

Project Data Summary Sheet²⁴¹

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
2014-15 Budget	\$26.8m
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

Current in-year performance indicates spending is in line with budget; **with a minor underspend of \$0.2m, primarily due to the complex materiel management across multiple projects, including but not limited to this project, SEA 1448 Phase 2B and other sustainment products.**

Project Financial Assurance Statement

As at 30 June 2015, 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 not applied contingency in the financial year.

241 Notice to reader

Future dates and Sections: 1.3 (Major Risks and Issues), 4.1 (Measures of Materiel Capability Delivery Performance), 5.1 (Major Project Risks) and 5.2 (Major Project Issues) are out of scope for the ANAO's review of this Project Data Summary Sheet. Information on the scope of the review is provided in the *Independent Review Report by the Auditor-General* in **Part 3** of this report.

Schedule Performance

The systems being provided under Phase 2A are **largely** being delivered to 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 approvals for this Phase of the Project. During **2014-15**, due to pressures from the large sustainment package of work, a revised schedule has been developed for ships four onwards. Recent achievements include the Materiel Release (MR) of the second ship, HMAS *Arunta* in December 2014, and the MR of the third ship HMAS *ANZAC* in March 2015. The fourth ship HMAS *Warramunga* is working to a revised schedule and is expected to be completed in December 2015. HMAS *Ballarat* the fifth ship and HMAS *Parramatta* the sixth ship are both well into the upgrade, again working to a revised schedule. The project remains on track to deliver Final Operating Capability by October 2017. All documents to support Initial Operational Capability (IOC) have been delivered to Navy.

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. IOC is anticipated in **September 2015**.

Note

The capability assessments and forecasts by the project are not subject to the ANAO's assurance 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 \$449m (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 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 Infra-Red Search and Track (IRST) will be supported through the current ANZAC Alliance arrangements.

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:

- 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;
- **Unplanned work is activated during an ASMD refit period, predominantly though 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).

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 14	Exchange Variation	(3.6)	
Jun 14	Total Budget	386.8	
	Project Expenditure		
Prior to Jul 14	Contract Expenditure – SAAB Systems Pty Ltd (CMS)	(113.5)	
	Contract Expenditure – BAE Systems Australia (IRST)	(93.8)	
	Contract Expenditure – BAE Systems Australia (First of Class)	(37.6)	
	Contract Expenditure – BAE Systems Australia (FON)	(28.2)	
	Contract Expenditure – SAAB Systems Pty Ltd (First of Class)	(20.1)	
	Contract Expenditure – SAAB Systems Pty Ltd (Follow On (FON))	(0.7)	
	Other Contract Payments / Internal Expenses	(11.8)	4
		(305.7)	
FY to Jun 15	Contract Expenditure – BAE Systems Australia (FON)	(22.6)	
	Contract Expenditure – BAE Systems Australia (First of Class)	(1.5)	
	Contract Expenditure – SAAB Systems Pty Ltd (Follow On (FON))	(0.9)	
	Contract Expenditure – SAAB Systems Pty Ltd (First of Class)	(0.3)	
	Other Contract Payments / Internal Expenses	(1.3)	4
		(26.6)	
Jun 15	Total Expenditure	(332.3)	
Jun 15	Remaining Budget	54.5	
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	Other expenditure comprises: operating expenditure, contractors, consultants, contingency, other capital expenditure not attributable to the aforementioned top five contracts and minor contract expenditure.

2.2A In-year Budget Estimate Variance

Estimate PBS \$m	Estimate PAES \$m	Estimate Final Plan \$m	Explanation of Material Movements
28.2	24.9	26.8	PBS – PAES - The variation is due to minor reduction of ASMD work due to the extent of concurrent maintenance for Anzac ships. PAES – Final Plan – Variation is due to optimisation of funding driven by financial constraints in outer years
Variance \$m	(3.3)	1.9	Total Variance (\$m): (1.4)
Variance %	(11.7)	7.6	Total Variance (%): (5.0)

2.2B In-year Budget/Expenditure Variance

Estimate Final Plan \$m	Actual \$m	Variance \$m	Variance Factor	Explanation
			FMS	The underspend is primarily due to the complex materiel management across multiple projects, including but not limited to this project, SEA 1448 Phase 2B and other sustainment products.
			Overseas Industry	
		(0.2)	Local Industry	
			Brought Forward	
			Cost Savings	
			FOREX Variation	
			Commonwealth Delays	
			Additional Government Approvals	
26.8	26.6	(0.2)	Total Variance	
		(0.8)	% Variance	

2.3 Details of Project Major Contracts

Contractor	Signature Date	Price at		Type (Price Basis)	Form of Contract	Notes
		Signature \$m	30 Jun 15 \$m			
SAAB Systems Pty Ltd (CMS)	Apr 05	123.1	113.5	Variable	Alliance	2
BAE Systems Australia (IRST)	Apr 05	104.9	93.8	Variable	Alliance	1
BAE Systems Australia (First of Class)	Apr 07	26.2	44.7	Variable	Alliance	1, 2
SAAB Systems Pty Ltd (First of Class)	Apr 07	9.9	21.2	Variable	Alliance	2
BAE Systems Australia (FON)	Jan 12	74.9	87.5	Variable	Alliance	1, 2
Notes						
1	These contracts are listed with BAE Systems Australia, formerly Tenix Defence.					
2	Contract value as at 30 June 2015 is based on actual expenditure to 30 June 2015 and remaining commitment at current exchange rates, and includes adjustments for indexation (where applicable).					

Contractor	Quantities as at		Scope	Notes
	Signature	30 Jun 15		
SAAB Systems Pty Ltd	8	8	Combat Management Systems and Fire Control System upgrades	1
BAE Systems Australia	8	8	Infra-red Search and Track Systems	1
BAE Systems Australia	N/A	N/A	First of Class Installation	
SAAB Systems Pty Ltd	N/A	N/A	First of Class Installation	
BAE Systems Australia	7	7	FON Ships 2-8 Installation	
Major equipment received and quantities to 30 Jun 15				
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 <i>Perth</i> , HMAS <i>Arunta</i> and HMAS <i>ANZAC</i> . Equipment continues to be installed on HMAS <i>Warramunga</i> , HMAS <i>Ballarat</i> and HMAS <i>Parramatta</i> .				
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 <i>Stirling</i>)	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 <i>Stirling</i>)	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 – Part 2 (Remaining components of AFT mast)	N/A	N/A	Aug 08	N/A	
	ASMD Shore Facilities (HMAS <i>Stirling</i>)	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.					

Project Data Summary Sheets

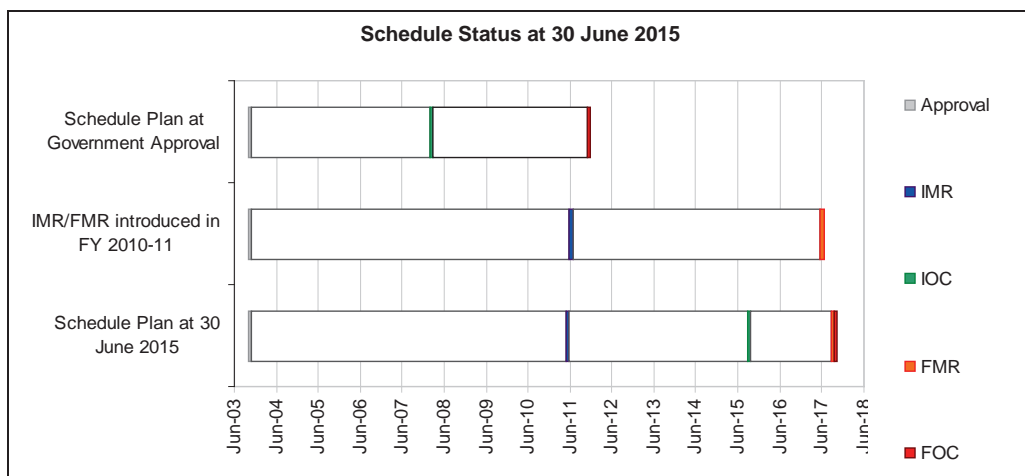
ANAO Report No.16 2015–16
2014–15 Major Projects Report

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 <i>Perth</i> 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 <i>Perth</i> 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 is 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 <i>Perth</i> .					

3.3 Progress Toward Materiel Release and Operational Capability Milestones

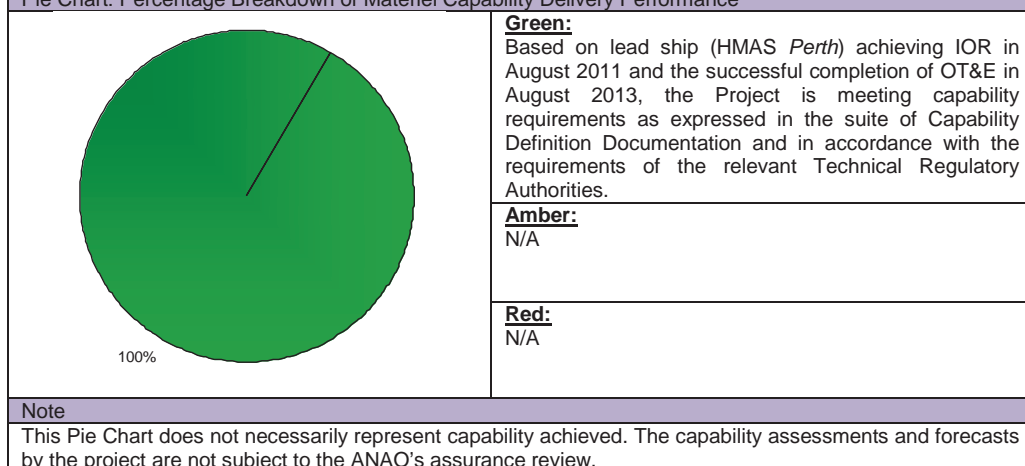
Item	Original Planned	Achieved /Forecast	Variance (Months)	Notes
Initial Materiel Release (IMR)	N/A	Jun 11	N/A	
Initial Operational Capability (IOC)	Mar 08	Sep 15	89	1
Final Materiel Release (FMR)	Jul 17	Oct 17	3	2, 4
Final Operational Capability (FOC)	Dec 11	Oct 17	70	3, 4
Notes				
1	Variance is directly 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. All IOC documentation was submitted to Navy in July 2014 and is currently under review by regulators.			
2	Newly added CASG milestone as part of update to the MAA between Defence and CASG . <i>Note: this variation is due to the approval of ships 2-8 by Government.</i>			
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. <i>Note: this variation is due to the approval of ships 2-8 by Government.</i>			
4	To reduce schedule pressure from the large sustainment work package, a revised schedule has been developed in consultation with Navy for ships 4 through 8.			



Section 4 – Materiel Capability Delivery Performance

4.1 Measures of Materiel Capability Delivery Performance

Pie Chart: Percentage Breakdown of Materiel Capability Delivery Performance



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 <i>Perth</i>.	Achieved
Final Materiel Release (FMR)	Acceptance of the ASMD upgraded ship 8, HMAS <i>Stuart</i>, scheduled for October 2017.	Not 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 <i>Perth</i> has seen all systems achieving initial materiel certification in June 2011. Subsequent at sea operations by HMAS <i>Perth</i> has proven the system meets initial capability requirements. This risk will be retired when IOC is achieved.
Emergent Risks (risk not previously identified but has emerged during 2014-15)	
Description	Remedial Action
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.

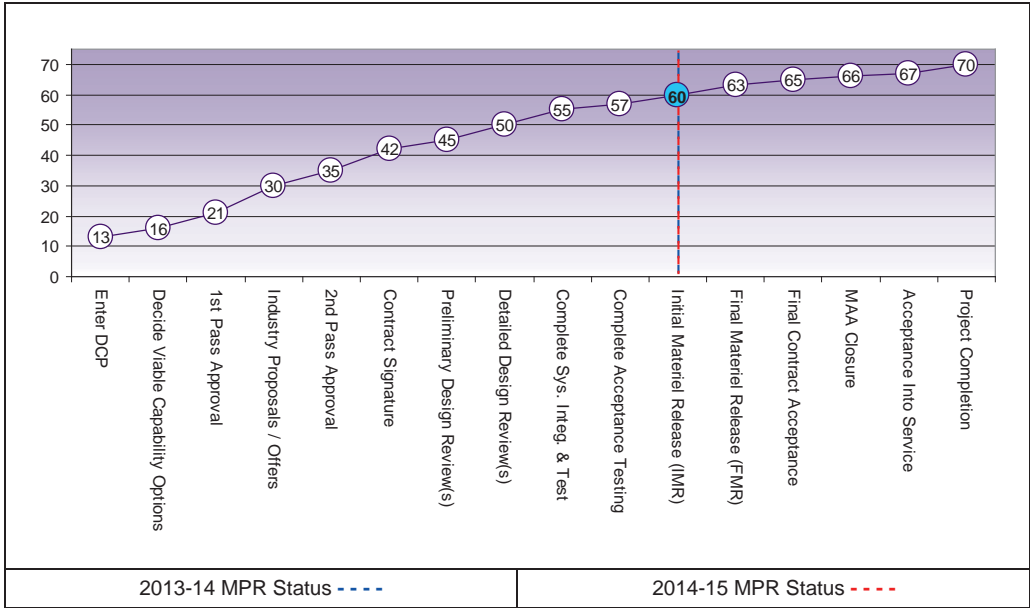
5.2 Major Project Issues

Description	Remedial Action
N/A	N/A

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	8	8	8	9	8	9	60
Initial Materiel Release	Project Status	8	8	9	9	9	8	9	60
	Explanation	<ul style="list-style-type: none"> • Schedule: Schedule is mature and there remains a further six ships to upgrade. • Requirement: Phase 2A is well understood in this area; the upgrade of the Combat Management System to Mk3E and the introduction of the IRST System are low risk to the Project and well understood to the customer. • Technical Understanding: Successful OT&E completed in August 2013. 							



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 2014-15

Position	Name
General Manager	Mr Colin Thorne
Division Head	RADM Mark Purcell, RAN
Branch Head	CDRE Michael Houghton, RAN (to Dec 14) CDRE Steve Tiffen, RAN (Dec 14–current)
Project Director/Manager	Mr Mark Simmonds