

Project Data Summary Sheet¹⁴²

Project Number	LAND 116 Phase 3
Project Name	BUSHMASTER PROTECTED MOBILITY VEHICLE
First Year Reported in the MPR	2007-08
Capability Type	Replacement
Acquisition Type	Australianised MOTS
Capability Manager	Chief of Army
Government 1st Pass Approval	N/A
Government 2nd Pass Approval	Nov 98
Total Approved Budget (Current)	\$1,250.6m
2016-17 Budget	\$10.3m
Project Stage	MAA Closure
Complexity	ACAT III



Section 1 – Project Summary

1.1 Project Description

This project **has delivered** 1,015 vehicles in seven variants; troop, command, mortar, assault pioneer, direct fire weapon, air defence and ambulance. These vehicles will provide protected land mobility to Army units and Royal Australian Air Force Airfield Defence Guards. In addition to the acquisition of the vehicles through the Approved Major Capability Investment Program, a number of enhancements are being made to the vehicles through the Rapid Acquisition process. These enhancements do not form part of the Project LAND 116 Phase 3, but do impact upon the project. Vehicle production information is represented below:

Production Period (PP)	Quantity	Description
PP1	300	300 vehicles were acquired in six variants.
PP2	144	144 vehicles were acquired in five variants.
PP3	293	293 additional vehicles were acquired in seven variants to meet the medium Protected Vehicles component of LAND 121 Phase 3 Project Overlander.
PP4	70	70 troop variant vehicles were acquired to meet future operation attrition. An additional 31 troop variant vehicles were acquired to replace battle damaged Protected Mobility Vehicles (PMVs), which were managed as a funded sustainment activity.
PP5	208	208 vehicles in four variants were acquired to maintain critical skills at Thales Bendigo site for the production of Hawkei. In addition, six troop variant vehicles were acquired and funded by LAND 17 Phase 1A.
Total	1,015	

1.2 Current Status

Cost Performance

In-year

The full year spend was \$5.0m against a final budget of \$10.3m. The underspend of \$5.3m was primarily due to contract vehicle payments.

Project Financial Assurance Statement

As at 30 June 2017, project LAND 116 Phase 3 has reviewed the approved scope and budget for those elements required to be delivered by the project. Having reviewed the current financial and contractual obligations of the project, current known risks and estimated future

142 Notice to reader

Forecast dates and Sections: 1.2 (Materiel Capability Delivery Performance), 1.3 (Major Risks and Issues), 4.1 (Measures of Materiel Capability Delivery Performance), and 5 (Major Risks and Issues) are excluded from the scope of the ANAO's review of this Project Data Summary Sheet. Information on the scope of the review is provided in the *Independent Assurance Report* by the Auditor-General in **Part 3** of this report.

expenditure, Defence considers, as at the reporting date, there is sufficient budget remaining for the project to complete against the agreed scope.
<u>Contingency Statement</u>
The project has not applied contingency in the financial year.
Schedule Performance
All vehicle deliveries are now complete. The project declared FMR in September 2016. The FMR declaration was formally acknowledged by the Capability Manager in October 2016. FOC was declared in January 2017, one month behind schedule.
Materiel Capability Delivery Performance
All variants meet their required specifications.
The External Composite Armour (ECA) Detailed Design solution was completed in November 2012. The project entered a contract with Thales Australia for the production of 101 sets of Opaque Armour and 20 sets of Transparent Armour on 21 December 2012. Delivery occurred in May 2014.
The PMV Trailer tender response from Thales on 22 May 2009 was evaluated and deemed non-compliant and not value for money. On 8 July 2013 the Government approved the removal of the trailer capability from the project scope.
Note
Forecast dates and capability assessments are excluded from the scope of the review.

1.3 Project Context

Background

The Bushranger Project **was** conducted in three phases:

Phase 1 involved the motorisation of the infantry battalions of 6 Brigade, with 268 interim infantry mobility vehicles, based on the in-service Land Rover PERENTIE 4x4 and 6x6 vehicles and the procurement of an additional 25 support vehicles.

Phase 2 consisted of Phase 2A the development of the infantry mobility vehicle specification and the release of an Invitation to Register Interest and Phase 2B the release of a Request for Tender and the trialling and evaluation of successful contender vehicles.

Phase 3 **was** the full rate production of the protected vehicles. The Production Contract Option was executed on 1 June 1999 with Australian Defence Industries for the supply of 370 Bushmaster vehicles by December 2002. A range of problems emerged with design enhancements, cost, and schedule slip in the contract, shortly after the Production Option was exercised, leading to renegotiation of the Contract in July 2002 for 299 vehicles. This phase **was** divided into five separate production periods that **reflected** the increase over time in the quantity of vehicles being acquired. The Production Periods **were** as follows:

Production Period One (PP1): During this Production Period 300 vehicles in six variants were acquired; troop, command, mortar, assault pioneer, direct fire weapon and ambulance. Defence had contracted for 299 vehicles; however, it then sold 25 vehicles back to Thales for sale to the Netherlands and received 26 vehicles from Thales as consideration.

Production Period Two (PP2): During this Production Period 144 vehicles were acquired in five variants consisting of: troop, command, mortar, direct fire weapon and ambulance. Defence had contracted for 143 vehicles; however, it then allowed Thales to divert 24 vehicles from the production line for sale to the United Kingdom, thereby delaying delivery to Defence. Defence received one additional vehicle from Thales as consideration.

Production Period Three (PP3): During this Production Period an additional 293 vehicles were acquired to meet the Medium Protected Mobility vehicle component of LAND 121 Phase 3 Project Overlander. This included all six variants and an air defence variant. In addition purpose designed ECA was also acquired.

Production Period Four (PP4): In May 2011 the Government announced the acquisition of an additional 101 PMVs to replace 31 battle damaged PMVs and to accommodate future attrition. As part of this requirement LAND 116 Phase 3 also procured 70 **Middle East Area of Operations** (MEAO) upgrade kits (current standard blast kits as opposed to the improved blast protection). Delivery of the additional 101 PMVs was completed in May 2013.

Production Period Five (PP5): In June 2012 the Government approved the acquisition of a further 214 PMVs to maintain critical skills at Thales Bendigo, which would be required for the possible production of Hawkei. The approval identified that LAND 116 Phase 3 would acquire 50 command variants and up to 158 troop variants and that LAND 17 Phase 1A would acquire six troop variants. In July 2014 the Government approved a change to the variant mix of PP5 reducing the number of troop variants from 158 to 118 and including 20 mortar variants and 20 ambulance variants. In November 2015 Defence allowed Thales to divert 12 vehicles from the production line for sale to the Netherlands, thereby delaying delivery to Defence.

As a result of operational experience a number of enhancements were made to the Bushmaster vehicle to enhance crew survivability. These include Protected Weapon Stations, Automatic Fire Suppression Systems and purpose-designed Spall Curtains which were progressively fitted to vehicles under a Rapid Acquisition Framework. These were funded outside of LAND 116 Phase 3.

In December 2007 the Chief of Army redesignated the Bushmaster Infantry Mobility Vehicle as the Bushmaster PMV.

Uniqueness

The Bushmaster PMV has been developed and built in Australia by Thales to meet a niche requirement of Australian forces.

Major Risks and Issues

Managing the integration and configuration of the baseline vehicle while incorporating upgrades to meet current operational threats will continue to be an issue – see section 5 Major Project Issues for more information.

Project Data Summary Sheets

ANAO Report No.26 2017–18
2016–17 Major Projects Report

Other Current Sub-Projects
N/A
Note
Major risks and issues are excluded from the scope of the review.

Section 2 – Financial Performance

2.1 Project Budget (out-turned) and Expenditure History

Date	Description	\$m	Notes
	Project Budget		
Nov 98	Original Approved	295.0	
Jul 07	Real Variation – Scope	154.8	1
Aug 07	Real Variation – Scope	360.6	2
Oct 11	Real Variation – Scope	103.9	3
Mar 13	Real Variation – Scope	221.2	4
Aug 13	Real Variation – Scope	(7.0)	5
Jun 14	Real Variation – Scope	(1.3)	6
		832.1	
Jul 10	Price Indexation	124.6	7
Jun 17	Exchange Variation	(1.1)	
Jun 17	Total Budget	1,250.6	
	Project Expenditure		
Prior to Jul 16	Contract Expenditure – Thales Australia (Prime)	(839.8)	
	Contract Expenditure – Thales Australia (SOTASip)	(30.2)	
	Other Contract Payments/Internal Expenses	(161.2)	8
		(1031.1)	
FY to Jun 17	Contract Expenditure – Thales Australia (Prime)	(1.3)	
	Other Contract Payments/Internal Expenses	(3.7)	9
		(5.0)	
Jun 17	Total Expenditure	(1036.1)	
Jun 17	Remaining Budget	214.5	
Notes			
1	Additional PMV for Enhanced Land Force requirements.		
2	Additional PMV for Overlander requirements.		
3	Additional PMV to replace Battle Casualty Vehicles.		
4	Additional Protected Mobility Vehicles to maintain critical skills.		
5	Removal of trailer requirement and transfer of funds to LAND 121 phase 3B trailers.		
6	Transfer of funds to Health System Program Office (SPO) to support Integrated Logistics Support (ILS) requirements of the PMV Ambulance variant.		
7	Up until July 2010, indexation was applied to project budgets on a periodic basis. The cumulative impact of this approach was \$118.9m. In addition to this amount, the impact on the project budget as a result of out-turning was a further \$5.7m having been applied to the remaining life of the project.		
8	Other expenditure comprises: ILS deliverables (\$60.3m), ancillary equipment (\$27.0m), ECA (\$18.8m) , project management and operating expenses (\$17.7m) , Automatic Fire Suppression Kits (AFSS) (\$9.7m) , SOTAS headsets (\$7.2m), facilities (\$7.1m), test and evaluation (\$6.1m), system engineering (\$5.6m), Professional Service Providers (\$0.9m), travel (\$0.7m) and support test equipment (\$0.1m).		
9	Other expenditure comprises: project management and operating expenses (\$2.9m) and ECA (\$0.8m) .		

2.2A In-year Budget Estimate Variance

Estimate PBS \$m	Estimate PAES \$m	Estimate Final Plan \$m	Explanation of Material Movements
5.6	10.5	10.3	PBS – PAES: The variation is primarily due to the slippage of contract vehicle payments from 2015-16 to 2016-17. PAES – Final Plan: The variance is due to cost reduction in delivery of Engineering Change Orders.
Variance \$m	4.9	(0.2)	Total Variance (\$m): 4.7
Variance %	87.5	(1.9)	Total Variance (%): 83.9

2.2B In-year Budget/Expenditure Variance

Estimate Final Plan \$m	Actual \$m	Variance \$m	Variance Factor	Explanation
			Australian Industry	The full year spend was \$5.0m against a final budget of \$10.3m. The underspend of \$5.3m was primarily due to contract vehicle payments.
			Foreign Industry	
			Early Processes	
		(5.3)	Defence Processes	
			Foreign Government Negotiations/Payments	
			Cost Saving	
			Effort in Support of Operations	
			Additional Government Approvals	
10.3	5.0	(5.3)	Total Variance	
		(51.8)	% Variance	

2.3 Details of Project Major Contracts

2.5 Details of Project Major Contracts

Contractor	Signature Date	Price at		Type (Price Basis)	Form of Contract	Notes
		Signature \$m	30 Jun 17 \$m			
Thales Australia	June 99	170.0	841.0	Variable	DEF PUR 101	1
Thales Australia (SOTASip)	Feb 09	35.8	30.2	Fixed	ASDEFCON Vol 2	
Notes						
1	Contract value as at 30 June 2017 is based on actual expenditure to 30 June 2017 and remaining commitment at current exchange rates, and includes adjustments for indexation (where applicable).					
Contractor	Quantities as at		Scope	Notes		
	Signature	30 Jun 17				
Thales Australia	370	1,015	Bushmaster Protected Mobility Vehicles			
Thales Australia (SOTASip)	737	737	Communication System			
Major equipment received and quantities to 30 Jun 17						
All vehicle deliveries are now complete.						

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)	Notes
System Requirements	Troop Vehicle	N/A	N/A	Aug 03	N/A	1
	Assault Pioneer Vehicle	N/A	N/A	Oct 06	N/A	
	Command Vehicle	N/A	N/A	Jan 06	N/A	
	Mortar Vehicle	N/A	N/A	Feb 09	N/A	
	Direct Fire Weapon Vehicle	N/A	N/A	Feb 09	N/A	
	Ambulance Vehicle	N/A	N/A	Feb 09	N/A	
Preliminary Design	Air Defence Variant	N/A	N/A	Oct 10	N/A	
	Troop Vehicle	Oct 99	N/A	Oct 99	0	
	Assault Pioneer Vehicle	Nov 99	N/A	Feb 00	3	
	Command Vehicle	Oct 99	N/A	Oct 99	0	
	Mortar Vehicle	May 03	N/A	Mar 03	(2)	
	Direct Fire Weapon Vehicle	May 03	N/A	Mar 03	(2)	
Critical Design	Ambulance Vehicle	Jul 03	N/A	May 03	(2)	
	Air Defence Variant	April 10	N/A	Dec 09	(4)	
	Troop Vehicle System Verification Review	Oct 02	N/A	Sep 02	(1)	
	Assault Pioneer Vehicle Initial Production Vehicle Review	Oct 04	N/A	Dec 06	26	

Project Data Summary Sheets

ANAO Report No.26 2017–18
2016–17 Major Projects Report

	Command Vehicle Initial Production Vehicle Review	Oct 04	N/A	Mar 06	17	
	Mortar Vehicle Initial Production Vehicle Review	Apr 06	N/A	May 07	13	
	Direct Fire Weapon Vehicle Initial Production Vehicle Review	Apr 06	N/A	Apr 07	12	
	Ambulance Vehicle System Verification Review	Oct 05	N/A	Feb 07	16	
	Air Defence Variant Initial Production Vehicle Review	Sep 11	N/A	Aug 11	(1)	
Notes						
1	Initial testing of the first variant revealed a number of deficiencies against the specification that required rectification and design changes prior to acceptance and production. This had a consequential effect on the system and design review progress for the subsequent variants. As a result additional testing was required which impacted on completing critical design review and contractor test and evaluation.					

3.2 Contractor Test and Evaluation Progress

3.2 Contractor Test and Evaluation Progress						
Test and Evaluation	Major System/Platform Variant	Original Planned	Current Planned	Achieved /Forecast	Variance (Months)	Notes
System Integration	Troop Vehicle	Jun 04	N/A	Dec 04	6	1
	Command Vehicle	Sep 04	N/A	Mar 06	18	
	Assault Pioneer Vehicle	Oct 04	N/A	Dec 06	26	
	Mortar Vehicle	Apr 06	N/A	May 07	13	
	Direct Fire Weapon Vehicle	Apr 06	N/A	Apr 07	12	
	Ambulance Vehicle	Aug 07	N/A	Feb 08	6	
	Air Defence Vehicle	Sep 11	N/A	Jul 11	(2)	
Acceptance	All PP1 vehicles except Ambulance	Jun 06	N/A	Jul 07	13	
	PP1 – Ambulance	Jul 07	N/A	May 08	10	
	Troop Vehicle	May 06	N/A	Jun 09	37	
	Command Vehicle	Jul 06	N/A	Jun 09	35	
	Assault Pioneer Vehicle	Jan 07	N/A	Jun 09	29	
	Mortar Vehicle	May 07	N/A	Jun 09	25	
	Direct Fire Weapon Vehicle	Mar 07	N/A	Jun 09	27	
	Ambulance Vehicle	Jul 07	N/A	Jun 09	23	
	Air Defence Vehicle	Apr 12	N/A	Apr 12	0	
Notes						
1	Additional reviews and testing requirements impacted the ability of Thales to conduct Production Acceptance Testing and Evaluation in the original timeframe. The situation was also impacted by the priority to support vehicles deployed on operations. Technical issues that resulted in design changes impacted on the ability to finalise Production and Acceptance Testing and Evaluation.					

3.3 Progress Toward Materiel Release and Operational Capability Milestones

Item	Original Planned	Achieved/Forecast	Variance (Months)	Notes
Initial Materiel Release (IMR)	N/A	Dec 04	N/A	1
Initial Operational Capability (IOC) - PP1	N/A	Dec 04	N/A	2
Final Operational Capability (FOC) - PP1	Oct 07	Nov 10	37	3
Initial Operational Capability (IOC) - PP2	Jul 08	Nov 08	4	4
Final Operational Capability (FOC) - PP2	Apr 09	Nov 10	19	5
Initial Operational Capability (IOC) - PP3	Oct 11	Oct 11	0	6
Final Operational Capability (FOC) - PP3	Apr 12	Mar 13	11	7
Initial Operational Capability (IOC) - PP4	Jul 12	Jul 12	0	8
Initial Operational Capability (IOC) – PP5	Dec 13	Nov 13	(1)	9
Final Operational Capability (FOC) - PP4	Apr 14	Nov 13	(5)	10
Final Materiel Release (FMR)	Sep 16	Oct 16	1	11
Final Operational Capability (FOC) – PP5	Dec 16	Jan 17	1	12

Notes	
1	IMR was achieved in December 2004 when commencement of delivery of full rate of production for Production Period 1 occurred.
2	IOC was achieved in December 2004 when commencement of delivery of full rate of production for Production Period 1 occurred.
3	Delays in the acquisition and installation of communications harness equipment (SOTASip) resulted in revised FOC dates for PP1 (Ambulance Variant only) and PP2, as vehicles were being retrofitted before issue to Army.
4	This was due to the restructure of Army under Enhanced Land Force not fully completed and the unavailability of the communications harness. Army have accepted the initial vehicles without the communications capability.
5	Delays in the acquisition and installation of communications harness equipment (SOTASip) resulted in revised FOC dates for PP1 (Ambulance Variant only) and PP2, as vehicles were being retrofitted before issue to Army.
6	DMO no longer tracks multiple IOCs due to a change in policy.
7	This variance was due to clarification of the requirements in reaching FOC. FOC was achieved when the final subset of PP3 vehicles was operationally employed by Army.
8	IOC was achieved when the first subset of LAND 116 PP4 vehicles was operationally employed by Army.
9	IOC was achieved when the first subset of LAND 116 PP5 vehicles was employed by Army.
10	FOC was achieved when the final subset of PP4 vehicles was operationally employed by Army.
11	Completion of delivery of supplies listed in the Projects MAA at section 4 – Supplies, to the Customer. Change to original planned date is due to creation of additional production period. The project declared FMR on 21 September 2016 and the FMR declaration was formally acknowledged by the Capability Manager on 21 October 2016.
12	FOC was achieved when the final subset of PP5 vehicles were operationally employed by Army.

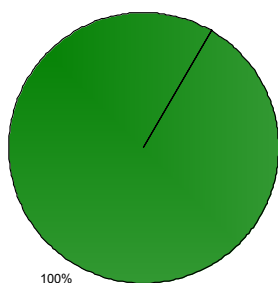
Schedule Status at 30 June 2017	
	<p>Legend:</p> <ul style="list-style-type: none"> Approval IMR IOC FMR FOC

Note
Forecast dates in Section 3 are excluded from the scope of the review.

Section 4 – Materiel Capability Delivery Performance

4.1 Measures of Materiel Capability Delivery Performance

Pie Chart: Percentage Breakdown of Materiel Capability Delivery Performance



Green:

The Project **has met** capability requirements as expressed in the suite of Capability Definition Documentation and in accordance with the requirements of the relevant Technical Regulatory Authorities.

Amber:

N/A

Red:

N/A

Note

This Pie Chart represents Defence's expected capability delivery. Capability assessments and forecast dates are excluded from the scope of the review.

Project Data Summary Sheets

ANAO Report No.26 2017–18
2016–17 Major Projects Report

4.2 Constitution of Initial Materiel Release and Final Materiel Release

Item	Explanation	Achievement
Initial Materiel Release (IMR)	Commencement of delivery of full rate of production for PP1.	Achieved.
Final Materiel Release (FMR)	Completion of vehicle deliveries for all five production periods as detailed in Section 1.1.	Achieved

Section 5 – Major Risks and Issues

5.1 Major Project Risks

Identified Risks (risk identified by standard project risk management processes)	
Description	Remedial Action
N/A	N/A
Emergent Risks (risk not previously identified but has emerged during 2016-17)	
Description	Remedial Action
N/A	N/A

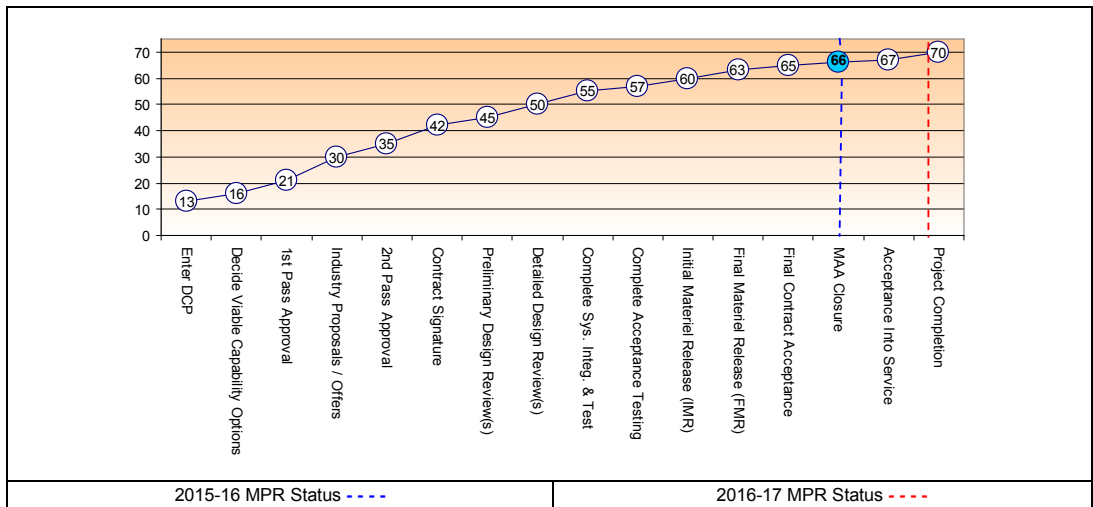
5.2 Major Project Issues

Description	Remedial Action
There is a backlog of engineering changes due to the Commonwealth and Thales reprioritising engineering effort to higher priority operationally focused tasks. This backlog needs to be addressed in order to baseline the PMV's configuration.	The application of a more managed approach and the commitment of additional resources by the Commonwealth and Thales in an effort to reduce the backlog. Engineering changes largely completed and remaining work resourced and in progress and therefore the issue is downgraded to medium.
Note	
Major risks and issues in Section 5 are excluded from the scope of the review.	

Section 6 – Project Maturity

6.1 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage	Benchmark	10	9	10	10	9	9	9	66
MAA Closure	Project Status	10	9	10	10	10	10	10	69
	Explanation	<ul style="list-style-type: none"> Technical Difficulty: The vehicle design has been proven. Commercial: All contracted items have been delivered and support is now conducted through the sustainment contract. Operations and Support: The vehicle has fully transitioned to the PMV Fleet. 							



Section 7 – Lessons Learned

7.1 Key Lessons Learned

Project Lesson	Categories of Systemic Lessons
In the early planning phases of the project, the operational concept and functional performance requirements were not clearly defined, making it difficult to understand and undertake appropriate cost-capability trade-offs.	Requirements Management
Cost Estimating – there was a lack of industry capability to provide adequate cost estimates and inability by Defence to evaluate the validity of the cost data.	Contract Management
Testing program – significant contingency planning should be conducted for compliance testing of a new capability.	First of Type Equipment

Section 8 – Project Line Management

8.1 Project Line Management in 2016-17

Position	Name
Division Head	MAJGEN David Coghlan
Branch Head	BRIG Simon Stuart (Jul 15–Jul 16) Mr Robert Lumley (acting Jul 16-Oct 16) BRIG Haydn Kohl (Oct 16–current)
Program Director	Mr Luke Crampton (to Nov 16) Mr Steven Brown (Nov 16–current)
Project Manager	Mr Steven Brown

Project Data Summary Sheets

ANAO Report No.26 2017–18
2016–17 Major Projects Report