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Audit Report No.3 2005–06
Performance Audit

Management of the M113 Armoured Personnel Carrier Upgrade Project

Australian National Audit Office

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Australian National
Audit Office

Canberra ACT
28 July 2005

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 *Management of the M113 Armoured Personnel Carrier Upgrade Project.*

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

Ian McPhee
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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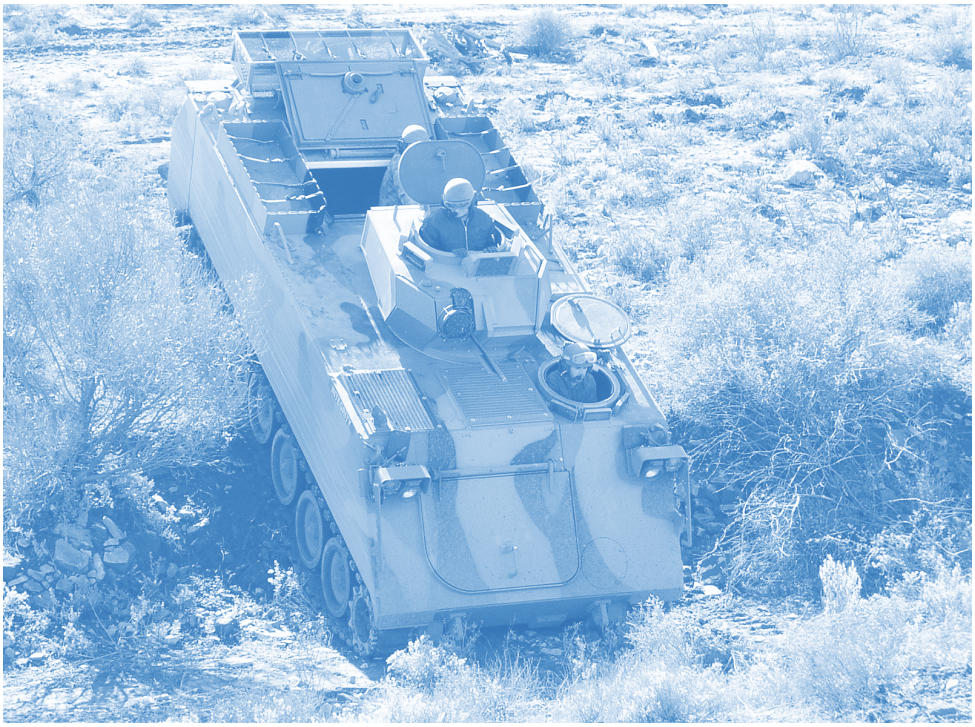
Abbreviations

ADF	Australian Defence Force
ASLAV	Australian Light Armoured Vehicle
ATO	Australian Taxation Office
BAS	Business Activity Statement
CEPMAN 1	Capital Equipment Manual (version 1)
CCP	Contract Change Proposal
CSSR	Cost, Schedule, Status Reports
DEFPUR 101	Defence Purchasing Manual (version 101)
FMA Act	*Financial Management and Accountability Act 1997*
GST	Goods and Services Tax
SMART 2000	Strategic Material Acquisition Request For Tender 2000

Summary and Recommendations



Tenix M113AS4

Source: Department of Defence.

Summary

Background

1. The M113A1 family of vehicles was introduced into service in Australia in the mid 1960s with additional vehicle variants added into the fleet until 1979. The M113 is a lightly armoured aluminium bodied, fully tracked vehicle available in a range of different variants.[1] The most common variant in the Australian Army's M113 fleet is the armoured personnel carrier, which is used to carry troops and their equipment. Throughout its life, operational deficiencies have been identified with the M113 fleet and a number of reviews and proposals for upgrades of the existing fleet and the procurement of a new fleet have been considered by Government. However, the Australian Army's fleet of M113s currently remains in its original mid 1960s M113A1 standard.[2]

2. The upgrade project for the M113s essentially comprised of two major stages. The first stage commenced in 1992 and culminated in the awarding of a contract in mid 1997 for a minimum vehicle upgrade. In accordance with the 2000 Defence White Paper, a second stage of the project commenced in 2002 for a major upgrade of the M113 fleet of vehicles.

3. In July 1992, Army proposed a minimum upgrade of the M113 fleet to improve firepower, night vision, fighting, habitability and survivability capabilities. Phase 1 was to consist of upgrading 537 vehicles to an A2 standard[3] to be delivered from 1996 to 1998 at an approved cost of $39.9 million (April 1993 prices). Phase 2 of the Project was to upgrade the remaining vehicles to the same standard with final delivery to be in late 2000.

4. The Minimum Upgrade Project was to procure upgraded turrets (based on an existing design) with weapons and day/night sights; cooled drinking water systems; quick change barrel machine guns; A2 standard suspension kits; spall curtains;[4] and engine cooling kits. A Prime Contract for Phase 1(a)

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1 There are 766 M113A1 vehicles currently in the Australian Army fleet. Whilst it was originally planned to upgrade the entire M113 fleet over two phases, the number of M113s still in service has reduced since 1992. As at 9 February 2005, only 520 vehicles are in service (other vehicles are no longer in service; are on loan; or in a reserve/maintenance pool).

2 M113A1: Original vehicle purchased in mid 1960s to 1979 with no upgrades (some having undergone repair and overhaul at 25 000km).

3 M113A2: Minimum upgrade with new components such as spall curtains, suspension, engine cooling, turret and machine gun.

4 Spall curtains are ballistic curtains attached to the interior of the vehicle to protect the occupants from metal spall fragments.

was signed with Tenix[5] in May 1997 to procure new or modified T50 turrets,[6] cooled drinking water systems and for the installation of the other components. The other components were to be installed by the Prime Contractor, but were procured by Defence under separate Phase 1 contracts.

5. After the acquisition of most of the Phase 1 component parts (the turret and cooled drinking water systems being provided under the Phase 1(a) contract were yet to be delivered), the Phase 1(a) Prime Contractor provided Defence with an unsolicited proposal in late 1997—early 1998 to combine Phase 1 and 2 and upgrade 360 vehicles to an M113AS3 standard.[7]

6. The Prime Contractor's proposal identified that this option would provide $30 million in savings for Defence. Defence subsequently decided to sole source the combined upgrade to the Contractor. To do this, Defence suspended the Phase 1(a) Prime Contract in June 1999 and the Prime Contractor developed a number of Contract Change Proposals (CCPs) to develop a new contract which represented the second stage of the project.

7. The Major Upgrade Contract was signed in July 2002 for the supply of 350 vehicles at an AS3 and AS4[8] standard at a cost of $388 million (Dec 2001 prices). The upgrade will include the assembly of components with the M113A1 hulls (see Figure 1). The vehicles contracted for are substantially different to that envisaged in Phase 1 of the Project.

8. The M113A1 vehicles have a written down value of $73 million which equates to a carrying value for each vehicle of some $98 000. The 350 vehicles to be upgraded by the M113 Upgrade Project will cost (under the Major Upgrade Contract) around $1 million each depending on the variant.[9]

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5 The Prime Contractor, originally called Transfield Defence Systems was re-named Tenix Defence Systems in November 1997 after the Defence arm of the company split. More recently it has become known as Tenix Defence.

6 The T50 turret was an American design and was fitted in the 1960s. It became the standard Armoured Personnel Carrier turret.

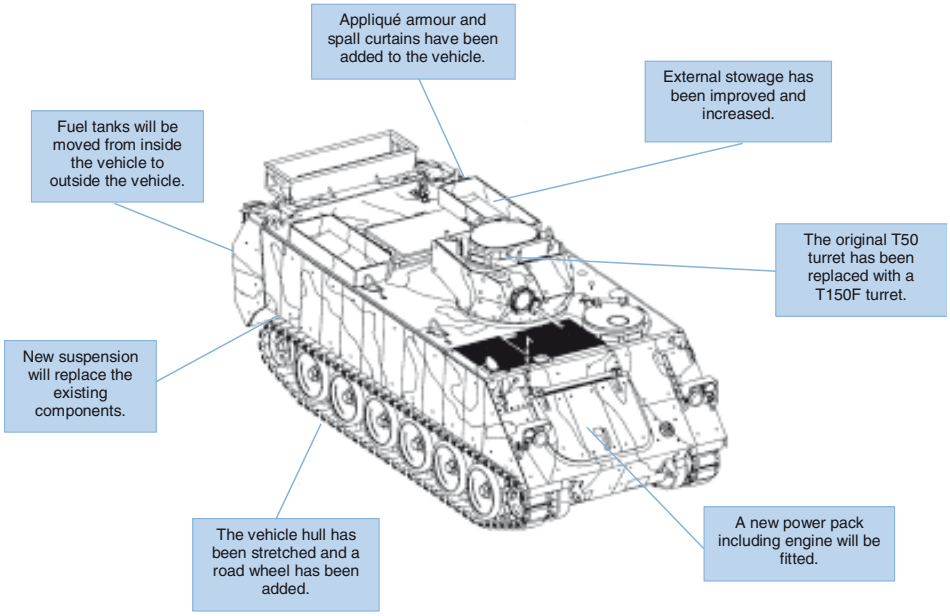
7 M113AS3: Major upgrade to an A2 standard plus power pack and drive train.

8 M113AS4: Major upgrade to an AS3 standard with stretch technology.

9 This amount does not include the additional expenditure being contributed to the M113 Upgrade Project under the M113 Fleet budget and the Commercial Support Program Contract. The M113 Fleet budget and activities performed under the Commercial Support Program Contract are generally used for the purposes of maintenance and repair of the in-service M113 Fleet.

Figure 1

Assembly of major upgrade components under the Major Upgrade Contract



NOTE: This diagram is representational only, it does not include Government furnished equipment reclaimed from A1 vehicles or manufactured items under the Commercial Support Program Contract.

Source: ANAO interpretation of Defence documentation.

Audit approach

9. The objective of the audit was to provide an independent assurance on the effectiveness of the management of the upgrade of the M113 fleet for the Australian Defence Force (ADF). The audit sought to identify the initial capability requirements and approval process; analyse the contract negotiation process; and examine the management of the project and contracts.

Overall audit conclusion

10. The ANAO found that the Project has undergone extensive scope changes and chronic schedule delays since its inception. The M113 family of vehicles was originally to undergo a minimum upgrade to improve firepower, night vision, fighting, habitability and survivability capabilities. The Project changed and is now to perform a major upgrade of 350 M113 vehicles comprising about two thirds of the current in-service fleet. The M113 Major Upgrade Project was approved at a cost of $552 million in June 2002. The ADF is yet to receive any upgraded vehicles. The upgraded vehicles will not start to enter into service until late 2006 with the last vehicle to be delivered in late

2010. The vehicle has a planned end of life of 2020. The new contracted vehicle, while consistent with the currently approved project scope, is substantially different to the vehicle originally envisaged by the Army.

11. The Minimum Upgrade Phase of the Project suffered from poor project management practices; ineffective project planning; inadequately defined project objectives; and suffered technical problems with the T50 turret. Combined with an inability to successfully integrate the components of the vehicle, this resulted in a failure to deliver capability to the ADF.

12. The ANAO found that the three year delay between the approval to combine the phases in June 1999 and entering into a contract for the major upgrade of 350 M113 vehicles was characterised by an inability of Defence to successfully manage changes in requirements. By February 1999, before Contract suspension, some $9.7 million had been spent from the Minimum Upgrade Prime Contract. After the decision to sole source, some $27.8 million was paid for tasks performed by the Contractor towards developing an acceptable combined upgrade proposal and for postponement costs.

13. The ANAO considers that the new Major Upgrade Contract, executed in July 2002, has provided an improved framework for Defence to advance the Project. The System Program Office[10] is taking an active role in managing the Project. Nevertheless, there is still some doubt as to whether the upgraded vehicles will meet their in-service date of late 2006. The Contractor is now putting in place a process of fast tracking production whereby they commence producing vehicles at their own risk before they have passed Defence formal testing. The ANAO considers that this approach involves a high level of risk for the delivery of Army capability. Notwithstanding the Contractor's liability for this risk, it will require close management by both the Contractor and Defence.

Key findings

Minimum upgrade project (Chapter 2)

14. In 1995 Defence reduced the planned scope of Phase 1 of the Project to modify 364 vehicles (reduced from 537) with a total approved budget of $49.99 million. In early 1995, Defence released a Request for Tender for the Phase 1(a) Prime Contract to nine Australian companies and eight responses were received by late June 1995. The Tenix bid was assessed as being the most compliant and the Phase 1(a) Prime Contract was signed on 5 May 1997 for

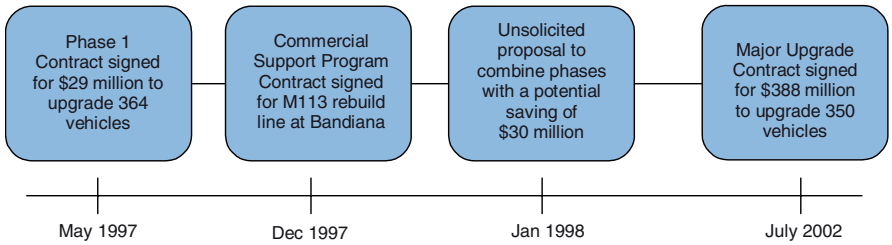
[10] The Defence Materiel Organisation manages major capital acquisition projects through 46 System Program Offices around Australia and was established as a prescribed agency on 1 July 2005. The M113 Major Upgrade Project is managed within the Tracked Manoeuvre System Program Office in Melbourne.

$29.19 million (Dec 1996 prices) including an advance payment of $4.21 million (14.40 per cent).

15. By May 1997, separate contracts for the Phase 1 component parts to be provided to the Phase 1(a) Prime Contractor as Government furnished equipment had been signed (see Figure 2). All of the Phase 1 Contracts were closed by mid 2000 with the exception of Phase 1(a).

Figure 2

Contractual timeline



Source: ANAO interpretation of Defence documentation.

16. Six months after Phase 1(a) Contract signature, the Prime Contractor approached Defence with a proposal to combine Phases 1 and 2 of the upgrade project together with a Commercial Support Program Contract which they already held with Defence. The proposal stated that through a sole source acquisition strategy Defence could achieve a number of efficiencies (including meeting an in-service date some two to three years earlier then planned) and make a saving of approximately $30 million. The ANAO considers that no such saving will occur.

17. Defence documentation shows that the four prototype vehicles did not include all Phase 1 components (see Table 1) as stipulated in the Phase 1(a) Contract. The ANAO considers that it would have been prudent for the prototype vehicles to include all component parts and appropriate integration.

18. As outlined in Table 1, the major components of the Phase 1 Minimum Upgrade, namely Phase 1(a) costing $29.19 million was largely incomplete at the time of the audit with no turrets produced and the drinking water system removed from the scope of the Contract. Defence advised the ANAO in November 2004, that some items have been issued to units for use with the existing M113A1 fleet, whilst others have been placed in storage at Bandiana (see Table 1).[11]

[11] Defence further advised the ANAO that Government furnished equipment items purchased during Phase 1 that are stored at Bandiana were recently re-catalogued as kits and recorded on the Standard Defence Supply System.

Table 1

Phase 1 components status: March 2005

Component[1]	Total Cost	Description	Status
Phase 1(a)	$27.97 million	New or modified T50 turrets	Not produced
		Cooled Drinking Water System	No longer contracted for
		Installation of components	See Chapter 4
Phase 1(b)	$1.28 million	Procurement of 12.7mm quick change barrel machine guns	Procured and introduced into service
Phase 1(c)	$3.14 million	Procurement of off-the-shelf A2 suspension kits	Procured but not introduced into service
Phase 1(e)	$1.94 million	Procurement of spall curtains	Procured but not introduced into service[2]
Phase 1(f)	$3.42 million	Procurement of off-the-shelf engine cooling kits	Procured but not introduced into service

NOTE: (1) Phase 1(d) was to be procured under Project NINOX, the ANAO understands that this component was not procured.

(2) The spall curtains have subsequently been transferred to the Australian Light Armoured Vehicle (ASLAV) Project to meet an operational requirement. Defence advised the ANAO that they will be replaced by the ASLAV Project using operational funding.

Source: ANAO interpretation of Defence documentation.

19. Prototype turret sights provided for testing in late 1999 (some five months late) did not meet specification and were not accepted by Defence. An alternative sight was subsequently provided by the Contractor. The Contractor advised the ANAO that 'The prototype day/night sight was leading edge electronic camera technology (electro-optical sight) that at that time in its life cycle was immature.' No liquidated damages were subsequently sought relating to the late delivery of the prototype sight. The trials also determined that the cooled drinking water system should not be continued with further.

20. The Phase 1(a) Prime Contract, signed in 1997 for a turret and the installation of Government furnished equipment, was not achieved and Defence subsequently sole sourced the new Major Upgrade to the same Prime Contractor.

Contract suspension and interim phase (Chapter 3)

21. In May 1998 the then Minister for Defence noted Defence's decision to sole source Phase 2 to Tenix. It was subsequently decided to combine the phases through firstly suspending the Phase 1(a) Contract through CCP One and then have Tenix develop a series of CCPs to develop the Major Upgrade Contract.

22. The CCPs were developed by Tenix and Defence as part of an integrated product team. Rather than follow the normal procedures of

developing a detailed operating requirement, statement of requirement and top level specification, Defence relied on the Contractor's involvement in the integrated product team. The ANAO considers that the implementation of the Defence Procurement Review of 2003 (Kinnaird Review) should remediate this situation in future projects.

23. During the evaluation of CCP Two, it became apparent that the integrated product team had not provided the level of visibility into the process as had been expected. CCP Two showed that combining the project phases would be more expensive than expected and the offer itself had a number of problems. CCP Two and Three were subsequently declined.

24. A further CCP for a Project Definition Study and Mockup Vehicle Phase was provided to Defence in November 2000. The ANAO notes that the scope of the CCP was the result of joint exploration by Defence and the Contractor and did not follow the normal process of a formal request then subsequent evaluation. Defence stated that the reason for not following the normal process was that the CCP was to reduce the risk of the project and was therefore low risk itself. The CCP was for a total cost of $9.71 million.

25. The ANAO considers that this is a real variation to the Contract and should have had the concurrence of both the Minister for Defence and the Minister for Finance and Administration. While the Minister for Defence was asked to and did note the change, neither Minister was asked for or gave their concurrence for this expenditure. Defence advised the ANAO in July 2005 that:

> contrary to the opinion expressed in the audit report, Defence believes that the change in contract scope referred to … was within the broad revised project scope that had been endorsed by Cabinet in the Defence White Paper and Defence Capability Plan. The contract change was for an activity that was necessary to deliver the revised capability endorsed by Government vide these documents and was well within the project funding approved at that time. Hence the contract change did not require a further approval by the two Ministers.

26. The ANAO notes that in accordance with Defence policy any change (whether within the broad revised project scope or not) over $8 million requires the concurrence of both the Minister for Defence and Minister for Finance and Administration.

27. The original sole source strategy was based on labour being offered at the Commercial Support Program rates only, however the offered price of the Contract was based on labour plus overheads. Defence determined that this added roughly 25 per cent or $5 million to the base rate. The ANAO considers that labour rates have changed significantly since the Commercial Support Program Contract was signed and that there are now three separate labour rate categories each with varying average hourly labour rates. Additionally, the

ANAO considers that only about 35 per cent of work on the vehicle will be performed under the Major Upgrade Contract, with the remainder to be completed under the Commercial Support Program Contract at Defence's Bandiana facility.

28. The ANAO notes that of the original $4.21 million mobilisation payment made in mid 1997, only $970 000 had been offset against deliverables in the Contract by March 2005. The ANAO considers that the remaining $3.24 million is a debt owed to the Australian Government which should be returned by the Contractor. In addition, the ANAO considers that there is an opportunity interest cost foregone to the Australian Government estimated at some $1.34 million, as of mid 2005, as a result of the residual mobilisation payment.

Management of the major upgrade contract (Chapter 4)

29. The M113 Major Upgrade Project was approved at a cost of $552 million (2002 prices), including previously approved funding of $62.13 million. Of this, $388 million is for the Major Upgrade Contract and the residual consists of items such as project costs, contingency and a lump sum set aside for initial logistics support. The estimated expenditure of the Project to 30 June 2005 is $187 million.

30. By early 2005, the Contractor was late in providing a revised schedule to the Project Office against which the Contractor's performance could be assessed. The production of some variants would slip by up to six months however the Contractor has advised that the in-service date would remain as November 2006. Part of the problem in producing the schedule was due to performance issues concerning the excessive engine heat. This has not yet been resolved however, the Contractor advised that:

> solutions have been identified to resolve heat issues. The Contractor has commenced conducting internal testing to satisfy itself that the solution meets the contract requirements. This issue has resulted in schedule delays but is not a reason for failure to produce a revised schedule.

31. The Contractor has advised Defence that they will be fast tracking some elements of initial production vehicle testing in order to meet the scheduled in-service date. Testing of the initial production vehicles was to occur in a linear fashion with Defence conducting the Reliability Qualification Test and a Production Readiness Review before the Contractor was given authority to move to full rate production.

32. The new schedule shows that the Contractor will be conducting their own Reliability Qualification Test (before Defence) and proceeding to full rate production based on these results. This revised program shows that not only is the schedule some eleven months later than originally planned, production

will occur before the necessary Defence sign off. Whilst the risk will sit in the main with the Contractor, it is still a high risk option for Defence.

33. Defence advised the ANAO in June 2005 that: 'under the contract arrangements prior to mid 2004, it is clear there was uncertainty between Defence and the Contractor over how the GST component of a tax invoice should be shown and calculated.' Section 9–85 of *A New Tax System (Goods and Services Tax) Act 1999*, requires that the value of taxable supplies be expressed in Australian currency. Contractor invoices from January 2002 to June 2004 were not expressed in Australian currency and so were not compliant.

34. The Contractor now lodges compliant GST invoices for foreign exchange claims. However, they are based on the spot retail sell rate on the day of the invoice. The retail rate is for payments usually up to $A 25 000 and the rate more generally used for large overseas currency payments is the wholesale rate. The ANAO calculates that on average Defence paid a difference of 80 basis points[12] using the retail rate rather than the wholesale rate.

35. The Major Upgrade Contract contains the provision for two mobilisation payments equalling $80 million. The first $40 million was paid to the Contractor in mid 2002 with the second due when the Contractor passes the Production Readiness Review. The mobilisation payment is offset against contract deliverables however, when the second payment is to be made, at the successful completion of the Production Readiness Review, only $9.67 million will have been offset against the first mobilisation payment and will not be fully offset until late 2010.

36. Defence is currently claiming liquidated damages for two areas of delay by the Contractor. Defence have advised that an amount of $23 000 has been calculated up to 13 September 2004 for the provision of Integrated Logistic Support data and plans and for the production of initial production vehicles.

Agency response

37. The ANAO made three recommendations directed towards the improvement of project and contract management. Defence agreed with all recommendations.

[12] Using a weighted average over a 168 day period, this equates to approximately $15 500.

Recommendations

Set out below are the ANAO's recommendations, with report references and an indication of the Defence response. The recommendations are discussed at the relevant parts of this report.

Recommendation No.1
Para. 3.41

ANAO recommends that the Defence Materiel Organisation put in place control mechanisms to ensure that changes in scope are approved at the appropriate level.

Defence Response: Agreed.

Recommendation No.2
Para. 3.59

ANAO recommends that the Defence Materiel Organisation recover against deliverables, the outstanding amount of the May 1997 mobilisation payment remaining from the Phase 1(a) M113 Upgrade Contract at the earliest opportunity.

Defence Response: Agreed.

Recommendation No.3
Para. 4.70

ANAO recommends that the Defence Materiel Organisation review contracting policy and its application of the collection of liquidated damages, to be received either by way of financial or agreed compensation, to ensure that they are collected in a timely manner.

Defence Response: Agreed.

Audit Findings and Conclusions

1. Introduction

This chapter provides an overview of the M113 Upgrade Project from the 1960s to 1997 and a detailed timeline of events. It also discusses the context of Defence's decision to enhance the capabilities of the M113 fleet and sets out the scope and objectives of the audit.

Background

1.1 There are 766 M113A1 vehicles (in a range of variants) currently in the Australian Army fleet, however only 520 vehicles are in-service (other vehicles are on loan to contractors or in a reserve/maintenance pool).[13] The M113A1 was introduced into service in Australia in the mid 1960s, with different variants being added until 1979. Currently, Army's fleet of M113s remain in its original A1 standard (see Figure 1.1).

1.2 The M113 Armoured Personnel Carrier is designed to provide infantry mobility, capable of carrying a section of infantry plus a two-person crew into range of enemy fire during an assault and providing close fire support capabilities. Numerous variants comprising the M113 family of vehicles are currently in-service in over 50 countries. There are estimated to be in excess of 85 000 M113 Armoured Personnel Carriers in-service around the world.

1.3 As a result of their operational capabilities and the quantity of M113s already in-service, many countries have upgraded their M113s to extend their operational lives. The ANAO understands that in the mid to late 1980s, the United States Department of Defense upgraded the in-service fleet of M113 vehicles to an A3 standard and also acquired new M113A3 vehicles.

1.4 The Albury Wodonga Military Area is a specialist facility for the repair and overhaul of Army vehicles and includes the M113 vehicles, Leopard Tanks and ASLAVs. In December 1997, Tenix was selected under the Commercial Support Program Contract to manage the facilities. The Contract was for six years with the ability to extend the Contract to ten years through back-to-back two-year options. All facilities and equipment are provided free-in-aid to the Contractor and maintained by Defence. The Commercial Support Program is aimed at encouraging efficiency gains in Defence by outsourcing what are considered as non-core activities.[14]

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[13] Information correct as at 9 February 2005.

[14] Under the Commercial Support Program Contract, M113 vehicles undergo what is termed depot level maintenance after 25 000 kilometres in which they are stripped down to the individual components, refurbished and rebuilt.

Figure 1.1

M113A1 armoured personnel carrier

Source: Department of Defence.

Capability requirement

1.5 When the M113A1 fleet was introduced into service in the mid 1960s, the planned life[15] was 1995 with Army originally considering upgrading the M113 fleet in the 1990s. In 1992, a Defence Review considered that the life of the vehicle could be extended until 2010 if the vehicles were upgraded to address operational deficiencies and support costs were reduced through maintenance upgrades.[16]

1.6 The 1992 Review was generally supported within Army, however, there was some question as to whether retaining the M113A1 family of vehicles out to 2010 would be economic. It was also suggested that it would be prudent for Army to examine replacement options earlier than 2010. To this end, in July 1992, Army prepared a Major Capability Submission proposing a minimum upgrade of the M113 fleet to improve firepower, night vision fighting, habitability and survivability capabilities.

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[15] To describe the useful life of a capability, Defence use the term Life of Type. For ease of reading, simply the term life will be used in this report.

[16] The M113A1 fleet has not yet been upgraded and vehicles will not undergo an upgrade until 2006 as part of the Major Upgrade Project.

1.7 In October 1992, Defence agreed to conduct a limited upgrade of 537 M113A1 vehicles, (including 355 Armoured Personnel Carriers) and to include an upgraded turret with day/night sights and a new 12.7mm weapon, night vision goggles, cooled drinking water systems and spall curtains.[17]

1.8 The Government, in November 1993 approved a $39.90 million budget for the Phase 1 Minimum Upgrade of 537 vehicles (see Table 1.1). The ANAO has been advised that the Army uses the M113 as a fighting vehicle which is different to that of other countries. Consequently, some of the Australian M113s are fitted with a turret. The ANAO is aware of only one other country which has a turret on the M113 fleet.

1.9 An Invitation to Register Interest was released to industry in late 1993, with nine companies registering interest as prime contractors and nineteen as subcontractors. The aim of the Invitation to Register Interest was to determine a shortlist of six respondents to be invited to tender. However, the Invitation to Register Interest did not ask for sufficient information to readily allow for a short list; only two criteria lent themselves to any form of comparative evaluation. All nine prime tenderers therefore, met the selection criteria and subsequently received the Request for Tender.

1.10 The first Equipment Acquisition Strategy for the M113 Minimum Upgrade Project outlined the strategy for upgrading the M113 fleet in two separate phases. Phase 1 vehicles were to be delivered in 1996 to 1998. Phase 2 was to consist of the upgrade of the remainder of the fleet to the same standard, at an estimated cost of $10.18 million, with final deliveries to be in October 2000.

1.11 It was proposed that the upgrade would consist of the development of two prototype vehicles incorporating an upgraded turret (including the turret itself, a weapon and a day/night sight); the installation of a cooled drinking water system; and the installation of spall curtains. Following the successful evaluation of the prototypes, Defence was to then exercise an option to proceed with the Phase 1 Contract to upgrade an initial 537 vehicles. This strategy was not followed by Defence.

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[17] The ANAO notes that throughout the course of the Project, the turret solution has changed. At the time of audit, the turret was not yet complete.

Table 1.1

M113 project timeline

Year	Activity
Concept Development	
May 1991	Defence's Force Structure Review
Capability Development	
July 1992	Major Capability Submission endorsed
Minimum Upgrade—Phase 1 and 2	
Nov 1993	Cabinet approval of $39.87 million (April 1993 prices) to upgrade 537 vehicles in Phase 1 (including 355 Armoured Personnel Carriers). Phase 2 estimated at $10.18 million
April 1995	Cabinet approves real cost increase to Phase 1 budget of $7.3 million (bringing total to $49.99 million)
May 1997	Contract for upgrade of 364 vehicles signed with the Contractor for $29.19 million (Dec 1996 prices)
Major Upgrade—Combined Phase 1 and 2	
Nov 1997	The Contractor approached Defence with a proposal to combine M113 phases for $150 million and to be delivered in 2001 to 2004
Dec 1997	The Contractor signs Commercial Support Program Contract at Bandiana with Defence including M113A1 rebuild line
May 1998	Minister noted Defence's decision to combine phases and sole source
Feb 1999	Cabinet approval given for Phase 2 at a cost of $230 million (April 1998 prices)
March 1999	The Contractor and Defence enter into an integrated product team to develop non-commercial component of CCP Two offer
Suspension of Phase 1 Prime Contract	
June 1999	CCP One to delay Phase 1 and combine phases 1 and 2 approved at a cost of $3.34 million (Dec 1998 prices)
Nov 1999	The Contractor submits CCP Two and Three under integrated product team arrangement
May 2000	Defence Capability Committee redefined scope to include A2 and AS3 vehicles
Oct 2000	CCP Two and Three formally declined by Defence
Nov 2000	The Contractor submits CCP 13, a proposal for a Project Definition Study and Mockup Phase
April 2001	CCP 13 approved for $9.70 million (Dec 2001 prices)
July 2001	CCP 14 approved to develop a draft Major Upgrade Contract
July 2001	Phase 2 approval transferred from approved to foreshadowed following the Defence White Paper 2000

Year	Activity
Major Upgrade Contract	
June 2002	Cabinet approves M113 Major Upgrade Project at a cost of $552 million (2002 prices)
July 2002	Contract for 350 vehicles at a cost of $388 million (2002 prices) signed and mobilisation payment of $40 million paid
Dec 2003	Stage 1–two demonstration vehicles produced and tested, Defence gives approval to commence Stage 2 (initial production vehicles)
Nov 2004	Testing of first two initial production vehicles commences
Feb 2006	Stage 2–produce 14 initial production vehicles and testing commences
July 2006	Stage 2–testing (including a Reliability Qualification Test and Production Readiness Review) complete and second mobilisation payment of $40 million due to be paid
April 2006	Stage 3–commence full production of vehicles
Dec 2010	Final vehicle in-service date
In-Service M113 Vehicles	
2007 to 2020	Fleet of M113 vehicles in service
2020	Expected life of upgraded vehicles

Source: ANAO interpretation of Defence documentation.

1.12 The Equipment Acquisition Strategy identified that although much of the Project components could be provided in kit form there was still a need for specific engineering tasks for the integration of the turret and vehicle. It was stated that the work was well within the capability of Australian industry and should therefore be undertaken by an Australian prime contractor.

1.13 The Equipment Acquisition Strategy also identified that if separate contractors were sought for each element of the upgrade there would be a significant increase in the project management requirement and increased responsibility for Defence due to risk associated with component integration.[18]

1.14 A series of contracts were signed from 1996 to 1997 by Defence to purchase Government furnished equipment to be provided to the Prime Contractor as part of the upgrade of the M113. These items included:

- 12.7mm quick change barrel machine guns;
- off-the-shelf A2 suspension kits;

[18] The Minimum Upgrade Project was subsequently assessed as having a medium to low risk overall which was attributed to the Engineering Development Establishment (now known as Land Engineering Agency) designed and developed concept demonstrator turret and the proven and well known technologies involved.

- spall curtains; and
- off-the-shelf engine cooling kits.

Major upgrade project

1.15 The new Contract was signed in July 2002 for $388 million for 350 vehicles at an AS3 and AS4 standard (see Table 1.2). The upgraded family of vehicles will be substantially different to the existing M113A1. For example, the upgrade will add:

- between 2.5 tonnes (AS3) and 5.5 tonnes (AS4) in weight per vehicle;
- 129 mm in overall height;
- between 450 mm (AS3) and 1110 mm (AS4) to the length; and
- 40 mm in overall width.

Table 1.2

Comparison of M113 vehicle capabilities

M113A1	Vehicle Capabilities	M113AS3/AS4
Limited level of protection inherent in vehicle.	**Protection/Survivability**	Fitted with appliqué armour and internal spall curtains.
4.8 metres in length, 2.7 metres in width, 2.5 meters in height and 11.5 tonnes.	**Armoured Personnel Carrier Dimensions**	5.8 metres in length, 2.8 metres to 3 metres in width, 2.6 metres in height and 18 tonnes (RGVW).(1)
Carries infantry section of nine, limited internal space and storage.	**Habitability/Capacity**	Carries infantry section of nine. Fitted with new seats, increased internal space and storage.
Currently transportable by road and rail without preparation and sea, air with some preparation.	**Transportability**	Not currently transportable by road or air without preparation. Reduced carrying capacity per vessel by sea.
Limited turret control, mixture .30/.50(2) calibre machine guns.	**Firepower**	New turret and 12.7mm quick change barrel machine gun.
Limited night vision capacity.	**Night Vision**	Turret fitted with day/night sight, additional night vision equipment.
Amphibious capability. Low capacity power pack.	**Mobility/Endurance**	Not amphibious, new power pack and drive train.
Limited communications and battlefield systems.	**Command and Control System**	Updated communications and battlefield systems.
Estimated 1995.	**Supportability/Life Expectancy**	2020.

NOTE: (1) Recommended Gross Vehicle Weight.
(2) 7.62mm/12.7mm.

Source: ANAO interpretation of Defence documentation.

1.16 The Australian industry involvement component of the Contract is 47.93 per cent of the total contract price. The Contractor is currently meeting its contracted Australian industry involvement obligation and is achieving 22.02 per cent. Defence advised the ANAO in June 2005 that the majority of the Australian industry involvement occurs later during Stage 3 production.

Management of the in-service vehicles

1.17 The M113 family of vehicles is managed by a Program Manager responsible for the in-service fleet and the Upgrade Project. These areas although managed by the Program Manager and co-located, are, for financial purposes kept separate.

1.18 The relationship between M113 fleet management and the Upgrade Project, which was already established under a memorandum of understanding dated 1998, was formalised with an integrated M113 System Program Office. Program Offices are generally to be located near their ADF customers (Force Element Groups) and therefore, it has been necessary for some project offices to move out of Canberra into regional areas, in this case to Melbourne.

1.19 A draft Materiel Sustainment Agreement has been developed concerning the delivery of supplies and services by the Defence Materiel Organisation for the sustainment of the M113 Fleet. A draft Acquisition Agreement has also been developed between Defence Materiel Organisation and the Defence Capability Development Group outlining the deliverables of the Upgrade Project. Defence advised the ANAO in June 2005 that both documents are expected to be ready for implementation by July 2005.

1.20 Defence also advised the ANAO that the M113 Fleet Manager is responsible for maintaining both the existing M113 fleet and the upgraded fleet when it comes into service. A formal transfer of responsibilities process will occur when the first vehicles are introduced into service. The majority of the M113 fleet maintenance work is performed at Bandiana under the Commercial Support Program Contract.

1.21 The ANAO found no documentation which clearly stipulates the different roles of fleet maintenance and upgrade. The ANAO also found no documentation which articulates what work is to be done by fleet (and subsequently under the fleet budget) or by the Upgrade Project. Defence advised the ANAO that to better document this, the Program Office proposes to define the relationship in the project acquisition strategy.

1.22 The M113A1 fleet budget achievement in 2003–04 was $14.19 million[19] and the 2004–05 budget allocation is $14.74 million. Over the next five years, fleet budget allocation is to be $15.13 million per year. Defence advised the ANAO in June 2005 that:

> maintenance and spares support for the M113A1 vehicles is now reducing as Defence prepares for their replacement. The balance of support effort will increasingly be redirected to the provision of M113A1 Government furnished equipment to the upgrade program, gradually changing to support of the upgraded vehicles as they are introduced, in a gradual transition.

Audit approach

1.23 The objective of the audit was to provide an independent assurance on the effectiveness of Defence's management of the upgrade of the M113 vehicles for the Army. The audit sought to identify the initial capability requirements and approval process; analyse the contract negotiation process; and examine the management of the Project and Contracts by Defence. This was not an audit of contractor performance; rather it was of Defence's management of the Upgrade Project and Contract.

1.24 Audit fieldwork was conducted from August 2004 to February 2005. The audit team met with areas within Defence, including: the Program Office at Defence's Victoria Barracks, Melbourne; Land Command at Victoria Barracks, Sydney; 1 Brigade at Robertson Barracks, Darwin; and Joint Logistics Unit at the Albury Wodonga Military Area, Bandiana.

1.25 A series of papers consolidating the findings of the audit were provided to Defence from March to May 2005. Comments on these papers were considered in the preparation of the proposed report. The Proposed Report was provided to Defence and Defence Materiel Organisation in June 2005. The audit was conducted in conformance with ANAO audit standards at a cost to ANAO of $380,000.

Report structure

1.26 The remainder of this report is structured into three chapters. Chapter 2 outlines the Minimum Upgrade Project, Chapter 3 discusses contract suspension and the interim phase of the Project and Chapter 4 examines the management of the Major Upgrade Contract.

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[19] Budget allocation was originally $13.16 million.

2. Minimum Upgrade Project

This chapter outlines the scope of the M113 Minimum Upgrade Project from 1994 to 1999. It also examines Defence's decision to sole source the Project, following an unsolicited proposal by the Phase 1 Prime Contractor to combine the two phases.

Project scope

2.1 By December 1994, price variations had increased Phase 1 from $39.87 million (April 1993 prices) to $42.69 million (Dec 1994 prices) and responses to the Invitation to Register Interest for the Prime Contract had shown a potential cost increase to the Project of over $20 million. Subsequently, it was decided that the number of vehicles to be upgraded should be reduced. In April 1995, Ministers approved a real cost increase of $7.3 million to fund the procurement of suspension kits, bringing the total approved budget to $49.99 million.

2.2 By June 1995, the acquisition strategy stated that Phase 1 of the Project now involved the modification of 364 vehicles (down from 537) and that Phase 2 could involve modifying 154 vehicles with a budget decision date of 1996–97.

2.3 Phase 1 was now to include six sub phases as outlined in Table 2.1. The Request for Tenders for each phase were to be issued and assessed separately with components procured through separate contracts. This approach differs from the approach identified in the original Equipment Acquisition Strategy of using one prime contractor and having two prototype vehicles developed and assessed before going to full production.

2.4 The risks of having separate contractors were identified in the original Equipment Acquisition Strategy. However, whilst the 1995 Equipment Acquisition Strategy did highlight that integration and installation of the components would be undertaken by an Australian prime contractor, the risks of having a number of other separate contracts were not identified nor the risks mitigated in the new strategy.[20]

Request for tenders prime contract

2.5 The Request for Tender for Phase 1(a) was released to the nine Invitation to Register Interest respondents (all Australian tenderers) in late March 1995. It requested solutions for either a new or upgraded T50 turret, cooled drinking water system and information on the installation of suspension and engine cooling kits which were to be provided as Government

[20] There is also no mention of the development of prototype vehicles in the 1995 Equipment Acquisition Strategy.

furnished equipment. Phase 1(a) was considered to be the prime contract as it included the highest cost component of the Project; the turret and also provided for the installation of all other components of the Project.

2.6 When adopting this approach, Defence acknowledged that there were no known manufacturers of one-person armoured vehicle turrets in Australia. However, it was thought that an Australian company with medium engineering and design capabilities would be capable of developing a turret solution and integrating it into the vehicle. Further, the prime contractor would, if necessary, obtain expertise and design experience from an overseas source.

2.7 The Request for Tender closed in late June 1995 with eight companies submitting responses. Initial screening of tenders was undertaken in order to identify those tendered solutions which did not meet certain requirements of the Request for Tender. Subsequently, five offers were retained for further evaluation.

2.8 Two tenderers offered new turrets based on existing designs (with one of these designs in production), whilst the other tenderers offered a redesigned T50 turret based on the Engineering Development Establishment concept demonstrator turret.

Contract negotiation and formation

2.9 The Source Evaluation Report was considered in July 1996, and it was decided that the Tenix bid was the most compliant against the functional/technical criteria, in addition to offering the best value for money and having the most potential in terms of local content. Tenix was subsequently invited to negotiate a contract for Phase 1(a).

2.10 Contract negotiations were conducted between October 1996 and January 1997. Whilst Defence wanted to negotiate a contract making the prime contractor responsible for the integration of all upgrade activities including schedule, development and testing, the Contractor was reluctant to take on this additional responsibility without a significant cost increase. Therefore the risk associated with the provision of capability enhancement kits, the scheduling of Government furnished equipment and the integration of all elements of the Project remained with Defence.

2.11 Each contract under Phase 1 is detailed in Table 2.1 which shows the original components, the quantity originally to be procured, the Contract amount and the actual amount spent. By May 1997 contracts for each of the component parts had been signed. All of Phase 1 component contracts were complete by mid 2000, with the exception of Phase 1(a).

2.12 Phase 1(a) for the upgrade of 364 vehicles, including the purchase and installation of 230 upgraded turrets and cooled drinking water systems and

installation of Government furnished equipment was signed with Transfield[21] on 5 May 1997 for $29.19 million (Dec 1996 prices). This included an advance payment of $4.21 million (14.4 per cent of the Contract price). In announcing the Contract in May 1997, Defence expected the upgraded vehicles to be delivered 'between mid-next year and late 1999—early 2000'.

2.13 Various items were procured by Defence with the intention of providing them to the Contractor as Government furnished equipment. Following the release of the Defence White Paper 2000 and a subsequent decision to upgrade 350 M113 vehicles to AS3 and AS4 standard, the Project's requirement for these A2 components needed to be reassessed. The Project Office advised the ANAO that it is unlikely that all Phase 1 Government furnished equipment will be used in the upgrade.

Table 2.1

M113 Phase 1 project outcomes: March 2005

Component	Original Quantity	Original Contract Amount ($million)	Total Cost ($million)	Actual Contract Timeline
Phase 1(a)–Turret, drinking water and installation of equipment	364 drinking water 230 turrets	$29.19 including 14.4 per cent advance payment	$27.97(1)	incomplete
Phase 1(b)–Machine Guns	343	$5.31including 30 per cent advance payment(2)	$1.28	complete
Phase 1(c)–Suspension Kits	364	$3.18 including 25 per cent advance payment	$3.14	complete
Phase 1(e)–Spall Curtains	212	$1.90 including 30 per cent advance payment	$1.94	complete
Phase 1(f)–Engine Cooling Kits	364	$3.00 including 30 per cent advance payment	$3.42	complete
TOTAL		**$42.58**	**$37.75**	

NOTE: (1) includes expenditure of the Project Definition Study and Mockup Phase, and development of CCPs.

(2) the contract amount includes guns procured for another project.

Phase 1 (d) Night Vision Goggles–to be procured under Project NINOX, the ANAO understands that this component was not procured and is not an element of the M113 Upgrade Project.

Source: ANAO interpretation of Defence documentation.

[21] The Prime Contractor, originally called Transfield Defence Systems, was re-named Tenix Defence Systems in November 1997 after the Defence arm of the company split.

Phase 2 upgrade

2.14 It was originally envisaged that Phase 2 would involve modifying the remaining vehicles to the same standard as the Phase 1 vehicles. However, in October 1997, Defence commenced discussions on upgrading 347 vehicles to an A3 standard. In addition, it was proposed that armour protection for the Armoured Personnel Carrier turrets, a climate control system, an inertial navigation system and two simulators also be procured. The cost of the proposal was $226 million with each vehicle to cost about $600 000. It was Defence's intention to operate only M113AS3s in service to ensure a single fleet of vehicles.

2.15 In November 1997, six months after Contract signature,[22] the Prime Contractor approached Defence with an unsolicited proposal highlighting the benefits of combining both phases of the M113 upgrade into a single project.[23] The proposal was formally sent to Defence in January 1998. The Contractor's proposal included a sole source acquisition strategy for Phase 2, whereby the Contractor would procure and install Phase 2 Upgrade components concurrently with the Phase 1 Upgrade. The main benefit highlighted with this approach was having a single company undertake all work involved, allowing for better Through Life Support, a more streamlined transition into service and the possibility of using the Commercial Support Program labour rates, stipulated at this time to be $25 per hour.

2.16 The Contractor's unsolicited proposal outlined the following:

- the M113A1 Rebuild (under the Commercial Support Program Contract at Bandiana);
- the M113A1 Minimum Upgrade (under the Phase 1(a) Contract) with vehicles scheduled for production between September 1998 and April 2000; and
- the M113 Phase 2 Upgrade.

2.17 The Phase 2 Project value was estimated by the Contractor to be $150 million with vehicle delivery to be during 2001 to 2004. The Contractor advised the ANAO that: 'this amount did not include items to be provided as GFE [Government Furnished Equipment].'

2.18 The Contractor's proposal stated that by combining all three elements into a single project to produce vehicles to the AS3 standard, delivery of the

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[22] The original payment schedule shows that approximately $7.80 million (including an advance payment of $4.30 million) was contracted to be spent at this time.

[23] At this time the Prime Contractor and Defence were negotiating a Commercial Support Program Contract which was signed in December 1997.

first production vehicles could commence in 1999 and all deliveries would be complete by the end of 2004. There were also a number of other benefits that could be made by rationalising the programs. For example: reducing duplicate activities; maximising the use of existing facilities at Bandiana under the Commercial Support Program Contract; meeting the in-service date of the vehicles by some two to three years earlier than the current Phase 2 schedule; and realising savings of approximately $30 million.

2.19 Defence highlighted that the main disadvantage of the Contractor's Proposal was the lack of open and effective competition (the original intention was to select the Phase 2 Contractor through competitive tender).[24]

Consideration of unsolicited proposal

2.20 Defence considered that they had two options for Phase 2 of the Project. Either progress to an open tender to select a single Australian prime contractor or contract Tenix to undertake the work at the Defence maintenance facility at Bandiana. It was identified at this time that originally the Project had only been split into two phases due to programming pressures.

2.21 The Commercial Support Program Contract gave the Contractor access to the purpose built Defence facilities at Bandiana under a Government Furnished Facility Arrangement provided free-in-aid. In exchange, the Contractor provided 'favourable' labour rates. This meant that in an open tender situation other companies were said to be at a disadvantage, as they would have to set up their own facilities and recruit and train staff. It was identified that an effective tender would only be possible by allowing a second contractor access to the Bandiana facility or by excluding the existing Contractor from using the facility. Neither option was deemed viable due to the contractual arrangements under the Commercial Support Program Contract signed with the existing Contractor some three months earlier.

2.22 Defence subsequently decided that due to Tenix winning both the Phase 1 and Commercial Support Program Contracts, an open tender was not the most cost effective option and that Tenix's proposal, mainly due to the $25 per hour labour rate, offered the best value for money.

2.23 At this time Defence received an unsolicited proposal for the upgrade from another party. Defence considered that this unsolicited proposal reinforced the strategy of combining the phases and utilising the Bandiana facilities and Commercial Support Program labour rates. They also determined that the savings identified by the company confirmed the existing Contractor's position.

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[24] Defence stated at the time that: 'it is believed that concerns of probity would be raised where a contractor was selected to undertake $220 million [the cost capped amount of Phase 2] worth of work on the basis of a $30 million contract'.

2.24 As identified in the unsolicited proposals, savings were to be achieved through combining the phases and using the Commercial Support Program labour rate of $25 per hour at Bandiana. These savings were estimated at this time to be in the order of $17 million[25] to $23 million[26] (the Contractor originally estimated savings of $30 million). Defence acknowledged that potential cost savings would diminish with the time taken to take up the opportunity.

2.25 Defence further refined the amount of savings and a total saving of $20 million was identified including:

- $3.5 million for the reduction in the Phase 1 contract by halting production and not performing the vehicle stripping and re-assembly twice;
- $8 million for installation and fitout based on the reduction in direct labour costs using the CSP [Commercial Support Program] labour rate advantage at Bandiana;
- $6.5 million for the reduction in management costs including contractor management overheads, professional service providers for the Project Office and warranty; and
- $2 million for the savings in vehicle system test and evaluation and the reduction in modifications to the prime equipment.

2.26 The savings were to be returned to the Defence Portfolio and the Project cost cap reduced, however Defence documentation states that the savings were combined with the project contingency and consideration would only be given to returning the savings to the Portfolio if the offer was accepted and value for money proven. The claimed Defence savings were not realised.

Development of sole source acquisition strategy

2.27 In May 1998, the then Minister for Defence noted Defence's intention to progress Phase 2 as a sole source acquisition through the existing Contractor and publicly announced the decision in June 1998. Cabinet gave approval for Phase 2 in early 1999 at a cost of $250 million (Dec 1998 prices).

2.28 The Equipment Acquisition Strategy was subsequently amended in September 1998 to combine the upgrade phases by amending the Phase 1 Upgrade Contract to include the scope of Phase 2. This was to be achieved through two CCPs to delay Phase 1 production (CCP One), and then combine the two phases (CCP Two).

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[25] The amount identified if the phases were kept separate and sole sourced to the Contractor.

[26] The amount identified through combining the two phases and sole sourcing to the Contractor.

2.29 CCP One was to be issued by the end of September 1998, to maximise savings through the timely conclusion of the Phase 1 activities. Defence planned to evaluate the CCP Two offer around November 1999 to confirm that it satisfied the technical requirements and offered value for money. This stage was to conclude with contract negotiations and amendment of the Phase 1 Contract to reflect the CCP Two offer.

Schedule and performance

2.30 As part of the original Phase 1(a) contract, there was a requirement for the delivery of prototype vehicles to Defence for trial purposes.[27] It was originally intended that all Phase 1 components would be subject to test and evaluation. However, Defence documentation shows that four prototype vehicles, which did not include all Phase 1 components, were delivered by the Contractor in July 1998 (three months later than planned). At this time, there was no accepted delivery of prototype sights (an integral component of the turret).

2.31 Trials were conducted in August and September 1998 and included a Functional Configuration Audit, a Physical Configuration Audit and user trials. In December 1998, a critical design review was conducted in order to close Phase 1 and identify issues to be rectified in Phase 2. Whilst prototype sights were provided at this time, they did not meet the requirements of the specification. The sights were to be provided by March 1999 for testing however, three redesigned turrets were provided in August and September 1999. The Contractor advised the ANAO that:

> the redesigned turrets provided in August and September 1999 were to a different specification ARMY (AUST) 5319 than that originally contracted. The revised specification was developed by the IPT [Integrated Product Team] for an up-armoured turret that met a higher threat level than the contracted turret.

2.32 The Contractor agreed that there were still some concerns with the turret sight and provided Defence with a proposal to procure an alternative sight. In 1999, Defence obtained legal advice from the Australian Government Solicitor on whether or not to claim liquidated damages due to the continual delay in delivery of the sights. Subsequently no liquidated damages relating to the prototype turret sights were sought.

2.33 As part of the user trial, the cooled drinking water system was not considered to be an economic use of space for the limited benefit it provided. It was recommended that the cooled drinking water system should not be

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[27] This trial was to: identify the capability gap between the upgraded vehicle and the requirements of the Major Capability Submission; conduct a user assessment of the vehicle; identify occupational health and safety deficiencies; and to conduct an engineering assessment to determine integration and interoperability of the vehicle.

proceeded with further. The drinking water capability was subsequently removed from the Contract as part of a Contract amendment. Defence paid some $25 000 up to this point for the design, procurement and provision of the prototype cooled drinking water system.

2.34 Defence documentation shows that the four prototype vehicles did not include all Phase 1 components as stipulated in the Phase 1(a) Contract. The ANAO considers that it would have been prudent for the prototype vehicles to include all component parts and appropriate integration.

3. Contract Suspension and Interim Phase

This chapter examines the period in which the Phase 1 Contract was suspended in June 1999, and several CCPs were developed for the purposes of combining the two phases in 2001.

Suspension of contract

3.1 In order to combine Phases 1 and 2 and sole source to the Contractor, Defence determined that the existing Contract, based on the Defence Purchasing Manual version 101 (DEFPUR 101), was not suitable. It was subsequently decided that the best approach would be to suspend the current Contract and develop a series of CCPs in order to determine a way forward.

3.2 CCP One was for the procurement of a Project Development Plan to suspend Phase 1 production and develop a plan for combining Phase 1 and Phase 2 of the Project. A request for CCP One was submitted to the Contractor in November 1998 with a response due by the end of December. CCP One was subsequently approved in June 1999 at a cost of $3.34 million (Dec 1998 prices).

3.3 For the purposes of developing CCP Two, in March 1999, the Contractor and Defence entered into an integrated product team arrangement to develop the non-commercial component of the CCP Two offer.[28] Defence considered that developing the major Contract amendment through the integrated product team could save time by alleviating the need to undertake the full range of activities ordinarily undertaken as part of a competitive tender process. This included a number of top-level specification documents ordinarily developed to detail specifications to industry.

3.4 Therefore, rather than develop a detailed operating requirement, Defence planned to mix and match available upgrade options within the cost cap as part of the integrated product team process. Defence also determined that the development of a statement of requirement or top level specification for industry was unnecessary as the Contractor would be part of the integrated product team and thus fully informed of the requirement.

3.5 The implementation of recommendations from the Defence Procurement Review of 2003, chaired by Malcolm Kinnaird AO (the Kinnaird Review) should remediate a situation such as this by requiring the

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[28] It was envisaged that the role of Defence integrated product team members would be to ensure that Defence: had visibility of the progress of the project at various levels; could contribute source data from their own experience; and could participate directly in activities such as specification and design development and equipment evaluation.

development of appropriate documentation in line with the first and second pass approval process.

Amalgamation of project phases

3.6 The objective of CCP Two was to combine the two phases and was presented to Defence by the Contractor in November 1999 as a deliverable of CCP One. CCP Two was assessed between December 1999 and January 2000 by three Offer Evaluation Working Groups.[29]

3.7 A number of issues came to light during evaluation of CCP Two:

- the Contractor's offer was significantly higher than what Defence had budgeted for (the Defence Capability Committee subsequently denied a request for additional funding of $145 million);
- it was thought that as the offer had been developed by the integrated product team with full visibility, the evaluation should be focussed on assessment of value for money and not whether it was a technically acceptable solution;
- the specification did not reflect what was agreed by the integrated product team;
- the reliability, maintainability and support costs were inadequate; and
- the M113 turret was treated as a separate item to the vehicle.

3.8 It was identified that a key risk in proceeding with CCP Two was that the Contractor might not be able to successfully integrate the subsystems. Risk was also identified in the schedule, performance testing, Defence exposure to liability and their ability to support the offered solution given the lack of detail in this area.

3.9 The report assessed the CCP Two offer as 'unsatisfactory' and remedial action was not considered possible without substantial change and/or alteration of the offer's substance. The Defence Evaluation Board recommended that the CCP Two offer be declined.

3.10 In October 1999, Defence considered that current project funds were insufficient to meet the requirement. They acknowledged that whilst the decision to combine Phases 1 and 2 and to proceed on a sole source basis was predicated upon $20 million savings, the labour at Commercial Support Program rates was only 5 per cent of the total estimate. Subsequently, Defence

[29] The working groups consisted of: Capability/Technical; Integrated Logistic Support; and Management/Business/ Contracting/Australian industry involvement.

stated that 'the expected savings of 50 [per cent] on such a small part of the contract was, in retrospect, a poor basis for the sole source decision.'

3.11 CCP Three was submitted with CCP Two in November 1999. CCP Three was developed by the Contractor to produce two initial production vehicles to prove the design prior to the commencement of production. With a cost cap of $10 million, this included funds for the purchase of hardware required for the initial production vehicles. The two CCPs were linked to accommodate the Contractor proceeding with work on the initial production vehicle design under CCP Three whilst the CCP Two offer was being evaluated. Like CCP Two, the Evaluation Board found the content of CCP Three was insufficient for evaluation as it was not supported by cost breakdown or a Statement of Work. The provisional CCP Two Evaluation Report stated that as the Contractor was unwilling to consider amendment, CCP Three should also be rejected.[30]

Phase 1 postponement costs

3.12 The Contractor had advised Defence in December 1999 that they were incurring costs due to maintaining the Project Team they had formed in anticipation of undertaking the work contained in CCP Two. Defence subsequently wrote to the Contractor stating that:

> the Commonwealth has not authorised, and does not authorise, Tenix to proceed with any work identified in either draft CCP unless and until the CCP is approved, and I advise that any work undertaken in relation to the draft CCPs, including work undertaken to date, is entirely at your own risk.

3.13 In early March 2000, the Contractor wrote to Defence advising that they intended to claim costs. The Contractor proposed to submit an invoice each month, commencing in March 2000 for approximately $333 500. The Contractor stated that this claim did not address the issue of costs incurred before 15 March 2000 as they felt this was a separate matter for resolution once the project was finalised.

3.14 At the end of March 2000, the Contractor revised their claim into two categories:

- Postponement Costs—arising from maintaining the capability to perform work under the Contract following cessation of the current postponement of $144 456 per month; and

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[30] In December 1999, the then Defence Acquisition Organisation initiated a review to determine the most efficient and effective way to progress the M113 Upgrade Project in terms of value for money. This Review submitted its report in January 2000. The review found that (among other issues): 'there is no suitable 'off the shelf' turret that will meet all requirements. Unless the Contractor completes a detailed concept design, continuation of the Contractor's turret option is unacceptable.'

- Capability Retention Costs—arising from maintaining the capability to perform the additional work under CCP Two of $219 107 per month.[31]

3.15 The Contractor issued an invoice for postponement costs in May 2000 for the months of March and April, for a total amount of $162 842. The ANAO understands that a further eight claims were made equalling $1.18 million. In addition to these postponement costs, the Contractor invoiced the Project $95 641 for five months worth of GST and escalation charges on the previous invoices. Defence documentation indicates that $1.28 million was paid to the Contractor for postponement costs.

Change in project scope

3.16 In May 2000, Defence redefined the scope of the M113 Upgrade Project agreeing that the life of the M113 fleet would be around 2020. A mixed fleet would now be necessary as only approximately 160 vehicles could be upgraded to an AS3 standard within the cost cap. The balance of approximately 190 vehicles would be upgraded to the A2 standard. It was still acknowledged that most of the upgrade kits for the A2 standard, already purchased as Government furnished equipment, could be fitted to vehicles through the Bandiana rebuild line and there would be a further delay of up to two years in the introduction into service of the vehicles.

3.17 A decision to reject CCP Two, combined with the new requirements for a mixed fleet and prototype phase required the development of another contracting strategy. The preferred strategy identified by the Project Board was to have dual contracts with the mockup phase performed under a CCP to the existing Phase 1(a) Contract and a new contract developed for the prototype and a Major Upgrade Contract for a mix of A2 and AS3 configured vehicles. This would permit the Contractor to proceed with turret development and vehicle mock up work as soon as the Project was authorised to continue.

3.18 In August 2000, the Equipment Acquisition Strategy was amended to reflect the change in project scope and new contracting strategy. The ANAO considers that this was the fourth major change from the original acquisition strategy set in 1993 for the Minimum Upgrade of 537 vehicles (see Table 3.1).

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[31] Defence maintained that the liability of Capability Retention did not rest with the Australian Government.

3.19 It was still anticipated that combining the phases and sole sourcing to Tenix would result in savings to Defence, however, these savings were revised given the delay in concluding the final upgrade requirement.[32]

3.20 Defence was to return any savings made to the Portfolio Budget. The ANAO understands that this did not occur. Defence advised the ANAO that:

> TMSPO [Tracked Manoeuvre System Program Office] confirms that the money was not returned vide a discrete project approval reduction. However, this was obviated by the return of the **entire** Phase 2 project approval in 2001. The scope and budget approved for the project post–2000 was premised on the cost of production of vehicles at Bandiana using the support contract with Tenix, ie it pre-empted and incorporated those 'savings'.

Table 3.1
Acquisition strategies throughout the project

Phase	Acquisition Strategy
1993	
Phase 1 Phase 2	Minimum upgrade of 537 vehicles following evaluation of two prototypes. Minimum upgrade of remaining fleet.
1994	
Phase 1 Phase 2	Project cost increase, upgrade to A2 standard with possible reduction in vehicle numbers. Upgrade maximum number of remaining fleet to A2 standard.
1995	
Phase 1 Phase 2	Upgrade 364 vehicles to A2 standard with components procured under six sub-phases. Upgrade a further 154 vehicles to A2 standard.
1998	
Combined Upgrade	Phase 1 and 2 combined for mixed A2/AS3 fleet to be sole sourced to Tenix.
1999	
Combined Upgrade	Phase 1 and 2 combined for mixed A2/AS3 fleet to be sole sourced to Tenix, including prototype phase.
2000	
Combined Upgrade	Phase 1 and 2 combined for mixed A2/AS3 fleet (minimum 350 vehicles) to be sole sourced to Tenix, including prototype phase.
2002	
Major Upgrade	Phase 1 and 2 combined for mixed AS3/AS4 fleet (350 vehicles including 259 stretched). Sole sourced to Tenix including three stages developmental vehicle, initial production vehicle, and production. Planned delivery of vehicles between 2006 and 2010.

Source: ANAO interpretation of Defence documentation.

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[32] It was stated that: 'if the upgrade had commenced in 1999/2000, as originally proposed by Tenix, then the potential savings would have been optimised. The change of project scope and associated schedule slippage together with the requirement to prove the performance of the M113AS3 vehicle solution during the prototype phase significantly reduces the identified savings. Given the current position the potential savings to the Commonwealth are approximately $11.5m calculated as follows:

- $3.5m for the reduction in the Phase 1 contract by halting production and not performing the vehicle stripping and re-assembly twice;
- $8m for installation and fitout based on the reduction in direct labour costs using the Commercial Support Program labour rate advantage at Bandiana.'

Defence roundtable discussion

3.21 CCPs Two and Three were formally declined in early October 2000. In response to this, the Contractor advised the Project Office of its intention to proceed with work identified in CCP Two 'in order to maintain schedule, and because the Contractor has no other gainful employment'. On the advice of the Australian Government Solicitor, the Project Office advised the Contractor that Defence had not authorised any work under either CCP, and that any work undertaken would be at the Contractor's own risk.

3.22 In late October 2000, Defence conducted a roundtable meeting of M113 Upgrade stakeholders to identify capability performance issues, cost impacts and risks involved in upgrading up to 350 M113A1 Armoured Personnel Carriers to an AS3 standard or limiting it to an A2 standard. The Minister was then informed of the outcomes in November 2000.

3.23 It was decided that there was no reason to believe that there were better value for money replacement vehicle options and that upgrading the M113s was feasible as current hull integrity issues were manageable.[33] However, the upgraded M113s would no longer be amphibious due to increased weight, but would be transportable by C130H/J aircraft and rail. Army's existing eight tonne Mack trucks would no longer be able to transport the upgraded M113s. It was also identified that the original decision to accept the sole source option was based on savings that may not accrue to the Australian Government given the changes to the project cost and acquisition strategy.

3.24 The roundtable concluded by recommending a three phase approach for the way forward involving:

- Phase 1: Project Definition Study and Mockup Phase to be implemented through a CCP at a cost of $5–10 million and completed around end 2001 to early 2002;
- Phase 2: Prototype Phase to provide tender quality information prior to commencement of production phase and to be completed by 2003–04; and
- Phase 3: Production Phase commencing around 2004–05 and production completed around 2008–09 or 2009–10.

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[33] In a November 2000 Board meeting it was made clear that: 'provided that the issue of hull cracking is not dropped during the project definition process, …. it will not be a 'show stopper'… [and] RODUMs [Report on Defective or Unsatisfactory Material] will provide objective evidence'. A technical report on hull cracking was subsequently commissioned.

Interim upgrade of M113A1 to M113A2 standard

3.25 The December 2000 Defence White Paper endorsed the requirement for a 'major upgrade of our M113 Armoured Personnel Carrier fleet with the vehicles planned to enter service from around 2005.' The Defence Capability Plan 2001–10 included the M113 Major Upgrade Project with funding of $500 million.

3.26 Production of the AS3 vehicles was now likely to be performed during 2004–05 to 2006–07. Through combining the phases and the production delay, no improvement was to occur to the M113 fleet for a further five years.

3.27 An interim upgrade, as identified by the roundtable, was highlighted as '… a straightforward task which could be relatively low cost (conceivably nil additional cost) and achievable in a short timeframe.' The components to carry out this upgrade would be provided from stocks already held by Defence.[34] It was identified that work could be performed under the existing Commercial Support Program Contract at Bandiana.

3.28 It was concluded that upgrading a quantity of M113A1 vehicles to an A2 standard would improve both reliability and performance. It was also noted that the equipment which had been purchased under Phase 1 in 1997–98 might be unsuitable for the new AS3 vehicle or that it would deteriorate in storage. On the other hand, it was thought that an A2 upgrade might further delay the AS3 upgrade. Defence advised ANAO that:

> it is believed this was due to a judgement that the disruption and effort of an interim upgrade would impede the contractor's ability to deliver the major upgrade and was not justified for the short period before the major upgrade occurred.

3.29 This interim upgrade did not occur and the original A1 vehicles are still in-service and will remain so until full rate production in 2006 to 2010.

Project definition study and mockup phase

3.30 CCP 13, a proposal for the Project Definition Study and Mockup Phase, was sent to Defence by the Contractor in November 2000. This offer was structured as a series of short-term work packages aimed at further developing the requirements for both the redesigned turret and the AS3 vehicle standard.

3.31 A hybrid A1/A2 mockup demonstration vehicle, including the redesigned turret was developed under the Project Definition Study and

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[34] Including engine cooling kits; suspension kits; spall curtain kits; Quick Change Barrel Machine Guns; and Diehl track.

Mockup Phase to assess whether a vehicle upgraded to this standard was suited to the current operational requirements.[35]

3.32 The Project Office subsequently advised the Contractor that the system design review would not be closed and that the Contractor was not authorised to proceed with the Turret preliminary design review until air transportability issues associated with the vehicle were resolved.

3.33 In order to maintain momentum of the Project, and to obtain some value for the money Defence was obliged to pay the Contractor in postponement costs, the Contractor was directed to proceed with the first part of the M113 Project Definition Phase—risk mitigation.

3.34 In December 2001, the Minister for Defence noted that the Contractor had been directed to proceed with work on the first part of the Project Definition Study phase which was not to exceed $2 million. A brief to the Minister noted that the Project Definition Study was likely to cost a total of $10 million and that a submission would be provided to the Minister early in the new year.

3.35 Defence documentation notes that the scope of CCP 13 resulted from joint exploration between Defence and the Contractor. This meant that there was: no formal request for a CCP; no evaluation criteria developed; and no evaluation report. Evaluation was instead focussed on the requirements as specified by Defence to the Minister. This was the 'development of a mockup vehicle to usefully investigate weight and space concerns in relation to the proposed vehicle and continuation of turret development.'

3.36 One of the main reasons given to explain why the normal process for evaluating the CCP was not followed, was that the purpose of the CCP was to reduce the risk of the Project and was therefore low risk itself. CCP 13 amended the price and delivery schedule of the existing Phase 1(a) Contract by removing $9.71 million (Dec 2001 prices) worth of work to allow for the Project Definition Study Phase.

3.37 Defence's Capital Equipment Procurement Manual (CEPMAN1), Part 3 Chapter 7 states that a real variation[36] which is more than $8 million and less than $20 million should have the concurrence of both the Minister for Defence and the Minister for Finance and Administration.

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[35] As part of this, a number of trials occurred: the Turret system readiness review—held in July 2001, six weeks later than specified in the contract schedule due to additional work performed on the vehicle following demonstration of the mockup vehicle to units in Darwin and Townsville; and the turret system design review—held in August 2001, during which Defence raised some concerns with the turret structure, weight and armour.

[36] A real variation is defined as 'increases/decreases to the level of expenditure arising from a change in the nature or scope of the original proposal…'.

3.38 CEPMAN1 states that 'where real cost increases to a project are identified, every effort is to be made to absorb such increases within the existing level of Project Approval'. Whilst the Project Office did do this, the ANAO was unable to find any documentation to show that approval for both the reduction in scope and the subsequent increase in scope for the Project Definition Study Phase of $9.71 million was sought from the Minister for Defence and/or the Minister for Finance and Administration (see Table 3.2).

Table 3.2

Project approving authorities

M113 Upgrade Project Cost	Governance Rules		M113 Upgrade Project Compliance
	Total approval amount	Approval Authority	
Major Upgrade $593.95 million (2002 prices)	Greater than $20 million	Cabinet	The Project did obtain Cabinet approval
Minimum Upgrade $39.87 million (1993 prices)	Greater than $20 million	Cabinet	The Project did obtain Cabinet approval
Real cost increase of $9.71 million (2001 prices)	Less than or equal to $20 million	Minister for Defence with the concurrence of the Minister for Finance and Administration	The Project did not obtain Ministerial approval. However, the Minister for Defence noted the likely cost
Real cost increase of $7.3 million (1995 prices)	$8 million or less.	Minister for Defence	The Project obtained Cabinet approval

Source: ANAO interpretation of Defence documentation.

3.39 The ANAO considers that original approval was given for a minimum upgrade including the procurement of 230 turrets. The introduction of a Project Definition Study Phase using funds previously approved for capital equipment to essentially develop a new contract, was a significant change in the scope of the Project and therefore should have been treated as a project variation.

3.40 Defence advised the ANAO in July 2005 that:

> contrary to the opinion expressed in the audit report, Defence believes that the change in contract scope referred to … was within the broad revised project scope that had been endorsed by Cabinet in the Defence White Paper and Defence Capability Plan. The contract change was for an activity that was necessary to deliver the revised capability endorsed by Government vide these documents and was well within the project funding approved at that time. Hence the contract change did not require a further approval by the two Ministers.

Recommendation No.1

3.41 ANAO recommends that the Defence Materiel Organisation put in place control mechanisms to ensure that changes in scope are approved at the appropriate level.

Defence Response

3.42 Agreed. Defence has already put in place control mechanisms to ensure that changes in scope for all projects are approved at the appropriate level. These include first and second pass acquisition business cases, Materiel Acquisition Agreements (MAA), and processes to amend MAAs.

Development of draft contract

3.43 In June 2001, the Contractor was directed by Defence to raise a change proposal (CCP 14) for the development and submission of a draft contract. In July 2001, CCP 14 was approved, amending the Phase 1 Contract to allow the Contractor to develop a draft production contract for the combined upgrade.[37]

3.44 The Contractor's response addressing the Major Upgrade Contract was evaluated in November 2001. Offer evaluation was undertaken by working groups.[38] Significant deficiencies were identified including: the Contractor not accepting responsibility for the performance of the system as a whole due to the significant amount of Government furnished equipment involved; and the omission of key elements in the Statement of Work including transportability requirements, technical documentation requirements and Life Cycle Costs.

3.45 Schedule risk was also considered to be high and the intention to meet the in-service date of 2005 considered overly optimistic, given that there was no buffer to account for schedule slippage.[39] The significant amount of Government furnished equipment to be provided was considered likely to increase the probability of delays to production. It was considered unlikely that Defence would be able to provide all Government furnished equipment in a serviceable condition at the time that it was needed, particularly if those parts were carried over in a used condition from the M113A1 vehicles.

3.46 Despite the non-compliance of the Contractor's offer, all working groups concluded that the issues identified could be addressed to reach a

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[37] Defence also allowed the Contractor to commence work on the development of the proposed Contract whilst the CCP was being developed.

[38] The purpose of the evaluation was to: confirm that the required upgrade can be accommodated within the Project cost cap; confirm that the offer provides value for money; and identify issues for negotiation in the planned Production Contract.

[39] The in-service date, negotiated as part of the Contract is late 2006.

position acceptable to Defence through contract negotiation. The ANAO notes that subsequent negotiation addressed all these issues of concern.

3.47 Whilst integrated logistic support was considered at length during contract negotiation, it was separated from the Prime Contract before signature pending a Logistic Support Analysis to be conducted by the Contractor.[40] Defence documentation dated September 2004, stated that the required integrated logistic support data and plans were only now starting to be delivered.

3.48 The offered price of the Contract was based on Commercial Support Program labour rates plus overheads. The commercial working group noted that the sole source strategy was based on labour being offered at Commercial Support Program rates only (quoted as $25 per hour) and that the overheads added roughly 25 per cent to the base Commercial Support Program labour rate (approximately $5 million).

3.49 In July 2002, the Commercial Support Program Contract was amended to extend the performance period due to end in April 2004, to an end date of April 2010 for any work relating to the M113 Upgrade Project. This would allow work to continue until the end of the M113 Major Upgrade Contract.

3.50 One of the main reasons given for combining Phase 1 and 2 and subsequently sole sourcing the Contract to Tenix was the use of the labour rates offered under the Commercial Support Program arrangements at Bandiana.

3.51 The current Contract states that the average labour rate (excluding executive rates) is approximately 39 per cent higher than the original Commercial Support Program hourly labour rates (not including overheads). The current hourly labour rates are significantly higher than the amount of $25 per hour as originally stipulated.[41]

3.52 Approximately 355 600 hours of work is to be performed on upgrading the vehicles under the Commercial Support Program Contract as compared to approximately 187 900 hours under the Major Upgrade Contract (see Figure 3.1). The Commercial Support Program Contract costs are not included in the M113 Project costs.

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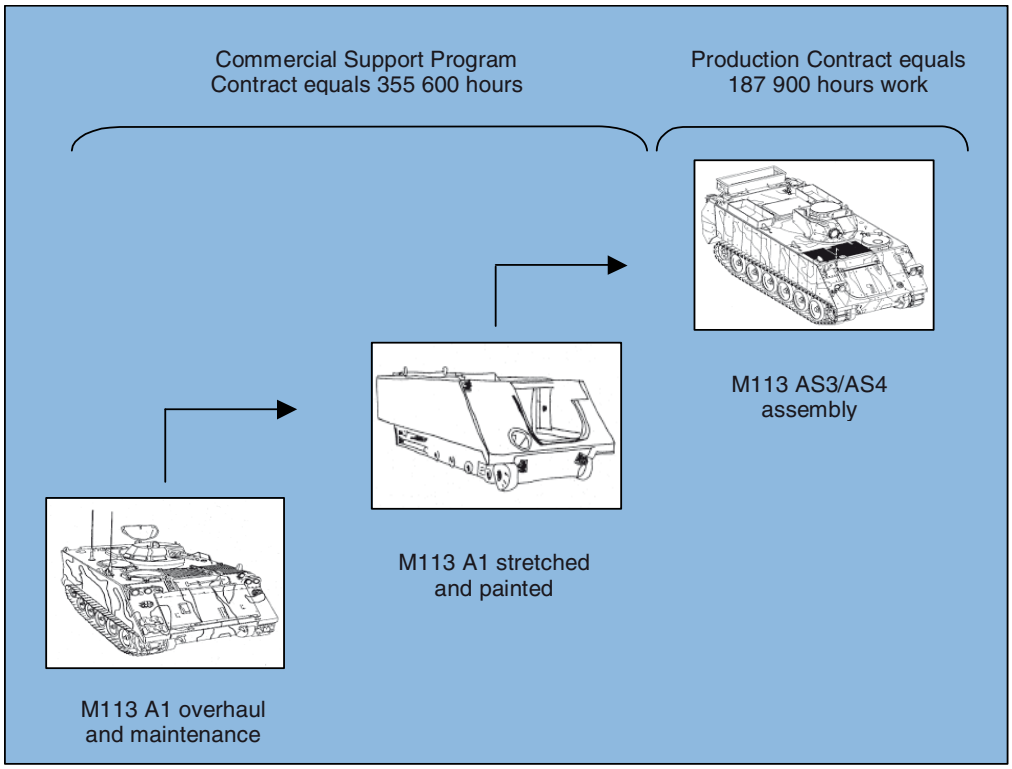
[40] The Contractor is contracted to undertake a Logistic Support Analysis, a Level Of Repair Analysis, Reliability and Maintainability Analysis, a Provisioning Analysis and an Integrated Support Plan.

[41] Under the Commercial Support Program Contract the labour rates are increased annually according to a specified formula.

Figure 3.1

Work to be performed under the Commercial Support Program and Major Upgrade Contract



Source: ANAO interpretation of Defence documentation.

3.53 Labour rates are also specified in the M113 Major Upgrade Contract and are different to those stipulated in the Commercial Support Program Contract.[42] They include rates for:

- Tenix Land Division (Military Vehicles) labour categories based in Adelaide;
- Tenix Land Division (Bandiana) labour categories; and
- Tenix Systems Division labour categories (includes senior management).

3.54 These rates include a direct labour cost, plus an overhead component for labour, warranty, profit, as well as divisional and corporate level fees. Under the Major Upgrade Contract, the Adelaide hourly labour rates are

[42] Labour rates within the upgrade contract are valid for three years after Effective Date. Therefore rates may be increased in August 2005. The Contract stipulates that the Contractor will advise as to whether the rates will be increased 6 months prior to the validity date (March 2005).

98 per cent higher than the Bandiana hourly labour rates. A major reason for this is the significantly greater labour overhead applied to the Adelaide hourly labour rate.

Phase 1 costs

3.55 By February 1999, before the Contract had been suspended, the ANAO calculates that some $9.70 million had been spent from the Phase 1 Prime Contract. Of this, only $5.60 million had been spent on contract deliverables while $4.21 million was paid as an advance payment. After the decision to sole source the combined upgrade project in 1998, the Contractor was funded to undertake a number of activities towards developing an acceptable combined upgrade proposal (see Table 3.3).

3.56 The total amount paid to the Contractor to develop these proposals was $18.30 million including postponement costs of $1.28 million. The ANAO has calculated that, from signature of the Phase 1(a) Contract in May 1997 to signature of the new contract in July 2002, Defence paid the Contractor $27.80 million (original total budget of $29.19 million Dec 1996 prices).

3.57 Of the $4.21 million advance payment made in 1997, only $970 000 has been offset against deliverables in the Contract.[43] The remaining amount of $3.24 million is currently a debt owing to Defence. Defence advised the ANAO in June 2005 that:

> full recovery of the advance payment against amended contract deliverables was not negotiated into the contract amendment because of Contractor opposition. The Contractor insisted that a large part of the advance payment be held within the Contract against deliverables for a minimum vehicle upgrade which were retained in the Contract as suspended work, in the event, which seemed likely at the time, that some interim minimum upgrade work was reinstated. As this will now not occur, the Contractor has agreed to transfer residual work from this Contract into the major upgrade Production Contract, and the outstanding advance payment will be immediately and fully recovered against deliverables in that Contract before further payments to the Contractor, expected to occur July–August 2005.

[43] Financial securities were provided by the Contractor to Defence in accordance with the Minimum Upgrade Contract.

Table 3.3

Contract deliverables to combine phase 1 and 2

CCP	Cost ($ million May 1995 prices)	Key Deliverables
CCP One (June 1999)	3.34	Project Development Plan and suspension of Contract
CCP13 (April 2001)	8.96	Project Definition Study and mockup vehicle with turret
	1.28	Postponement costs
CCP14 (July 2001)	1.44	Prepare draft Major Upgrade Contract
CCP17 (Dec 2001)	2.59	Purchase long lead items for demonstration vehicles
CCP15 and 20 (Aug 2002)	0.69	Turret design changes and additional lead items for demonstration vehicles
TOTAL	**18.30**	

Source: ANAO interpretation Defence documentation.

3.58 The ANAO has estimated that the opportunity cost foregone by the Australian Government, as at mid 2005, as a result of the mobilisation payment made to the Contractor not being off set, would amount to some $1.34 million. This is based on interest foregone using the overnight cash rate used by the Reserve Bank of Australia on Australian Government funds.

Recommendation No.2

3.59 ANAO recommends that the Defence Materiel Organisation recover against deliverables, the outstanding amount of the May 1997 mobilisation payment remaining from the Phase 1(a) M113 Upgrade Contract at the earliest opportunity.

Defence Response:

3.60 Agreed. The contract change required to achieve this has now been agreed with the Contractor and Defence expects to finalise this issue by September 2005.

4. Management of the Major Upgrade Contract

This chapter examines the scope and content of the new Major Upgrade Contract signed in 2002 including a discussion of activities performed to date. The capability, schedule and financial performance of the vehicle and Project are also analysed.

Management of the upgrade project

4.1 The M113 Major Upgrade Project was approved at a cost of $552 million (2002 prices), including previously approved funding of $62.13 million (2002 prices). Of this, $388 million is for the Prime Contract with the residual consisting of items such as project costs, contingency and a lump sum set aside for integrated logistic support.

4.2 The Major Upgrade Contract for the supply of 350 upgraded M113 vehicles in seven variants was signed between Defence and Tenix on 15 July 2002. It was originally planned that the Phase 1 Contract would be closed at the time the Major Upgrade Contract was signed. Defence advised the ANAO in July 2005 that it expects to finalise this issue in September 2005. The Major Upgrade Contract has been broken down into three stages.

Demonstration vehicles—stage 1

4.3 Under this first stage, the Contractor was required to build two demonstration vehicles: an Armoured Personnel Carrier; and an Armoured Logistics Vehicle at the Contractor's Adelaide plant (using Adelaide labour rates).[44] By early 2004, on the basis of available evidence, the Contractor was advised that they were allowed to progress through stage 1 to stage 2 as there were no significant issues identified that could not be addressed within the current budget and schedule.[45]

4.4 The ANAO understands however, that two concerns were identified and were outstanding; 'namely heat in relation to the effect on both the vehicle systems and its occupants whilst operating in the climatic conditions that can be expected in the northern regions of Australia, and the provision of the required integrated logistic support data'. The ANAO understands that these issues are still outstanding and represent an on-going risk to schedule and performance. Defence advised the ANAO in June 2005 that:

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[44] The aim of the first stage was for the Contractor to develop the proposed production concept, verify proposed production methods, and collect data to allow planning to commence for future stages.

[45] If testing of the demonstration vehicle identified areas of concern that could not be addressed, Defence had the ability to cancel the Contract.

contrary to the indications at the end of Stage 1 that these would be resolved readily, they remain outstanding. More extensive vehicle testing has identified continuing engine heat problems, which the contractor is addressing. Delivery of ILS [integrated logistic support] data remains problematic, but has improved. Both these issues represent an on-going risk to schedule and performance that must be fully resolved before approval for Stage 3 is given.

4.5 The Contractor advised the ANAO that:

> the heat issue with respect to heat transfer through the bulkhead walls into the crew compartment has been resolved and incorporated into the data pack. Solutions have been identified and re-testing has commenced. The Contractor will now conduct internal testing to satisfy itself that the solution meets the contract requirements.

4.6 Production of the demonstration vehicles and subsequently the initial production vehicles and the production vehicles has five main process stages before vehicle assembly: hull stripping; hull conversion including stretching; hull assembly including functional test; external fuel tank manufacture; and turret assembly.

Initial production vehicles—stage 2

4.7 During stage 2, the Contractor is required to produce fourteen initial production vehicles for further test and evaluation consisting of all variants at the Contractor's Adelaide plant (using Adelaide labour rates). The initial production vehicles will undergo test and evaluation in order to pass through to the third stage; production. These tests include: a Functional Configuration Audit; a Physical Configuration Audit; and reliability and maintainability demonstrations.

4.8 Defence will also perform a number of tests including a Reliability Qualification Test of two initial production vehicles. The Contractor must successfully pass this test and satisfy the Production Readiness Review before Defence approves for the Contractor to proceed with stage 3. If the Contractor does not pass the review, and fails to rectify the problems within the specified period, the Contract provides another exit point for Defence.

Production vehicles—stage 3

4.9 Full production is due to be completed in late 2010, with initial capability deployment by the end of 2006. Stage 3 is to occur at Bandiana, using the processes developed and proven in Adelaide, with Bandiana operators to undertake training in these processes. Hull conversion[46] will be undertaken in advance of vehicle assembly, with the aim of having between five and ten completed hulls ready for assembly at any one time. Production

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[46] In the Production Plan, the Contractor recommends that Defence stock up to 40 hulls to minimise the risk of running out of components in later assembly operations.

vehicle turrets and fuel tanks will be manufactured at the Contractor's facilities in Adelaide and fitted to the vehicles in Bandiana.

4.10 Acceptance Testing is also to be conducted on the production vehicles to demonstrate that the upgraded M113 and associated supplies meet Contract specifications prior to acceptance by Defence. The objective will be for the Contractor to demonstrate that adequate quality procedures, material and supply certification and assembly inspection is conducted in order to assure the build quality and technical compliance of the production vehicles. The ANAO understands that this will occur with assistance from the Commercial Support Program Contract.

4.11 Defence advised the ANAO that:

> Defence is developing a production acceptance plan which will use sample inspections of both the vehicle hull preparation and the complete vehicle to ensure that all vehicles meet the required specifications and quality.

Capability performance

4.12 Each vehicle, under the M113 Major Upgrade Contract, will cost between $700 000 and $1 million depending on the variant (see Table 4.1). There are seven variants in the M113 fleet with 259 at an AS4 standard. Negotiation is underway to stretch the 12 Recovery Vehicles.

Table 4.1

Contractual vehicle variant numbers and unit price in Dec 2001 prices

Variant	Number of vehicles	Unit Price
Armoured Personnel Carriers to an AS4 standard	171	$1 054 903
Fitters Vehicles to an AS4 standard	38	$854 675
Armoured Logistic Vehicles to an AS4 standard	50	$681 413
Mortar Vehicles to an AS3 standard	21	$652 811
Armoured Command Vehicles to an AS3 standard	43	$689 569
Armoured Recovery Vehicles light to an AS3 standard	12	$693 959
Armoured Ambulance Vehicles to an AS3 standard	15	$721 736
TOTAL	**350**	

Source: ANAO interpretation of Defence documentation.

The vehicle

4.13 A final list of Government furnished equipment parts required for the production of each variant will be provided to the Project Office commencing in May 2005. This Government furnished equipment includes not only the components purchased during Phase 1, but also some 700 parts currently used

in the A1 vehicle. The Project Office advised ANAO that members of the project team will assess the Contractor's request for Government furnished equipment and determine what components Defence needs to provide for the production vehicles. Once approved, the Government furnished equipment components will be provided to the Contractor through normal supply procedures performed by the Fleet Manager. This may be achieved using existing stock (if available), refurbished stock, or new stock.

4.14 The Contract provides that where Defence fails to deliver or provide access to Government furnished equipment, the Contractor may claim postponement of the date for delivery of the affected supplies as well as postponement costs, subject to other contractual limitations. Whilst Defence is also responsible for providing vehicle hulls that have been prepared and stretched, the Contract excludes the ability for the Contractor to claim postponement costs when failure to deliver was a consequence of the Contractor not meeting its obligations under the Commercial Support Program Contract.

4.15 The Defence Materiel Organisation Business Due Diligence Report, June 2004 states that a number of common factors contribute to Defence induced schedule delays. Accordingly, one such contributing factor is delay caused by late or inadequate Government furnished equipment. The provision of Government furnished equipment within the required schedule is essential to ensure Defence does not contribute to schedule slippage which might leave them open to postponement claims from the contractor.

4.16 Defence advised the ANAO that the Government furnished equipment list is also used to determine the quantity and type of spare parts that need to be purchased by M113 Fleet. These items will be necessary to maintain the A1 fleet whilst the upgrade is being completed in addition to parts that will be required to support the upgraded fleet throughout their life.[47]

4.17 The Project Office advised the ANAO in November 2004 that although the Government furnished equipment list is not yet finalised, it is likely that 72 complete suspension kits will be used on AS3 vehicles, whilst some individual parts of the suspension kits will be used on the stretched vehicles.[48] Additional parts required for the suspension system may also need to be purchased by the Project to accommodate the increased vehicle weight.

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[47] Defence advised the ANAO that Government furnished equipment involves complex issues in three areas: procured Government furnished equipment in the form of kits; reclaimed and refurbished components from stripped A1 vehicles to be used on upgraded vehicles; and Government furnished equipment items manufactured under the Commercial Support Program Contract on direction from the Program Office.

[48] The Contractor advised the ANAO that the torsion bars supplied with the A2 suspension kits are not suitable for the upgraded vehicles.

4.18 The new engine being provided as part of the upgrade means the engine cooling kits from Phase 1 are no longer suitable. However, Defence advised that the fan (which is the most expensive component of the cooling kit) is likely to be used. The Project Office also advised the ANAO that the machine guns and spall curtains will remain in the upgraded vehicles as carry over parts.

4.19 In 2004, the Project Office purchased additional spall curtain bats to accommodate the extra length of the stretched Armoured Personnel Carriers. The ANAO notes that some spall curtains will have to be replaced as they were transferred to the ASLAV Project due to an operational requirement.[49] Defence advised the ANAO in June 2005 that the replacement of these spall curtains will be at no cost to the M113 Upgrade Project.

4.20 Defence advised the ANAO that Government furnished equipment purchased under Phase 1 that is not used as part of the upgrade may be sold. Alternatively, Defence documentation states that if the suspension and engine cooling kits are not used in the upgraded vehicles, the kits may be fitted to additional M113A1 vehicles. Depending on strategic guidance, these vehicles may either be retained as part of a mixed fleet or otherwise disposed. Figure 1 shows that the vehicles are assembled under the Major Upgrade Contract with Government furnished equipment components fitted to a reconfigured hull (performed under the Commercial Support Program Contract).

4.21 The ANAO notes that the power pack mentioned in Figure 1 is contracted at a cost of some $466 000 per vehicle which equates to about 50 per cent of the contracted amount per vehicle. The power pack includes the engine; transmission; alternator; brake system; drive shaft and all power pack installation.

4.22 The original vehicle had a Detroit Diesel 6V53 engine, rated at around 150kW. The new MTU 199 engine, is a four stroke, turbo charged engine rated at 260kW. As the new engine is more powerful than the 6V53 engine, and takes up more space in the engine bay, it requires a different engine cooling system to the M113A1 and M113A2.

4.23 As discussed previously, although Defence approved for the Contractor to move from stage 1 to stage 2, based on the evidence provided, this was an outstanding issue. In particular the high temperature of the engine was causing failure and heat transfer to the driver and cabin crew. The Contractor advised the ANAO that:

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[49] On Monday 7 March 2005 in response to a Question Without Notice in the Senate, the Minister for Defence stated that the spall curtains to be fitted to ASLAVs: '…are those that were to be fitted to the M113, so if they have not been fitted that is fortuitous.'

the heat transfer into the crew compartment from the engine bay has been resolved and incorporated into the data pack. The high engine temperature does not cause a failure, instead the engine de-rates its output power in a series of steps. It is only when the engine temperature reaches a certain point that the engine shuts down. This is not a failure but a design feature to protect the engine.

Transportation

4.24 The Contract states that the upgraded vehicles are to be transportable by road within Australia, not requiring special permits; by Australian railways within standard loading dimensions, preferably without preparation; shall be transportable on specified watercraft; and be transportable as an internal load in the C–130 (Hercules) aircraft.

4.25 Due to the changes to the vehicle, a number of weight issues have been identified when carrying the upgraded vehicles on the current military transportation vehicles. To overcome these issues the Project Office have stated that it is possible to remove appliqué armour and stowage items to reduce vehicle width and weight.

4.26 The Project Office advised the ANAO in November 2004 that the new track pads being purchased will also assist in ensuring the vehicles are transportable by air by dispersing the ground pressure and vehicle weight evenly throughout the aircraft.

4.27 Support vehicles to lift the upgraded M113 fleet are not being funded by the project. The Introduction Into Service Fundamental Inputs Into Capability Plan states that this will be addressed by Project Overlander,[50] noting that there will be a capability gap until the Project Overlander in-service date.

4.28 Notes of a June 2004 Project Management Stakeholders Group Meeting state that the Project Overlander solution may not be able to transport the M113AS4s. Guidance subsequently obtained from Project Overlander was that: the M113AS3 vehicle will be transportable by either the Heavy Truck variant or the Equipment Transporter Trailer in combination with one of the Tractor variants; and the M113AS4 vehicle will be transportable by the Equipment Transporter Trailer in combination with one of the Tractor variants.

4.29 The ANAO understands that there may be a reduction in lift capability as the number of vehicles to be procured by Project Overlander will be significantly less than the number of vehicles originally used to lift the M113A1 vehicles.

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[50] Project Overlander (Land 121) is a multi–phased project to provide the ADF with field vehicles and trailers to meet its mobility requirements.

Protection

4.30 Each vehicle will be able to be fitted with appliqué armour however, only 183 sets of armour are to be procured. The Armoured Personnel Carriers, Fitters, Mortar, Ambulance and Command vehicles are also to include external fuel tanks. The new vehicles, both the AS3 and AS4 variants are substantially different to the existing fleet of A1 vehicles (see Table 1.2).

4.31 During negotiation, Defence was not satisfied with the protection element of the Contractor's offer (an in-house solution). It was agreed however, that in order not to delay the whole contract, the 'essential' level of armour would stay in the Contract and the Contractor would submit a CCP for increased protection six months after contract signature. In order to be 'an informed buyer' Defence conducted an armour review which compared various technologies being used around the world. The review concluded that the Contractor's offer was of the least suitable technology reviewed.

4.32 It was recommended that the solution should not be considered further. ANAO now understands that an acceptable solution has been agreed and a CCP is now being finalised. This includes an increase in turret protection which will increase the mass of the turret from 1400kg to 1500kg.

Schedule performance

4.33 Defence has an established process of engineering and contract change proposals which generally lead to a formal contract amendment. Change proposals can be initiated by either Defence or the Contractor and contain all details and costs of the change. Since contract signature, a number of changes have been made to the Major Upgrade Contract. At the time of audit $19.87 million worth of contract changes had been initiated since the Contract was signed in 2002.[51] Of this, $19.50 million is being negotiated and awaits final outcome.

[51] Due to the offsetting removal of some $19.50 million the contract changes have a net worth of $0.37 million.

4.34 Cost, Schedule, Status Reports (CSSRs) are used by Defence to monitor the performance of the Contractor. Table 4.2 shows that a number of reports have been provided to Defence by the Contractor (as at 2 February 2005) for a total cost of some $530 000. As well as providing these reports (which Defence pays for monthly) Defence also pays the Contractor for management of the underlying schedule system from which the reports are produced. As at 2 February 2005 this amounted to some $440 000.

4.35 In total, Defence is contracted to pay the Contractor over $2 million for the provision of 94 CSSRs and over $1 million for 100 payments for the management of the CSSRs. Defence documentation shows that the last payment for a report was on 17 August 2004, however payments for the management of the CSSRs has been paid up to 2 February 2005.

4.36 Defence advised the ANAO in June 2005 that:

> these payments have been separately identified in the Contract. The contractor has been maintaining and using their schedule system: hence has been paid for these; but have not provided reports recently as they have been replanning their schedule, and hence have not been paid for this.

Table 4.2

Cost, schedule and status reporting costs

	Amount Paid (as at 2 Feb 2005)	Amount remaining to be paid	TOTAL amount payable
CSSR Reports	$531 130	$1 797 922	**$2 329 052**
CSSR Management	$441 256	$892 523	**$1 333 779**

Source: ANAO interpretation of Defence documentation.

4.37 By early 2005, the Contractor was late in providing a revised schedule to the Project Office against which the Contractor's performance could be assessed however, the in-service date would remain as November 2006. The production of some variants would slip up to six months. Part of this problem with producing a schedule was due to performance issues. The excessive engine heat was also not yet resolved but work by the Contractor on a likely solution was continuing. The Contractor advised the ANAO that:

> solutions have been identified to resolve heat issues. The Contractor has commenced conducting internal testing to satisfy itself that the solution meets the contract requirements. This issue has resulted in schedule delays but is not a reason for the failure to produce a revised schedule.

4.38 In response to the highlighted delay, the Contractor has advised Defence that they will be fast tracking some elements of initial production vehicle testing in order to meet the scheduled in-service date. Figure 4.1 shows that originally, testing of the initial production vehicles was to occur in a linear fashion with Defence conducting the Reliability Qualification Test and a Production Readiness Review before the Contractor was given authority to move to full rate production.

4.39 The new schedule shows that the Contractor will be conducting their own Reliability Qualification Test (before Defence) and proceeding to full rate production based on these results. This revised program shows that not only is the schedule some eleven months later than originally planned, production will occur before the necessary Defence sign off.

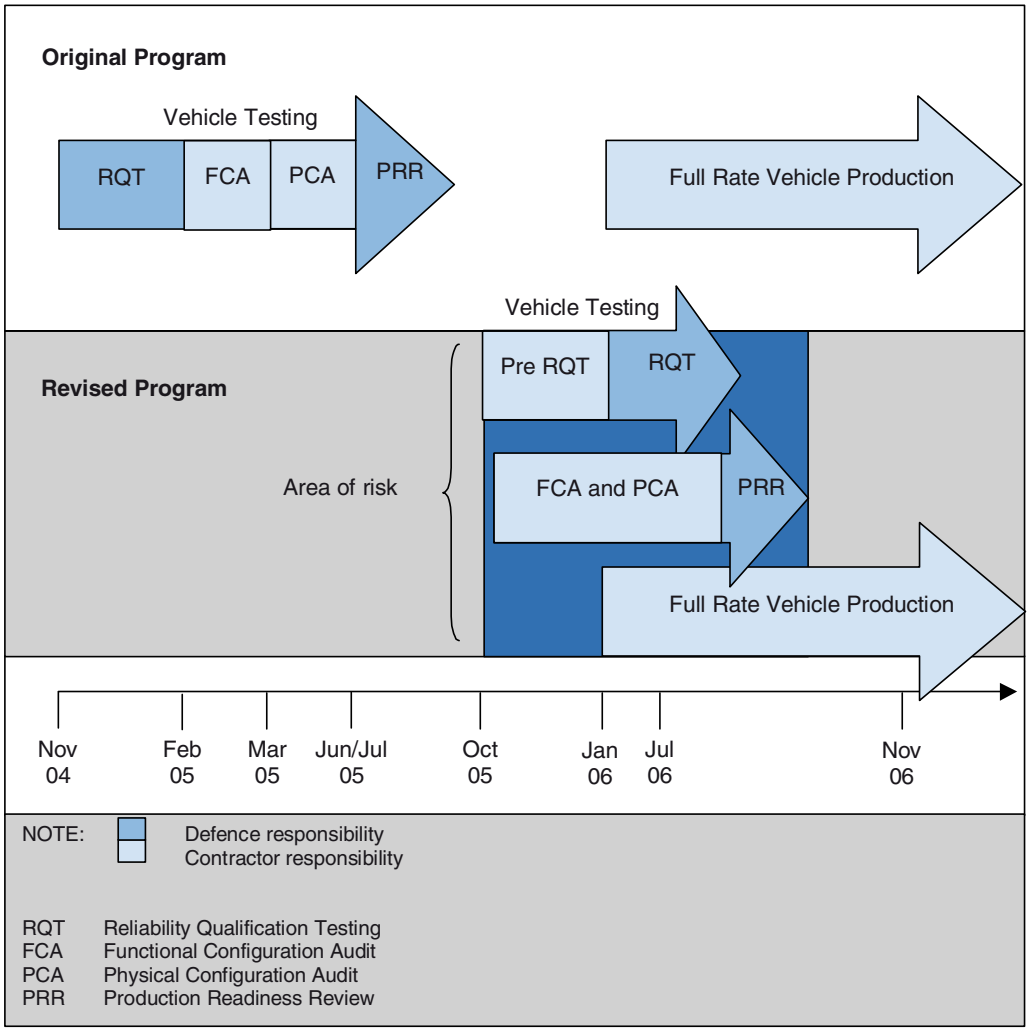
4.40 Defence advised the ANAO in June 2005 that:

> Defence do not intend to pay the Contractor for production work ahead of that approval [to move to stage 3], but is presently seeking legal advice on its contractual liability for any such payments as a matter of normal prudence.

4.41 The ANAO acknowledges that whilst the risk will sit in the main with the Contractor, it is still a high risk option for Defence to receive the capability on schedule.

Figure 4.1

Contract schedule



Source: ANAO interpretation of Defence documentation.

Financial management

4.42 Expenditure on the Prime Contract to June 2004 has been $76.80 million; total Project expenditure (including Phase 1 expenditure) to June 2004 has been $137.29 million (see Table 4.3). The Defence Portfolio Budget Statement 2005 states that cumulative expenditure to 30 June 2005 will be $184 million. As at the end of 2004, the M113 Upgrade Project had been allocated $48.72 million for price indexation (Australian Dollars) and $1.11 million for fluctuations in foreign exchange.

Table 4.3

Actual expenditure to 2004–05

	PRE 2000–01 $ million	2000–01 $ million	2001–02 $ million	2002–03 $ million	2003–04 $ million	2004–05 $ million
CONTRACT COSTS						
Turret Contract	10.64	2.47	3.90	5.26	1.00	—
Major Upgrade Contract	—	—	—	51.05	25.75	37.14
SUB TOTAL	*10.64*	*2.47*	*3.90*	*56.31*	*26.75*	*37.14*
PROJECT COSTS						
SUB TOTAL	*29.86*	*1.54*	*0.67*	*1.53*	*3.63*	*0.36*
TOTAL	**40.50**	**4.01**	**4.57**	**57.84**	**30.38**	**37.50**
Cumulative TOTAL	40.50	44.50	49.07	106.91	137.29	174.79

Source: Department of Defence.

4.43 Defence updates the project budget to take into account price indexation three times per year, in conjunction with the budget process. This is described as global updates. As projects can be performed over a long period of time, projects approved using a current price basis are reimbursed to take into consideration fluctuations which are beyond their control. For example the M113 Major Upgrade Project was approved using 2002 prices, payments made to the Contractor in June 2005 will be updated to take into account the time difference.

4.44 The updates are conducted on the unexpended project amount, which includes the Contract amount. The ANAO notes that if Defence pays the Contractor for a milestone which had previously slipped in schedule, payment will only be made up to the original milestone date. However, the Project will have had its unexpended budget reimbursed for fluctuations.

4.45 The ANAO considers that due to this disconnect, an opportunity exists for the Project to take the reimbursement and spend it on other areas within the Project. Defence advised the ANAO in June 2005 that:

> the denial of additional escalation to the Contractor for late milestones acts as a significant incentive for Contractor performance and should be retained.

4.46 The Contract provides options for the purchase of an additional quantity of upgraded vehicles which can be purchased three years from the

Effective Date[52] of the Contract. This option would extend the M113 Upgrade Contract duration by approximately 26 months. The total cost for procuring an additional 170 production vehicles (in five variants) would be $164.70 million (October 2001 prices).[53] This includes an amount of $9.70 million for management support, reports and meetings.

4.47 As part of Defence's management of major capital acquisition projects, an amount of contingency is generally determined and then assigned against project elements. The M113 Upgrade Project Financial Management Plan states that the level of risk, or contingency, has been identified for each element of the M113 Major Upgrade Project. Defence have advised that to date $170 000 has been applied from contingency to CCP 32 for initial production vehicle hull rework.

Payment of Goods and Services Tax Invoices

4.48 Australian Government agencies generally pay and collect GST on the same basis as other Australian entities. They may also recover GST from the Australian Taxation Office.

4.49 In December 2003, the Contractor wrote to Defence stating that whilst to date the Contractor had claimed GST amounts (of foreign currency claims) in the applicable foreign currency it would now be submitting the claim with the GST component converted to Australian dollars. In response, Defence stated that the Project was not in a position to allow this, as the purchase orders were written in foreign currency and the GST was paid against the claim automatically.

4.50 In April 2004, the Contractor wrote to Defence again, asking that the issue be reopened for discussion due to the significant financial exposure the company had when the GST component was paid in foreign currency. Tenix stated that Defence had already accepted this form of payment in the ANZAC ship project. In June 2004 Defence agreed to the Contractor's request to commence in the next financial year.

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[52] The Major Upgrade Contract provides that the Effective Date is 5 August 2002—therefore Effective Date plus 3 years is 5 August 2005.

[53] Noting that: all costs are shown in Australian Dollars and are exclusive of GST; costs would be split into source currency if and when the option is taken up by the Australian Government; and all costs are subject to escalation in accordance with the Contract.

4.51 The ANAO notes that Section 9–85 of *A New Tax System (Goods and Services Tax) Act 1999*, requires the value of taxable supplies to be expressed in Australian currency. Invoices for foreign currency prior to mid 2004 therefore, appear to be invalid. To claim GST credits, Defence must have a valid tax invoice to support each claim for purchases (over $50 GST exclusive).

4.52 The ANAO has calculated that some 84 invoices from January 2002 to June 2004 may be invalid for GST purposes due to the invoices not being denominated in Australian currency. Defence advised the ANAO that the defects were rectified on the invoices presented prior to July 2004 by using the Reserve Bank of Australia rates on the day that the invoices were paid.

4.53 The Contractor now lodges the GST component of foreign exchange claims based on the Australian Financial Review spot retail sell rate on the day of the invoice. The ANAO notes that the Australian Financial Review shows that the retail rate is for up to A$25 000 equivalent.

4.54 A rate more generally used for large overseas currency payments would be the wholesale rate. On a sample of 17 invoice payments between July 2004 and January 2005 of GST amounts between $1000 and $350 000, the ANAO calculates that on average Defence paid a difference of some 80 basis points[54] using the retail sell rate rather than the daily 4:00pm wholesale rate as quoted by the Reserve Bank of Australia. This amounts to a difference of some $15 000 through the use of the retail rate over seven months.[55]

4.55 Defence advised the ANAO in May 2005 that:

> the DMO [Defence Materiel Organisation], as part of routine business, has the Defence Tax Management Office conduct audits of Tax Invoice processing requirements … It also conducts exception audits where any claim that does not attract a flat 10 [per cent] GST component is investigated to ensure that it has been calculated and paid correctly.[56]

Mobilisation payment

4.56 The M113 Major Upgrade Contract provides that Defence pay the Contractor two mobilisation payments equalling $80 million over a three-year period.[57] The first $40 million was paid at contract signature and the second

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[54] Using a weighted average over a 168 day period. Basis points are defined as a measure of fluctuation such that 100 basis points equals one per cent.

[55] See also ANAO Audit Report No.45 1999–2000 *Commonwealth Foreign Exchange Risk Management Practices*, Chapter 3.

[56] Defence advised the ANAO in June 2005 that the Defence Tax Management Office has not specifically audited the M113 Upgrade Program. No audits have been conducted by the ATO on the M113 Upgrade Program.

[57] This equates to two 10 per cent mobilisation payments.

$40 million is due to be paid at the successful completion of the Production Readiness Review for the initial production vehicle Armoured Personnel Carrier variant.[58]

4.57 The Contractor, as security for these payments, are to provide separate Bank Guarantees. The first guarantee of $20 million (50 per cent of the mobilisation payment according to Defence policy) was signed on 11 July 2002. The second guarantee is to be provided at the time the second mobilisation payment is paid.

4.58 Defence documentation states that the reason for splitting the mobilisation payments into two is to ensure minimum expenditure at the two exit points. At the first exit point Defence costs would be limited to $32.80 million, and at the second Defence costs would be limited to $112.60 million (2001–02 prices). Defence advised the ANAO in June 2005 that:

> the reason for splitting the mobilisation payment was solely to match the funding needs of Tenix at each of these points.

4.59 The Contract Negotiation Report states that the mobilisation payment was required for the Contractor to avoid negative cash flow arising from up front payments for subcontractor's equipment. However, the payment schedule, managed by the Project Office, shows that the mobilisation payment will be offset against the work breakdown structure. Whilst the ANAO notes that it is appropriate for the mobilisation payment to be linked in this way to contracted milestones, there is nothing to suggest that the milestones are in fact related to subcontractor payments.

4.60 The ANAO notes that whilst DEFPUR 101 contains a clause stipulating that any advance payment be used strictly for the purposes for which they were advanced, the M113 Major Upgrade Contract was based on the Strategic Material Acquisition Request For Tender (SMART 2000) contracting template. SMART 2000 does not contain a clause reflecting this requirement. The ANAO was subsequently unable to identify any contractual obligation that specified that the advance payment monies were to be spent on the milestone activities or even activities connected to the Contract.

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[58] Defence advised the ANAO in June 2005 that: 'The mobilisation payment is proportionally amortised across all milestones across the life of the Contract. This amortisation schedule does not relate directly to the materials for which the payments are provided, but together with the Contract Payment Schedule, it provides an approximation to the ongoing funding and cash flow requirements of the Contractor over the life of the Contract. Defence Financial Investigation Services determined and reported that the Contractor's overall cash flow was slightly negative.'

4.61 The ANAO also notes that the mobilisation payment offset component is escalated according to the price variation formula in the contract. This means that the amount given as a pre payment in 2002 is escalated to current dollars through the invoicing process. The mobilisation offset will be paid through to 2010 and escalated to that price.

4.62 The second mobilisation payment of $40 million is contracted to be paid at the successful completion of the Production Readiness Review for the Armoured Personnel Carrier. At this time only about $9.67 million and approximately EURO 150 000 will be offset against the first mobilisation payment of $40 million. Further, both mobilisation payments will not be fully consumed and the bank guarantees returned, until December 2010 (at which time the final vehicle is due).

4.63 ANAO has estimated that according to the payment schedule, the opportunity cost foregone by the Australian Government, as at July 2005 (at which time the payment schedule indicates that the second mobilisation payment may be made) would amount to some $3.84 million.[59] This cost will continue to grow as each year passes and additional payments are made, rather than the Contractor drawing down against the mobilisation payments. Defence advised the ANAO in May 2005 that:

> whilst there has been an opportunity cost foregone by the Australian Government this was offset by the reduction in the contract price achieved during contract negotiations. Cost investigation during contract negotiations concluded that the contractor's cash flow, despite being positive at the start and again near the end of the contract, is overall slightly negative, ie no net opportunity cost to the Commonwealth.

4.64 ANAO considers that the better approach is to ensure that the mobilisation payments are fully expended before additional payments, including lump sum mobilisation payments, are made against the contract.

Liquidated damages

4.65 Liquidated damages clauses are included in Defence acquisition contracts as part of a wider contract management strategy to enhance contractor performance. In determining whether to apply liquidated damages provisions, consideration needs to be given to Section 44 of the FMA Act.[60] Should Defence be entitled to claim liquidated damages, and the provisions

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[59] This is based on the Australian Government overnight cash rate by the Reserve Bank of Australia on Australian Government funds.

[60] This section requires an agency Chief Executive to manage the affairs of the agency in a way that promotes the proper use of resources.

are invoked,[61] the amount will be considered a debt owed to Defence under Section 47 of the FMA Act.[62]

4.66 The M113 Major Upgrade Contract states that, in accordance with the provisions stipulated above, Defence is entitled to recover liquidated damages of 0.1 per cent of the milestone value of the supplies in default each week after the milestone due date (following a grace period not exceeding 90 days[63]) if the Contractor fails to deliver. Alternatively, Defence may accept agreed compensation in lieu of recovering liquidated damages, or a combination of liquidated damages and agreed compensation equivalent to the total value of liquidated damages recoverable for the period of delay.

4.67 If Defence accepts compensation in lieu of liquidated damages, the Contractor is obliged to prepare a no cost CCP to amend the Contract. The Contract limits the aggregate of liquidated damages or other agreed compensation claimable to 10 per cent of the total contract price.

4.68 Defence documentation states that there are two areas of delay by the Contractor in the Project—integrated logistic support data and plans and the production of initial production vehicles. As at November 2004, Defence advised the Contractor that liquidated damages had been calculated up until 13 September 2004 at an amount of $23 255.

4.69 In September 2004, the Project Office wrote to the Contractor advising them of the Department's intention to negotiate an agreement to receive agreed compensation in lieu of liquidated damages (in accordance with the Contract). The letter stated that in the event compensation in lieu of damages could not be agreed, Defence reserved the right to claim the amount of liquidated damages as a debt due to the Australian Government. Some nine months after Defence made their intention to seek liquidated damages known, no debt has yet been claimed.

Recommendation No.3

4.70 ANAO recommends that the Defence Materiel Organisation review contracting policy and its application of the collection of liquidated damages, to be received either by way of financial or agreed compensation, to ensure that they are collected in a timely manner.

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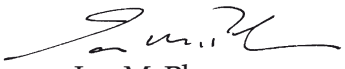
61 As reflected in the Contract and current Defence contracting templates, no amount is owing until Defence elects to recover liquidated damages.

62 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.

63 The liquidated damages are calculated from the original due date of delivery.

Defence Response:

4.71 Agreed. The Defence policy on the management of liquidated damages (both financial and non-financial) already covers this recommendation and is comprehensively addressed in the ASDEFCON Suite of Contracting Templates (covering standardisation of tendering and contracting documentation), Defence Procurement Policy Manual, Defence Procurement Policy Instructions, relevant Defence Materiel Organisation Finance Instructions and Chief Executive Instructions.



Ian McPhee
Auditor-General

Canberra ACT
28 July 2005

Appendix

Appendix 1: Agency Response

Australian Government
Department of Defence
Inspector-General Group

2004/1058917/1
IG 342/05

12 July 05

Mr Colin Cronin
Executive Director
Performance Audit Services Group
Australian National Audit Office
GPO Box 707
Canberra ACT 2601

Dear Mr Cronin,

ANAO PERFORMANCE AUDIT ON THE MANAGEMENT OF THE M113 UPGRADE PROJECT

1. On 10 June 2005 you sought a Defence response to the section 19 draft report on the Management of the M113 Upgrade Project. I now provide you with the whole of Defence response to the draft report (see Annex A).

2. Also attached at Annex B is a list of textual amendments.

3. My point of contact in this matter is Miss Elizabeth Giles (Tel: (02) 6266 4595, Fax: (02) 6266 4592 or email: elizabeth.giles@defence.gov.au).

Yours sincerely,

C Neumann

Claude Neumann
Inspector General

Annexes:
A. Defence comments and response to Recommendations
B. Amendments to the Draft Section 19 Report on the Management of the M113 project

Defending Australia *and its National Interest*

DEFENCE COMMENTS AND RESPONSE TO RECOMMENDATIONS

Recommendation No.1 Para. 3.41

The ANAO recommends that the Defence Materiel Organisation put in place control mechanisms to ensure that changes in scope are approved at the appropriate level.

Defence Response. Agreed.
Defence has already put in place control mechanisms to ensure that changes in scope for all projects are approved at the appropriate level. These include first and second pass acquisition business cases, Materiel Acquisition Agreements (MAA), and processes to amend MAAs.

Recommendation No.2 Para. 3.59

The ANAO recommends that the Defence Materiel Organisation recover against deliverables, the outstanding amount of the May 1997 mobilisation payment remaining from the Phase 1(a) M113 Upgrade Contract at the earliest opportunity.

Defence Response. Agreed.
The contract change required to achieve this has now been agreed with the Contractor and Defence expects to finalise this issue by September 2005.

Recommendation No.3 Para. 4.69

The ANAO recommends that the Defence Materiel Organisation review contracting policy and its application of the collection of liquidated damages, to be received either by way of financial or agreed compensation, to ensure that they are collected in a timely manner.

Defence Response. Agreed.
The Defence policy on the management of liquidated damages (both financial and non-financial) already covers this recommendation and is comprehensively addressed in the AUSDEFCON Suite of Contracting Templates (covering a standardisation of tendering and contracting documentation), Defence Procurement Policy Manual, Defence Procurement Policy Instructions, relevant DMO Finance Instructions and Chief Executive Instructions.

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