Project Data Summary Sheet[143]

Project Number	**SEA 1448 Phase 2A**
Project Name	**ANZAC ANTI-SHIP MISSILE DEFENCE**
First Year Reported in the MPR	2009-10
Capability Type	Upgrade
Acquisition Type	Australianised MOTS
Service	Royal Australian Navy
Government 1st Pass Approval	N/A
Government 2nd Pass Approval	Nov 03
Total Approved Budget (Current)	$386.8m
2015-16 Budget	**$30.9m**
Project Stage	Initial Materiel Release
Complexity	ACAT II

Section 1 – Project Summary

1.1 Project Description

The Anti-Ship Missile Defence (ASMD) upgrade SEA 1448 Phase 2 project will provide the ANZAC Class Frigates with an enhanced level of self defence against modern anti-ship missiles. There are two sub-phases of SEA 1448 Phase 2. Phase 2A of the ASMD Project, is to upgrade all eight of the ANZAC Class Ship's existing Combat Management Systems (CMS) and fire control systems, and install an Infra-Red Search and Track (IRST) System which will provide improved detection of low level aircraft and anti-ship missiles when the ship is close to land.

1.2 Current Status

Cost Performance

In-year

As at 30 June the project has an underspend of $9.0m. This underspend is due to the inability to process a planned closing pain/gain share payment to industry participants. A review of the pain/gain share final payment has identified significantly complex errors that have not been resolved within the 2015-16 Financial Year. It is expected that the reconciliation process will be completed by September 2016 and will be transferred into the 2016-17 budget estimates.

143 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.

Project Financial Assurance Statement

As at 30 June 2016, project SEA 1448 Phase 2A 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 expenditure, Defence considers, as at the reporting date, there is sufficient budget remaining for the project to complete against the agreed scope.

Contingency Statement

The project has applied contingency in the financial year **for the treatment of pain/gain share adjustments as discussed above. Contingency was also applied to reconcile project financial approvals and purchase order values between this project and project SEA 1448 Phase 2A.**

Schedule Performance

The systems being provided under Phase 2A are being delivered to current schedule. Overall, due to the interdependence of Phase 2A with Phase 2B, the Government approving a change of acquisition strategy for Phase 2B in August 2009 and the Real Cost Increase for Phase 2B for the follow on ships 2-8 in November 2011, there is now a 70 month variance to the original **approved date for Final Operational Capability (FOC)** for this Phase of the Project. During 2014-15, due to pressures from the large sustainment package of work, a revised schedule **was** developed for ships four onwards. Recent achievements include the Materiel Release (MR) of the **fourth ship HMAS *Warramunga* in October 2015, and the fifth ship** HMAS *Ballarat* **in May 2016.** HMAS *Parramatta* the sixth ship **and HMAS *Toowoomba* the seventh ship are both well into the upgrade, with the final ship HMAS *Stuart* due to enter the program in mid 2016**. The project remains on track to deliver Final Operating Capability by October 2017.

Materiel Capability Delivery Performance

The Initial Materiel Release was claimed for Stage 1 Capability on HMAS *Perth* on 24 June 2011. The Chief of Navy formally provided Initial Operational Release (IOR) for ASMD upgrade capability delivered to HMAS *Perth* and its associated support systems on 16 August 2011. The Project has now completed Operational Test & Evaluation (OT&E) for the final Stage 2 Capability. Initial Operational Capability (IOC) **was achieved in** September 2015.

Note

Forecast dates and capability assessments are excluded from the scope of the review.

1.3 Project Context

Explanation
Background The need for an ASMD capability in the Royal Australian Navy's (RAN) surface fleet was first foreshadowed in the 2000 Defence White Paper. SEA 1448 Phase 2A is the initial phase of the ANZAC ASMD Program, performed by the ANZAC Alliance (Commonwealth plus BAE Systems (previously Tenix) and Saab Systems), to provide ship systems capable of integrating missile defence systems. Phase 2A was approved by Government in November 2003 for $449.0m (December 2003 prices). This included an element for the Very Short Range Air Defence (VSRAD) System (two per ship) of $155.4m, which was quarantined pending the outcome of investigations into an active Phased Array Radar system (PAR) (referred to as CEAFAR) and its Sea trials conducted in 2004, which was subsequently approved in the SEA 1448 Phase 2B Second Pass Approval. SEA 1448 Phases 2A and 2B are being managed as a confederated ASMD Project due to their common systems engineering disciplines, schedules and risks. Phase 2A represents a low risk due to its in-service equipment. As a result of technical issues in the integration of the phased array radar into the Class with Phase 2B of the ASMD Project in 2007, a change to the Phase 2B Project acquisition strategy caused delays in the installation of the equipment being purchased under Phase 2A. These delays do not impact on the delivery of the Phase 2A equipment, which is being delivered into store and appropriately maintained until the Phase 2B acquisition strategy calls on the equipment for installation. To support the upgraded Mk3E Combat Management System and Infra-Red Search and Track (IRST), a combined ASMD Integration and Training Centre was built by the then Defence Support Group (DSG) in 2006. This building was added to the existing ANZAC System Support Centre located at HMAS *Stirling* in Western Australia. This facility was made available for lead ship training between September 2010 and April 2011 and was formally handed to Navy in August 2011. The support for the Mk3E Combat Management System is already in contract as there is an existing sustainment support contract with Saab Systems (Australia) for the existing Saab Mk3 Combat Management System that is already installed in the ANZAC Class. The IRST will be supported through the current ANZAC Alliance arrangements. **The lead ship, HMAS *Perth,* successfully underwent acceptance testing between October 2010 and June 2011 with the Chief of Navy accepting IOR in August 2011. IOC was achieved in September 2015.**
Uniqueness The Phase 2A Combat Management System upgrade is the next generation of the Mk3E system initially installed on the final ANZAC Class Frigate (HMAS *Perth*). The Mk3E was the first Windows XP based Commercial-Off-The-Shelf combat management system in the RAN and was initially installed in HMAS *Perth* as part of a de-risking trial. This Phase of the ASMD Project is currently fully contracted through the ANZAC Ship Alliance.
Major Risks and Issues The major risks and issues for SEA 1448 Phase 2A are: • Unplanned work being activated during an ASMD refit period, predominantly through the concurrent sustainment program; and • With multiple ships now in the ASMD program, managing the demands of competing resources across complex activities including major sustainment programs.
Other Current Sub-Projects **SEA 1448 Phase 2B** - This Phase completes the ASMD Upgrade by delivering a Phased Array Radar (PAR) System consisting of a target indication and tracking radar titled CEAFAR and a missile illuminator system, titled CEAMOUNT which will provide mid-course guidance and terminal illumination to the Evolved Sea Sparrow Missile (ESSM). This phase also replaces the existing ANZAC Class navigation radar. **SEA 1448 Phase 4A** –This Phase complements the ASMD Upgrade by delivering a contemporary Electronic Support Measures (ESM) system. This Phase is being managed through Electronic Systems Division (ESD).

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			
Jan 04	Original Approved		449.0	
Aug 04	Real Variation – Budgetary Adjustments	(0.1)		
Mar 06	Real Variation – Transfers	(155.4)		1
Feb 07	Real Variation – Transfers	(4.4)		2
			(159.9)	
Jul 10	Price Indexation		101.3	3
Jun 16	Exchange Variation		(3.6)	
Jun 16	**Total Budget**		386.8	
	Project Expenditure			
Prior to Jul 15	Contract Expenditure – SAAB Systems Pty Ltd (CMS)	(109.6)		4
	Contract Expenditure – BAE Systems Australia (IRST)	(93.8)		
	Contract Expenditure – BAE Systems Australia (Follow On)	(50.8)		4
	Contract Expenditure – BAE Systems Australia (First of Class)	(36.9)		4
	Contract Expenditure – SAAB Systems Pty Ltd (First of Class)	(23.2)		4
	Other Contract Payments / Internal Expenses	(18.5)		4, 5
			(332.8)	
FY to Jun 16	Contract Expenditure – BAE Systems Australia (Follow On)	(18.5)		
	Other Contract Payments / Internal Expenses	(3.4)		6
			(21.9)	
Jun 16	**Total Expenditure**		(354.7)	
Jun 16	**Remaining Budget**		32.1	

Notes	
1	$155.4m transferred to Project SEA 1448 Phase 2B for phased array radar procurement with procurement of VSRAD capability as directed by Government.
2	Transferred to the then DSG for facilities funding of the ASMD Systems Integration and Training Centre.
3	Up until July 2010, indexation was applied to project budgets on a periodic basis. The cumulative impact of this approach was $88.8m. In addition to this amount, the impact on the project budget as a result of out-turning was a further $12.5m having been applied to the remaining life of the project.
4	**The amounts for each contract differ from prior years due to a revalidation of life to date expenditure. It should also be noted that the amount for SAAB Follow On is now included within "Other Expenditure".**
5	**Other expenditure comprises: operating expenditure, contractors, consultants, contingency, other capital expenditure not attributable to the aforementioned top five contracts and minor contract expenditure.**

6	Other expenditure comprises: AAB Australia Pty Ltd (CMS ISS) (1.0m), BAE Systems Australia (CSTT) ($0.9m), operating expenditure, contractors and other capital expenditure not attributable to the aforementioned top five contracts.

2.2A In-year Budget Estimate Variance

Estimate PBS $m	Estimate PAES $m	Estimate Final Plan $m	Explanation of Material Movements
25.4	23.3	30.9	PBS - PAES: The ($2.0m) variance is due to the application of the outcomes of the lessons learned Program, in conjunction with the proactive management of the ASMD production and refit schedule. PAES - Final Plan: The $7.6m variance is predominantly due to the addition of $11.9m projected gain share into the Project budget. Additionally, ($5.3m) was identified as being incorrectly allocated to Phase 2A. The remainder of the variance was due to revised phasings.
Variance $m	(2.0)	7.6	Total Variance ($m): 5.5
Variance %	(8.0)	32.3	Total Variance (%):21.8

2.2B In-year Budget/Expenditure Variance

Estimate Final Plan $m	Actual $m	Variance $m	Variance Factor	Explanation
		(9.0)	Australian Industry	The project has an underspend of $9.0m which is predominately due to the inability to process a planned closing pain/gainshare payment to industry participants. A review of the pain/gainshare final payment has identified significantly complex errors that will not be resolved within the 2015-16 Financial Year. It is expected that the reconciliation process will be completed by September 2016. Industry Participants have also indicated efficiencies resulting in an underspend for the project.
			Foreign Industry	
			Early Processes	
			Defence Processes	
			Foreign Government Negotiations/Payments	
			Cost Saving	
			Effort in Support of Operations	
			Additional Government Approvals	
30.9	21.9	(9.0)	**Total Variance**	
		(29.3)	**% Variance**	

2.3 Details of Project Major Contracts

Contractor	Signature Date	Price at		Type (Price Basis)	Form of Contract	Notes
		Signature $m	30 Jun 16 $m			
SAAB Systems Pty Ltd (CMS)	Apr 05	123.1	109.6	Variable	Alliance	1
BAE Systems Australia (IRST)	Apr 05	104.9	93.8	Variable	Alliance	2
BAE Systems Australia (First of Class)	May 06	26.0	40.3	Variable	Alliance	1, 2, 3

SAAB Systems Pty Ltd (First of Class)	**May 06**	**6.8**	**25.9**	Variable	Alliance	**1, 3**
BAE Systems Australia **(Follow on Ships)**	Jan 12	74.9	**84.4**	Variable	Alliance	1, 2

Notes	
1	Contract value as at 30 June 2016 is based on actual expenditure to 30 June 2016 and remaining commitment at current exchange rates, and includes adjustments for indexation (where applicable).
2	These contracts are listed with BAE Systems Australia, formerly Tenix Defence.
3	**The contract signature dates and values differ from the prior year reflecting that the previously reported dates and figures related to the contract version at the time of the project entering the MPR, rather than the original signed contract.**

Contractor	Quantities as at		Scope	Notes
	Signature	30 Jun 16		
SAAB Systems Pty Ltd **(CMS)**	8	8	Combat Management Systems and Fire Control System upgrades	1
BAE Systems Australia **(IRST)**	8	8	Infra-red Search and Track Systems	1
BAE Systems Australia **(First of Class)**	**1**	**1**	First of Class Installation	
SAAB Systems Pty Ltd **(First of Class)**	**1**	**1**	First of Class Installation	
BAE Systems Australia **(Follow on Ships)**	7	7	FON Ships 2-8 Installation	

Major equipment received and quantities to 30 Jun 16	
1	Equipment has been delivered into store and is being appropriately maintained until required by Phase 2B for its installation. Installation has been completed for First of Class ship, HMAS *Perth*, HMAS *Arunta*, HMAS *ANZAC*, **HMAS *Warramunga*** and HMAS Ballarat

Notes	
1	$155.4m transferred to Project SEA 1448 Phase 2B for phased array radar procurement with procurement of VSRAD capability as directed by Government

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	Mk3E Combat Management System/Fire Control Director/Infra-Red Search and Track – Stage 1 (Requirements Review)	Feb 04	N/A	Aug 05	18	1
	Mk3E Combat Management System/Fire Control Director – Stage 1 (Functional Review)	Apr 05	N/A	Aug 06	16	1
	Mk3E Combat Management System/Fire Control Director – Stage 1 (System Performance Review)	N/A	N/A	Nov 06	N/A	
	ASMD Shore Facilities (HMAS *Stirling*)	N/A	N/A	May 06	N/A	
Preliminary Design	Mk3E Combat Management System/Fire Control Director/Infra-Red Search and Track System – Stage 1	Nov 05	N/A	Aug 07	21	1
	ASMD Shore Facilities (HMAS *Stirling*)	N/A	N/A	Nov 06	N/A	
Critical Design	Stage 1 Critical Design Review – Part 1 (All except Phased Array Radar in the AFT mast)	Sep 06	N/A	May 08	20	1
	Stage 1 Critical Design Review –	N/A	N/A	Aug 08	N/A	

	Part 2 (Remaining components of AFT mast)					
	ASMD Shore Facilities (HMAS *Stirling*)	N/A	N/A	Jun 07	N/A	

Notes	
1	Variances indicated are directly linked to: the Government decision to investigate phased array radar technologies in lieu of the requirement for the VSRAD system; and, a realisation of technical risks in Phase 2B which required re-engineering effort to redesign the integration of the phased array radar into the ANZAC platform.

3.2 Contractor Test and Evaluation Progress

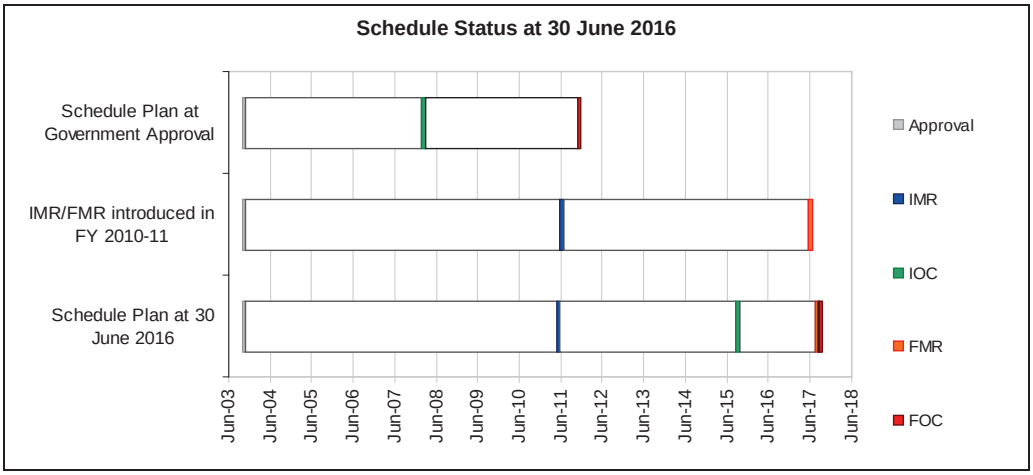
Test and Evaluation	Major System / Platform Variant	Original Planned	Current Planned	Achieved /Forecast	Variance (Months)	Notes
Test Readiness Review	HMAS *Perth* with upgraded ASMD System (Mk3E Combat Management System/Fire Control Director/Infra-Red Search and Track - Sea Phase)	Nov 07	N/A	Mar 11	40	1, 2
Acceptance	HMAS *Perth* with upgraded ASMD System (Mk3E Combat Management System/Fire Control Director/Infra-Red Search and Track - Sea Phase)	Apr 08	Jun 11	Jun 11	38	1

Notes	
1	Variance indicated **was** directly linked to the Government decision to investigate phased array radar technologies in lieu of the requirement for the VSRAD system; and, a realisation of technical risks in Phase 2B which required re-engineering effort to redesign the integration of the phased array radar into the ANZAC platform.
2	Additional variance of one month due to production completion delay of one month in lead ship HMAS *Perth*.

3.3 Progress Toward Materiel Release and Operational Capability Milestones

Item	Original Planned	Achieved /Forecast	Variance (Months)	Notes
Initial Materiel Release (IMR)	N/A	Jun 11	N/A	
Initial Operational Capability (IOC)	Mar 08	Sep 15	89	1
Final Materiel Release (FMR)	Jul 17	**Sep 17**	**2**	2
Final Operational Capability (FOC)	Dec 11	Oct 17	70	3

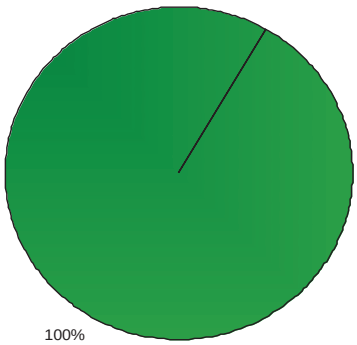
Notes	
1	Variance **was** directly linked to: the Government decision to investigate phased array radar technologies in lieu of the requirement for the VSRAD system; and, a realisation of technical risks in Phase 2B which required re-engineering effort to redesign the integration of the phased array radar into the ANZAC platform. The previous variance was linked to the updated Materiel Acquisition Agreement (MAA) which moved IOC until after PAR System has been proven against Super Sonic Targets.
2	This variation is due to the approval of ships 2-8 by Government.
3	Variance is a result of the ASMD Project Management Stakeholder Group agreeing to link the completion date of this Phase of the Project with that of Phase 2B **and** the approval of ships 2-8 by Government.



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 is meeting 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.

4.2 Constitution of Initial Materiel Release and Final Materiel Release

Item	Explanation	Achievement
Initial Materiel Release (IMR)	Provisional acceptance of the ASMD upgraded HMAS *Perth.*	Achieved
Final Materiel Release (FMR)	Acceptance of the ASMD upgraded ship 8, HMAS *Stuart,* scheduled for **September** 2017.	Not Yet 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
Recognising that the IRST System being installed under Phase 2A is a new capability being fielded by the RAN for the first time, there is a chance it will not operate to the expectations.	Successful completion of acceptance testing for HMAS *Perth* has seen all systems achieving initial materiel certification in June 2011. Subsequent at sea operations by HMAS *Perth* has proven the system meets initial capability requirements. This risk **has been retired as the achievement of IOC has confirmed the performance of the IRST system.**
Unplanned work is activated during an ASMD refit period, predominantly though the concurrent sustainment program.	Where possible limit any additional work that has the potential to impact the ASMD schedule. In consultation with Navy, review, revise and validate an extended schedule to facilitate a larger sustainment program.
Emergent Risks (risk not previously identified but has emerged during 2015-16)	
Description	Remedial Action
N/A	**N/A**

5.2 Major Project Issues

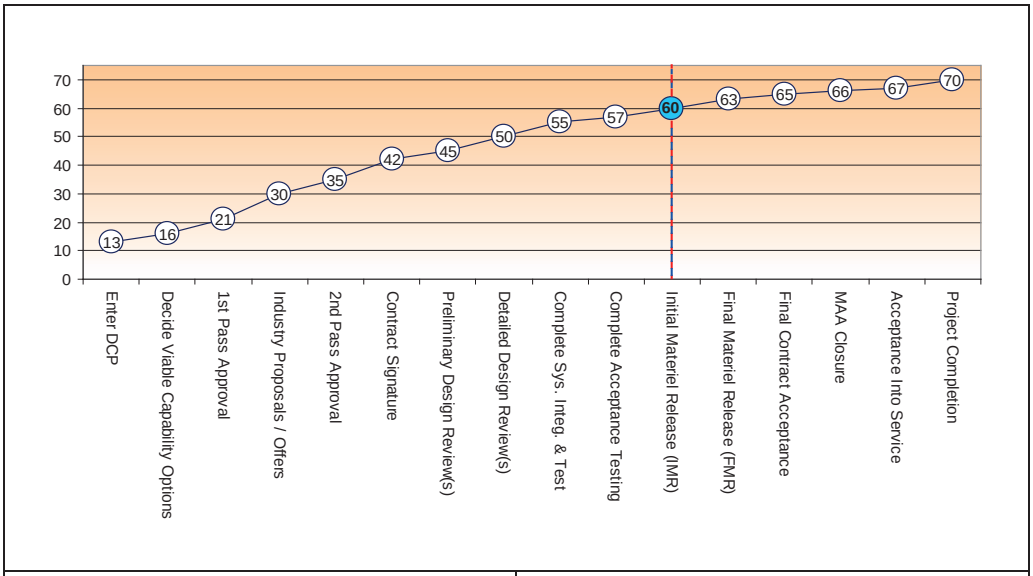
Description	Remedial Action
N/A	N/A

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							
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	Total
Project Stage	Benchmark	10	8	8	8	9	8	9	60
Initial Materiel Release	Project Status	8	8	9	9	9	8	9	60
	Explanation	1. **Schedule:** Schedule is mature and there remains a further **three** ships to upgrade. 2. **Requirement:** **Based on the completion of OT&E, the requirements of Phase 2A are clearly understood.** 3. **Technical Understanding:** Successful OT&E completed in August 2013.							



2014-15 MPR Status - - - -	2015-16 MPR Status - - - -

Section 7 – Lessons Learned

7.1 Key Lessons Learned

Project Lesson	Categories of Systemic Lessons
Adequate implementation of Project Systems Engineering processes. In light of this, the ASMD Project has rigidly followed a disciplined systems engineering process that has ensured the complete traceability from requirements through to final acceptance testing.	Requirements Management
Ensuring that stakeholder engagement at all levels (engineering and strategic) is culturally embedded within the Project Team.	Contract Management

Section 8 – Project Line Management

8.1 Project Line Management in 2015-16

Position	Name
Division Head	RADM Mark Purcell, RAN **(to Dec 15)** **RADM Adam Grunsell, RAN (Dec 15-current)**
Branch Head	CDRE Steve Tiffen, RAN
Project Director/Manager	Mr Mark Simmonds **(to Mar 16)** **Mr Michael Welsh (Acting Mar 16-current)**