of the Contract by DMO

This chapter examines the period where, following the creation of DMO, the Project Board agreed to consider renegotiation of the contract to take into account cost increases and a change in production schedule.

Contractual Dispute

4.1 Land Systems Division was established as part of the new DMO in late 2000. In a brief for Head Land Systems in October 2000, the Program Office discussed that the contract with ADI now included the 70 design rectifications and nine enhancements which had arisen from the 1998 trials. There was concern, however, that there was slow progress being made by ADI to develop the ECPs covering the rectification items. Along with these accepted rectifications, it was also noted that ADI had initiated engineering changes, that flowed into the vehicle configuration baseline, without Program Office approval. The unauthorised changes were, subsequently, captured and managed through contracted configuration management processes.

4.2 In November 2000, ADI lodged a claim against the Commonwealth, stating that the unit cost of the IMTV had escalated by 25 per cent ($102 000), which would result in a total cost increases of $38 million above the contracted price. The ADI claim was as follows:

- the tender was based on supplying a vehicle largely already developed incorporating COTS components and that no significant design development activity was envisaged;
- the design of the Stage 1 vehicle differs significantly to that now being delivered under the Stage 2 Contract and the nature of the project is now a developmental project; and
- ADI had incurred significant additional costs over and above that originally allowed for in its tender. ADI categorised these costs as: Commonwealth Requested Enhancements; Rectification Items; Design Evolution; and Material Increases.

4.3 Defence maintained that ADI's claim lacked merit and should be defended by the Commonwealth. A brief was provided to the Minster for Defence, as well as senior Departmental officers, in May 2001, outlining the issues faced by the project. The brief contained a recommendation that the Minister agree that Defence should try to resolve the serious concerns with ADI performance in the project through negotiation.

4.4 Concurrently, ADI's new owner lodged a claim for $38 million against the Commonwealth, alleging non-disclosure of contract problems relating to

the sale of ADI. This issue was subsequently dealt with during latter negotiations and incorporated into the renegotiated contract.

Contract Change Proposal

4.5 The Project Board agreed to release a Request for Contract Change Proposal (RCCP) to ADI, in an attempt to address the difficulties facing the project, including the ADI cost claim. The RCCP was released to ADI on 18 June 2001. In response to the RCCP, ADI submitted CCP 14 to Defence on 3 October 2001. On 24 October, ADI submitted an unsolicited alternative CCP, known as CCP 14.1, based on low rate initial production.

4.6 Following the DCIC consideration of the project on 5 December 2001, the DCIC formed the view that the price, schedule and risk matters associated with the CCP, were unacceptable to Defence. The DCIC recommended to the Minister for Defence that the Project Bushranger contract with ADI be terminated.

4.7 A detailed brief was provided to the Minister for Defence, in early December 2001, recommending this action.[41] The Department undertook to provide to the Minister a submission, in the first quarter of 2002, indicating: the result of high level contract change proposal negotiations; an analysis of the costs of termination versus the costs of pushing ahead with the contract change proposal; a recommended option for contract termination; the capability offsets that Government would need to agree to avoid contract termination; and the recommended alternative option for meeting the Project Bushranger capability in the event of termination.

4.8 Defence advised the Minister that they had discussed with ADI the option of termination, in January 2002, but that ADI were reluctant to agree to termination by mutual agreement, rather proposing a payout of some $60 million to $100 million.

4.9 The modified RCCP (known as RCCP 14.2) was released to ADI on 22 February 2002 as a final attempt to provide an outcome acceptable to both parties. RCCP 14.2 provided a vehicle delivery program based on low rate initial production, and specific contract conditions, in the event that ADI failed to pass reliability testing requirements. ADI's CCP 14.2 was submitted to Defence for evaluation on 12 April 2002.

4.10 Defence undertook a detailed assessment of the CCP 14.2 including: cost investigation; review by technical and engineering experts; and advice

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[41] The brief to the Minister made reference to previous briefs advising him that the project had encountered serious problems in cost, schedule and performance and, as a result, had been under intense scrutiny for some time.

from external legal advisors. This assessment was followed by contract negotiations with ADI.

4.11 The Program Office undertook the contract negotiations, in accordance with the Contract Negotiation Directive issued in April 2002. The objective of the negotiations was to reach agreement on a firm priced contract amendment, between the Commonwealth and the Contractor, for changes to cost, schedule and technical aspects of the contract, for consideration by the Minister. Specific issues to be addressed during negotiations were: vehicle numbers and performance; cost; termination exit costs; schedule; ADI Sale Claim; ADI key staff; advance payment; advance payment and performance securities; reliability testing; test and evaluation; risk; ADI contingency; and warranty.

4.12 On 6 May 2002, Defence advised the Minister for Defence that negotiations were complete and, through the negotiations, Defence had considered that they had been able to resolve all significant issues. A detailed submission was to be provided to the Minister following consideration of the project by the DCIC.

4.13 In mid May 2002, the DCIC met to consider how Defence should proceed on the basis of the negotiated contract change proposal. The DCIC reviewed the outcome of the contract change proposal evaluation and negotiations and recommended that options be brought forward for the Minister's consideration.

4.14 In June 2002, the Minister announced that the Government had considered, on a without prejudice basis, a major modification to the Bushranger contract, which would result in a significant increase in the price of each vehicle. He advised that, although no final decision had yet been made, 'the Government has decided to seek further information from ADI, the supplier of the vehicles, on matters relating to in-service maintenance and costs.' The Minister also stated that 'Despite the fact that ADI has failed to deliver, the Government is committed to trying to find a formula to rescue the contract.'[42]

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[42] The Minister also stated that: 'Defence has been asked to pursue negotiations with ADI as a matter of urgency. The Government will consider the matter further as soon as a report on the maintenance issues is available. Defence contracted ADI in 1999 to equip the Army's 7th Brigade and the Royal Australian Air Force's Airfield Defence Guards by October this year with over 370 Bushmaster IMV. The contract stalled when ADI advised it could not deliver the expected quantity and quality of vehicles within the agreed timeframe and budget.' Ministerial Media Release–*More work required to fix Bushranger project*, 6 June 2002.

5. Revised DMO Production Contract

This chapter examines the renegotiation of the production contract and includes an analysis of aspects which have changed from the original contract. It also includes an analysis of the revised financial aspects and schedule of the project.

Project Budget

5.1 In mid 2002, the Government agreed that the negotiated major contract amendment be implemented between the Department and ADI, as a means of overcoming problems facing the contract. After considering the options, it was decided that renegotiating the contract was the preferred course, However, ADI must demonstrate vehicle performance or face contract termination in the future.

5.2 Although there was no increase in total project cost, the cost of the contract with ADI, increased from $170.04 million (October 1995)[43] to $218.9 million (December 2001), by transferring funds between various elements of the project budget. This increase was made up of a combination of price supplementation from automatic updates of $6.6 million, and exchange and real variations, totalling some $42.2 million. These global increases occur at the Group Level within DMO.

5.3 In the first half of 2001, the Program Office developed a detailed WBS covering all project elements. As part of this exercise, a number of project elements were rebalanced to correct for either under-funding, or enhancements no longer required by the Army in the basic vehicle design.

5.4 Funding for the major contract amendment was offset against the elements within the WBS of 2001. Those elements which changed significantly include: an increase in personnel due to a requirement to hire expertise that was otherwise not available within DMO in the period 2002 to 2006; a decrease to Systems Engineering due to the deletion of Armoured Piercing Kit, Vehicle Conditioning Monitoring System and Pintail Radio Adaptor; and an increase to the Prime Contract to accommodate revised contract scope (see Table 5.1). ADI advised ANAO that the Armour Piercing Kit, Vehicle Conditioning Monitoring System and Pintail Radio Adaptor were never part of ADI's contract with Defence.

5.5 Within the original project cost breakdown for the budget estimate of $295 million (November 1998 prices), allowance had been made for prime equipment, support equipment, development support, training, management support, contingency, direct travel, direct legal and facilities.

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[43] At December 2001, this represented a contract cost of $181.93 million.

5.6 Full project costs would include full life cycle costs and project team costs such as salaries, office facilities and travel. ANAO was advised that the Program Office did not manage all of these costs as some were looked after elsewhere in DMO's Land Systems Division.[44]

Table 5.1

Comparison of Work Breakdown Structure (December 2001 Prices)

Work Breakdown Structure	Revised Budget in Dec 01 prices $million	Original Budget in Dec 01 prices $million	Percentage Change (%)
Prime Contract	218.87	203.72	7.43
Project Management	0.09	0.08	10.84
Personnel	6.70	1.49	349.09
Systems Engineering	1.59	23.26	(93.17)
Integrated Logistic Support	48.00	46.81	2.56
Test and Evaluation	0.72	1.22	(40.42)
Ancillary Equipment	27.76	28.89	(3.88)
Contingency	17.24	15.81	9.04
Cash Limited Administrative Expenses	2.19	1.90	15.30
TOTAL	**323.18**	**323.18**	0
Note: Numbers do not add up due to rounding.			

Source: Defence.

5.7 In December 2003, the approved total project cost was some $333.98 million which includes the Prime Contract for the procurement of 299 vehicles of $219.48 million (December 2003 prices). Defence advised ANAO that subsidiary contracts amounted to $19.52 million. The residual amount of $94.98 million is made up of facilities and project costs, as outlined in the WBS in Table 5.1.

5.8 Defence has advised ANAO that actual expenditure, as at 30 June 2003, for the production phase of the Project totals $94.52 million. This includes some $68.57 million expended from the Prime Contract and $25.95 million of subsidiary contracts, facilities, travel and legal expenses.[45]

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[44] ANAO has been advised that some figures are captured locally. For example, the Project Delivery Agreement contains some cost estimates relating to salary and administrative overheads.

[45] The 2004–05 *Portfolio Budget Statements* for the Defence Portfolio show the estimated cumulative expenditure to 30 June 2004 is $101 million and it is estimated that expenditure in 2004–05 will be $32 million.

5.9 As a result of the major contract variation negotiations, the schedule for Defence expenditure was required to be extended. It resulted in the postponement of some spending to later years within the Defence Capability Plan.

Contract management

5.10 In the lead up to the execution of the renegotiated contract, the Program Office implemented a number of improved management practices and procedures. These have been operating effectively since 2002.

5.11 Defence advised the ANAO that a number of Standard Operating Procedures (SOPs) were developed, including, staff induction, contract amendments and configuration control of documents. In addition: CCP/ECP procedures have been formalised and strictly followed; Risk Review Meetings occur and risks are entered into a risk management database; the Project uses the DMO sponsored Quality Management System[46] and follows the principles of Project Management Methodology Version 2; weekly discussions regarding Contract deliverables and the monitoring of progress against the CDRs; and weekly discussions at management level are held regarding Correspondence deliverables with the Contract manager monitoring progress against these requirements. As well, relationships are managed between all stakeholders;[47] public relations; public perception of the Project and vehicle (including internal Defence perceptions) is managed through a formal Public Relations Plan; the Document Management (database) server was upgraded and training was delivered to Project staff to manage the configuration control of documents; and the project routinely engages legal contract specialists from both within Defence and from external specialist legal teams regarding specific issues faced by the Project.

Cost Changes

5.12 The 2002 CCP 14.2 Evaluation Report noted that the vehicle offered by ADI could meet the minimum level of capability being sought by Defence. It also noted that ADI's standard vehicle would not meet the original contract's air transportability (which stated the vehicles were to be transportable by the Lockheed C130 Hercules) and internal noise level requirements. The report considered that the specification accurately reflected the level of capability that ADI can reasonably be expected to deliver.

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[46] This incorporates Quality System, Integrated Logistic Support Procedures, Inventory Management Procedures, SPO Procurement Procedures, Technical Integrity Procedures, Quality Assurance Procedures, a Quality Manual and ensures compliance against the Technical Regulatory Framework.

[47] In particular between the Commonwealth Project Office and the ADI Limited Project Office and between ADI Limited and its Bushmaster specific Subcontractors.

5.13 The unit cost of the variants were also adjusted as part of the renegotiated contract. In each case the unit cost was increased (see Table 5.2).

Table 5.2

Cost of Vehicle Variants

Infantry Mobility Variant	1999 Contract (October 1999 prices) $	2002 Renegotiated Contract (December 2001 prices) $
Troop vehicle	406 948	562 878
Command vehicle	407 693	568 317
Assault Pioneer vehicle	418 987	584 537
Mortar vehicle	420 420	586 217
Direct Fire Weapons vehicle	411 347	575 149
Ambulance vehicle	423 271	589 182

Source: Defence

5.14 During the major contract negotiation, the percentage price of any vehicles purchased above 299, was increased from the amount in the original contract. The original contract stated that the Commonwealth could purchase additional vehicles, both before Phase 3 production was complete, and if there was a break in production. Where the additional vehicles were purchased during production, Defence, was given a percentage reduction in vehicle price, depending on the vehicle numbers. Reductions were between 0.3 per cent and five per cent (per vehicle), for between 145 and 459+ vehicles. On the other hand, if the vehicles were procured after production, there would be a percentage increase in price of between zero and 2.5 per cent (per vehicle), depending on numbers sought.

5.15 The contractual 'option' to purchase additional quantities of vehicles, may now only be exercised whilst the current production run is still in operation, ensuring continuous production, as a break may expose significant technical and commercial risks.[48] Additionally, a specified price increase (ranging from 9 per cent to 15 per cent depending on quantity required) will occur, and a contract variation would apply. ADI advised ANAO that the price increases are to allow ADI to make a reasonable profit on additional scope as ADI had agreed to deliver the baseline contract at zero profit.

Schedule Changes

5.16 The schedule changed from the original contract to the renegotiated contract in 2002. Originally the First Initial Production Vehicle was to be

[48] The contract states that the Commonwealth must exercise its option for additional variants no later than nine months prior to the delivery of Production Vehicle number 299.

provided by 14 August 2000, the revised contract changed the delivery date by 37 months to 18 September 2003. The First Production Vehicle schedule has changed by 30 months and is now not due until 23 December 2004. The last production vehicle is now not scheduled to be delivered until 5 July 2007, 49 months later than originally planned.

5.17 The renegotiated contract provides early exit points, at which ADI must demonstrate that the IMVs meet required standards or face contract termination. These exit points relate to two specific testing regimes namely: RQT and the PRAT. In the event that ADI fails to pass either of these tests, the Commonwealth may, at its sole discretion, terminate the contract.

5.18 The first exit point was for the vehicle to achieve a specified level of basic reliability and operational mission reliability. Two prototype Bushmaster vehicles were tested under the RQT between October and December 2002. Testing concluded that the RQT prerequisite to proceed to low rate initial production phase, had been met. The Commonwealth's financial exposure for ADI failing the RQT was capped at some $45 million under CCP 14.2.

5.19 The second exit point, the PRAT, will assess the reliability of a selection of three actual production vehicles, delivered under the low rate initial production phase. Should ADI fail the PRAT, the Commonwealth may terminate the contract for default. Should ADI fail the PRAT and the Commonwealth not terminate the contract, ADI will be required to implement all necessary corrective actions at no cost to the Commonwealth. The ANAO understands that the testing started later than planned. Originally testing was planned to commence on 12 November 2003. Defence advised that the actual start dates were 16 October 2003, 9 December 2003 and 7 January 2004. Some faults with the vehicles were identified at the early stage of reliability testing. However, Defence advised ANAO that these were progressively rectified during testing. Defence announced, on 22 June 2004, that the vehicles had successfully passed the final stage of reliability tests.

5.20 The FAT includes 650 individual acceptance tests, to confirm that the first production vehicle meets the requirement of the specification. Defence have identified a number of provisional non-compliances during the course of the FAT. Whilst ADI are working on engineering solutions to all the provisional non-compliances, ANAO notes a number of issues with the inability of the vehicle to meet certain requirements, relating to mobility and habitability. Defence have advised that the non-compliances have now been, or are in the process of being, fixed. The FAT is due to be completed by the end of July 2004 and has no bearing on the second exit point.

5.21 In terms of the revised contract as at April 2004 (see Table 5.3), the required contract deliverables are progressing according to schedule.

Table 5.3

ANAO Rating of Actual and Projected Contract Deliverables[(a)]: June 1999 Contract and July 2002 Renegotiated Contract

Original Contract (June 1999)	Deliverable	Renegotiated Contract (July 2002)
★ ★ ★	Project Budget	★ ★ ★
★	Vehicle Unit Costs	★ ★ ★
★ ★ ★	Integrated Logistic Support	★ ★ ★
★	Delivery Schedule	★ ★ ★
★ ★ ★	Australian Industry Involvement	★ ★ ★
★ ★ ★	Protection Performance	★ ★ ★
★ ★	Transportability Performance	★ ★ ★
★ ★ ★	Endurance Performance	★ ★ ★
★ ★	Habitability Performance	★ ★ ★
★ ★ ★	Capacity Performance	★ ★ ★
★	Recoverability Performance	★ ★ ★

Assessment Key

Likely to achieve required outcome (+/- 10%)	★ ★ ★
Likely to underachieve required outcome (10 - 30%)	★ ★
Likely to significantly underachieve outcome (>30%)	★

Note: (a) This table represents a rating of the two contracts against contract deliverables as of April 2004. It does not rate the first contract against the renegotiated contract.

Source: ANAO analysis of Defence documentation

Commonwealth interest foregone

5.22 An advance payment of 25 per cent of the initial contract value was paid to ADI in June 1999, on the basis of a security being provided for 100 per cent of the value. As part of the major contract variation negotiations in 2002, the 100 per cent security was reduced to 50 per cent of the advance payment. At the time of contract negotiations, ADI had not delivered the product, nor proved that it could do so. Additionally, the revised payment schedule (as a

result of the negotiations), was not adjusted to ensure that the advance payment be consumed prior to additional payments being made, as required by the new policy.

5.23 ANAO analysis indicates that, as at 31 July 2002 (just after the major contract amendment was finalised), only one per cent had been discharged (consumed) from the advance payment in relation to contract deliverables. In effect, ADI has had the use of $43.8 million of Commonwealth funds for three years, interest free. Defence advised ANAO that, as at March 2004, only some $2.37 million of the advance payment had been discharged. Further, the advance payment will not be fully consumed, and the advance payment security returned, until the last vehicle deliveries are made.

5.24 ANAO has estimated the opportunity cost forgone by the Commonwealth, as at 30 June 2003, as a result of the advance payment made to ADI and the delay in the contract being satisfied, would amount to some $9 million. This is based on interest foregone using the Commonwealth overnight cash rate by the Reserve Bank on Commonwealth funds. This cost will continue to grow as each year passes, and additional payments are made, rather than ADI drawing down against the advance payment, as required by the Defence policy for mobilisation payments.

5.25 ADI advised ANAO that:

> ADI is unable to recover cost escalation on the proportion of the contract value covered by the advance payment. Escalation of these costs is to ADI's account and interest on the advance payment is the only source of such funding.

5.26 In addition to revising the level of security for the advance payment, the requirement for ADI, to provide a five per cent performance security for the due and proper performance of its obligations under the contract, was removed.

5.27 Defence advised ANAO in March 2004 that:

> Offsetting this cost is the fact that the delay in deliveries has deferred cash flow on this project significantly, representing a large cost of money saving to Defence. In addition, the delayed introduction into service has saved Defence the net increase in operating costs that will arise when vehicles are delivered. These costs more than offset the impact of the advance payment. In effect, the true cost to Defence is the delay in delivering this enhanced capability, rather than a financial penalty. As alternative options would have been higher cost, on top of any court settlement on termination, the revised contract provided the best value for money outcome for the Government.
>
> In negotiating the new contract Defence took account of the various cost factors. As well as the consideration above about the cost of money the negotiation also involved ADI removing a formal profit line, relying instead on efficiencies and future contracts for profit. ADI also withdrew any future

claims against the ADI sale process and accepted the risk of having two trials each involving termination (with ADI receiving only actual costs incurred to that point) on failure.

Recommendation No.6

5.28 The ANAO recommends that Defence, in keeping with value for money requirements, ensure that material advance payments be fully expended by the contractor before additional payments against contract deliverables are forthcoming.

Defence response

5.29 Defence agreed with the recommendation.

Liability issues

5.30 A specific Deed of Discharge and Indemnity was included in the contract amendment documentation. The Deed states that each party subject to the contract, releases the Commonwealth in respect off all claims concerning the ADI Share Sale Claim relating to project Bushranger. Agreement was also reached with ADI to recruit key engineering management staff, and to hire sufficient staff to perform the work under the contract.

5.31 Liquidated damages clauses in Defence acquisition contracts, are included as part of wider contract management structure to enhance performance. In 1999, when the contract was negotiated, the standard liquidated damages clause was used. This clause clearly stipulates that the amounts are a genuine pre-estimate of the loss likely to be suffered by the Commonwealth as a result of failure. Any failure to achieve the contracted schedule may enable Defence to claim monetary losses, as stipulated in the contract. In determining whether to apply liquidated damages provisions available under a Defence acquisition contract, consideration needs to be given to section 44 of the FMA Act. This section requires an agency Chief Executive to manage the affairs of the agency in a way that promotes the proper use of Commonwealth resources. In view of the nature of the provisions involved in the contract with ADI, this requires consideration of all aspects of value for money.

5.32 Should Defence be entitled to claim liquidated damages, and the provisions are invoked, then the amount will be considered a debt owed to the Commonwealth under section 47 of the FMA Act. Under this section a Chief Executive must pursue recovery of each debt for which the Chief Executive is responsible unless: the debt has been written off or; the Chief Executive is satisfied that the debt is not legally recoverable; or considers that it is not economical to pursue recovery of the debt. The ANAO found no documented

evidence that the Chief Executive did consider pursuing the debt of liquidated damages at this time.

5.33 In a brief to the Defence Audit Committee in May 2001, DMO provided assurance that they were taking steps to ensure that the management of liquidated damages was compliant with the FMA Act. Defence standard liquidated damages clauses now state that no amount is owing to the Commonwealth, until the Commonwealth makes an election to recover the liquidated damages. No such clause was, or is, in the Project Bushranger Contract.

5.34 In the initial production contract, if ADI delayed delivery of an item of supply specified in an attachment to the contract, Defence had a right to recover a set rate of liquidated damages for the item on a daily basis. The contract terms and conditions capped these damages at a maximum of 20 per cent of the value of each item. However, the liquidated damages provisions, when triggered in 2001, were not exercised by Defence. The ANAO calculated that the potential liquidated damages claimable by Defence amounted to some $28 million by mid 2002. Taking into consideration the capping of the damages at 20 per cent of the item value, the maximum amount of damages which could have been claimed by Defence amounted to $6.8 million.

5.35 The major contract amendment of July 2001, significantly reduced the amount of liquidated damages due per day on 24 of the 34 items specified in the liquidated damages schedule. It reduced the maximum claimable amount of liquidated damages, in respect of each item, to 10 per cent of the value of each item, from the previous 20 per cent. Further, the timeframe when these damages fall due relate to the Master Project Management Schedule (MPMS). The MPMS is defined in the contract as the plan that provides the baseline for monitoring contract activities and portrays the major contract activities and milestones against a timeline. The MPMS is derived from contract milestones and reflects the contract in a graphical manner. The ANAO understands that this document is produced and managed by ADI and changed with agreement of the Commonwealth.

Recommendation No.7

5.36 The ANAO *recommends* that Defence ensure that System Program Offices:

(a) document the process of decision-making when considering actions in respect to the treatment of liquidated damages, on all relevant contracts; and

(b) report to Defence senior management when a decision is made in respect to the treatment of liquidated damages.

Defence response

5.37 Defence agreed with the recommendation.

Canberra ACT
30 June 2004

Oliver Winder
Acting Auditor-General

Index

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Audit Report No.56 Performance Audit
Management of the Processing of Asylum Seekers

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Management of Protective Security

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Department of Defence

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Department of Veterans' Affairs

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Department of Agriculture, Fisheries and Forestry—Australia
Dairy Adjustment Authority

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The Administration of Major Programs
Australian Greenhouse Office

Audit Report No.33 Performance Audit
The Australian Taxation Office's Collection and Management of Activity Statement Information

Audit Report No.32 Performance Audit
'Wedgetail' Airborne Early Warning and Control Aircraft: Project Management
Department of Defence

Audit Report No.31 Business Support Process Audit
The Senate Order for Department and Agency Contracts
(Financial Year 2002–2003 Compliance)

Audit Report No.30 Performance Audit
Quality Internet Services for Government Clients—Monitoring and Evaluation by Government Agencies

Audit Report No.29 Performance Audit
Governance of the National Health and Medical Research Council
National Health and Medical Research Council
Department of Health and Ageing

Audit Report No.28 Audit Activity Report
Audit Activity Report: July to December 2003
Summary of Outcomes

Audit Report No.27 Performance Audit
Management of Internet Portals at the Department of Family and Community Services

Audit Report No.26 Performance Audit
Supporting Managers—Financial Management in the Health Insurance Commission
Health Insurance Commission

Audit Report No.25 Performance Audit
Intellectual Property Policies and Practices in Commonwealth Agencies

Audit Report No.24 Performance Audit
Agency Management of Special Accounts

Audit Report No.23 Performance Audit
The Australian Taxation Office's Management of Aggressive Tax Planning
Australian Taxation Office

Audit Report No.22 Financial Statement Audit
Audits of the Financial Statements of Australian Government Entities for the Period Ended 30 June 2003
Summary of Results

Audit Report No.21 Performance Audit
Special Employee Entitlements Scheme for Ansett Group Employees (SEESA)
Department of Employment and Workplace Relations
Department of Transport and Regional Services

Audit Report No.20 Performance Audit
Aid to East Timor
Australian Agency for International Development

Audit Report No.19 Business Support Process Audit
Property Management

Audit Report No.18 Performance Audit
The Australian Taxation Office's Use of AUSTRAC Data Follow-up Audit
Australian Taxation Office

Audit Report No.17 Performance Audit
AQIS Cost-recovery Systems Follow-up Audit
Australian Quarantine and Inspection Service

Audit Report No.16 Performance Audit
Administration of Consular Services Follow-up Audit
Department of Foreign Affairs and Trade

Audit Report No.15 Performance Audit
Administration of Staff Employed Under the Members of Parliament (Staff) Act 1984
Department of Finance and Administration

Audit Report No.14 Performance Audit
Survey of Fraud Control Arrangements in APS Agencies

Audit Report No.13 Performance Audit
ATSIS Law and Justice Program
Aboriginal and Torres Strait Islander Services

Audit Report No.12 Performance Audit
The Administration of Telecommunications Grants
Department of Communications, Information Technology and the Arts
Department of Transport and Regional Services

Audit Report No.11 Performance Audit
Annual Performance Reporting

Audit Report No.10 Performance Audit
Australian Defence Force Recruiting Contract
Department of Defence

Audit Report No.9 Performance Audit
Business Continuity Management and Emergency Management in Centrelink
Centrelink

Audit Report No.8 Performance Audit
Commonwealth Management of the Great Barrier Reef Follow-up Audit
The Great Barrier Reef Marine Park Authority

Audit Report No.7 Business Support Process Audit
Recordkeeping in Large Commonwealth Organisations

Audit Report No.6 Performance Audit
APRA's Prudential Supervision of Superannuation Entities
Australian Prudential Regulation Authority

Audit Report No.5 Business Support Process Audit
The Senate Order for Departmental and Agency Contracts (Autumn 2003)

Audit Report No.4 Performance Audit
Management of the Extension Option Review—Plasma Fractionation Agreement
Department of Health and Ageing

Audit Report No.3 Business Support Process Audit
Management of Risk and Insurance

Audit Report No.2 Audit Activity
Audit Activity Report: January to June 2003
Summary of Outcomes

Audit Report No.1 Performance Audit
Administration of Three Key Components of the Agriculture—Advancing Australia (AAA) Package
Department of Agriculture, Fisheries and Forestry—Australia
Centrelink
Australian Taxation Office

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Building a Better Financial Management Framework	Nov 1999
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Commonwealth Agency Energy Management	Jun 1999
Cash Management	Mar 1999
Security and Control for SAP R/3	Oct 1998
Selecting Suppliers: Managing the Risk	Oct 1998
New Directions in Internal Audit	Jul 1998

Controlling Performance and Outcomes	Dec 1997
Management of Accounts Receivable	Dec 1997
Protective Security Principles (in Audit Report No.21 1997–98)	Dec 1997
Public Sector Travel	Dec 1997
Audit Committees	Jul 1997
Management of Corporate Sponsorship	Apr 1997
Telephone Call Centres Handbook	Dec 1996
Paying Accounts	Nov 1996
Asset Management Handbook	Jun 1996