



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-362



Ballistic Missile Defense System (BMDS)

As of FY 2016 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MDAP Programs	3
Program Information	5
Responsible Office	5
References	5
Mission and Description	6
Executive Summary	7
Threshold Breaches	10
Schedule	11
Performance	12
Track to Budget	13
Cost and Funding	18
Low Rate Initial Production	27
Foreign Military Sales	28
Nuclear Costs	29
Unit Cost	30
Cost Variance	33
Contracts	36
Deliveries and Expenditures	46
Operating and Support Cost	47

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Ballistic Missile Defense System (BMDS)

DoD Component

DoD

Responsible Office

VADM James D. Syring
Missile Defense Agency (MDA)
5700 18th Street
Fort Belvoir, VA 22060-5573

james.syring@mda.mil

Phone: 571-231-8006

Fax: 571-231-8090

DSN Phone: 289-8006

DSN Fax: 289-8090

Date

Assigned: November 19, 2012

References

SAR Baseline (Planning Estimate)

National Security Presidential Directive (NSPD) - 23 dated December 16, 2002 (rescinded by Presidential Policy Directive (PPD) - 10) and PPD-10 dated July 26, 2011

Mission and Description

Mission and Description

To develop and deploy a layered Ballistic Missile Defense System (BMDS) to defend the United States (U.S.), its deployed forces, allies, and friends from ballistic missile attacks of all ranges and in all phases of flight.

Following guidance from the President, the Secretary of Defense approved the Ballistic Missile Defense (BMD) Review Report (dated February 2010), which established the following policy priorities to frame ballistic missile defense development and acquisition program strategies:

1. The U.S. will continue to defend the homeland against the threat of limited ballistic missile attack.
2. The U.S. will defend against regional missile threats to U.S. forces, while protecting allies and partners and enabling them to defend themselves.
3. Before new capabilities are deployed, they must undergo testing that enables assessment under realistic operational conditions.
4. The commitment to new capabilities must be fiscally sustainable over the long term.
5. U.S. BMD capabilities must be flexible enough to adapt as threats change.
6. The U.S. will seek to lead expanded international efforts for missile defense.

Executive Summary

Introduction

The Missile Defense Agency (MDA) accomplished a number of key objectives in calendar year 2014 to develop defenses for our Nation, deployed forces, allies, and international partners against increasingly capable ballistic missiles. MDA's mission continues to grow more complex as potential adversaries acquire more ballistic missiles, increase their range and accuracy, and add more sophisticated countermeasures.

MDA's overarching goal is to meet warfighter needs which we accomplish by incrementally improving and deploying BMDS capability. We continue to validate that capability with rigorous testing. MDA continues to develop new technologies to improve BMDS capability and reliability.

Homeland Defense and Regional Defense

MDA made significant progress in 2014 toward improving homeland defense against potential ballistic missile attacks from threats such as North Korea and Iran. Currently, there are 30 operational Ground Based Interceptors (GBIs) in place to protect the U.S. homeland. MDA remains committed to improve Ground Based Midcourse Defense (GMD) reliability and to expand homeland defense to 44 GBIs by the end of 2017. In conjunction, MDA is continuing refurbishment of Missile Field 1 at Fort Greely, Alaska to expand silo capacity.

Based on the recent successful GMD flight test and target intercept by the GBI with a Capability Enhancements II (CEII) Exo-atmospheric Kill Vehicle (EKV), MDA restarted the previously-halted CEII EKV production and began integration of the successful modifications into the operational fleet. MDA continues to improve GBIs with focused reliability growth initiatives and the stockpile reliability program. Additionally, MDA continues to define requirements and the path forward for the Redesigned Kill Vehicle (RKV) development which will further improve performance, availability, reliability, manufacturability, and quality.

MDA continues to refine requirements and top-level designs for the Long Range Discrimination Radar (LRDR) that will provide persistent sensor coverage and improved discrimination capabilities against threats to the homeland. MDA is progressing with Discrimination Improvements for Homeland Defense (DIHD) across several BMDS elements to improve tracking and discrimination capabilities of the sensor and interceptor architecture against emerging threats. Fielding near-term DIHD capability is on schedule for late 2016.

During 2014, MDA completed the Missile Assembly Building at Vandenberg Air Force Base, California that increases efficiency in GBI processing. Construction of the east coast GBI In-Flight Interceptor Communication System (IFICS) Data Terminal (IDT) is proceeding on schedule for late-2015 and will enable communication with GBIs over longer distances for improved defense of the eastern United States. MDA transferred sustainment responsibility for the Beale (California), Fylingdales (United Kingdom), and Thule (Greenland) Upgraded Early Warning Radars to the Air Force. MDA is preparing an environmental impact statement for a potential east coast GBI site, however the Department of Defense has not made a deployment decision.

Delivery of regional BMD capabilities to protect deployed U.S. forces, allies, and international partners remains one of MDA's top priorities. In 2014, MDA tested and delivered the second forward-based Army-Navy Transportable Radar Surveillance and Control-Series 2 (AN/TPY-2) radar to Japan. The Kyogamisaki Communications Site (KCS) radar enhances sensor coverage for BMD of Japan and the U.S. homeland and augments the existing radar located in northern Japan. To further enhance capabilities to counter regional BMD threats, MDA tested and delivered new Command and Control, Battle Management, and Communications (C2BMC) capabilities to all Regional Combatant Commands (CCMDs) that improve real-time coordination and collaboration between two AN/TPY-2 radars, including capabilities across multiple CCMDs' areas of responsibilities.

MDA continued to deliver additional Terminal High Altitude Area Defense (THAAD) interceptors, as well as the equipment for a fourth THAAD battery to the Army. MDA increased Naval BMD capability providing three new Aegis BMD Weapon

System installations (increasing the total BMD fleet to 33 ships), and delivering 29 additional Standard Missile-3 (SM-3) Block IA interceptors, and 25 additional SM-3 Block IB interceptors to the Navy. The SM-3 Block IB completed required operational testing and assessment in 2014, and the full production decision for all future SM-3 Block IB procurements is planned in early 2015.

MDA remains committed to implementing the European Phased Adaptive Approach (EPAA), which provides BMD protection of deployed U.S. forces and our European allies. EPAA Phase I is now deployed, providing coverage of NATO territory in Europe. EPAA Phase II includes Aegis Ashore with SM-3 Block IB interceptors and upgraded Aegis BMD Weapon Systems to counter expanded missile threats and increase coverage of southern Europe. In 2014, the construction of the Aegis Ashore infrastructure in Romania made substantial progress. Concurrently, the Deckhouse built in New Jersey was disassembled and transported to Romania. EPAA Phase II is on schedule to be fully delivered by the end of 2015. EPAA Phase III is on track to be delivered in 2018 and includes Aegis Ashore installation in Poland, another upgrade to the Aegis BMD Weapon System, and the SM-3 Block IIA variant (cooperatively developed with Japan).

Rigorous Testing

In 2014, MDA continued to validate BMD performance by completing five U.S.-only flight tests, increasing the total successful hit-to-kill intercepts to 66 out of 82 flight test attempts across all BMDS programs since 2001. MDA also executed four ground tests and supported 32 CCMDs' BMD wargames and exercises. Additionally, MDA participated in Israeli BMD flight tests.

The successful GMD flight test in 2014 was an important step for homeland defense. Using the CEII EKV, GMD intercepted an intermediate range target with countermeasures. The test validated end-to-end BMDS performance and had the longest EKV time of flight, as well as the highest intercept closing velocity of any GBI test to date.

A key milestone toward EPAA Phase II implementation was accomplished with the first flight test involving major components of the Aegis Ashore system. During the test at the Aegis Ashore Missile Defense Test Complex, Pacific Missile Range Facility, a simulated ballistic missile target was acquired, tracked, and engaged by the Aegis BMD Weapon System which fired a SM-3 Block IB missile from the land-based Vertical Launch System.

Other first-time flight test events included:

- Aegis BMD Weapon System 4.0.2 using simulated SM-3 Block IB missiles successfully engaged three simultaneously launched short-range target missiles representing a ballistic missile raid.
- Aegis BMD Weapon System 5.0 successful engagement in Integrated Air and Missile Defense Radar Priority Mode of a short-range BMD target with an SM-3 Block IB, while two low-flying cruise missile targets were engaged near-simultaneously by Standard Missile-2 (SM-2) Block IIIA guided missiles.
- First flight of a new medium-range BMD target representing an advanced threat.

MDA continued to assess and validate cyber security. In 2014, MDA conducted four vulnerability assessments and received an "Excellent" inspection rating from U.S. Cyber Command and Defense Information Systems Agency.

BMD Technology Initiatives

In addition to the expanding BMD capabilities described above, MDA continues to pursue BMD technology advances to meet the future challenges of the evolving worldwide ballistic missile threat. MDA developed and tested advanced sensor prototypes to improve precision tracking and discrimination. In 2014, MDA demonstrated that two Reaper Unmanned Aircraft Systems (UAS) with adapted tactical sensors can enable the Aegis weapon system to launch an SM-3 Block IB interceptor based solely on tracks from remote airborne sensors. The Reapers, sensors, and medium-range target were participants of a live flight test, while the SM-3 launch and target engagement were simulated in real-time with a test laboratory. Additionally, the Space-based Kill Assessment (SKA) sensor experiment completed assembly of the first engineering unit to prove out sensor design. A network of SKA sensors will be hosted on a commercial satellite constellation in 2017 and, if successful as a kill assessment experiment, could inform BMDS-level Commanders' shot doctrine for improved interceptor inventory control.

The Directed Energy Program continued progress toward next generation high-energy lasers by pursuing several promising lightweight, highly-efficient solid state laser technologies. These candidate technologies offer a path to high-efficiency, electrically-driven, compact, light-weight high-energy lasers for multiple BMD applications.

The Common Kill Vehicle Technology effort continued pursuing improved discrimination technologies to destroy several objects within a threat complex using multiple kill vehicles from a single interceptor. MDA is developing Multi-Object Kill Vehicle concepts with modular, open architectures and employing common interfaces and standards, making upgrades easier and broadening the supplier base.

In 2014, the Advanced Research program made significant contributions to technology development and transition to the BMDS by awarding 186 new Small Business Innovation Research contracts; nine new university research efforts; one new Rapid Innovation Fund effort; and continuing a research project with the Government of Denmark on Frequency Modulated Continuous Wave radars. In addition, MDA conducted or collaborated on 31 Science, Technology, Engineering, and Mathematics events reaching over 9000 students.

International Cooperation

MDA continued to collaborate with U.S. allies and partners in 2014 to increase BMD capabilities. MDA participated in missile defense-related projects and studies with over twenty countries and NATO.

In the Middle East, significant 2014 accomplishments and coordination activities included:

- Continued execution of the United Arab Emirates' (UAE) THAAD Letters of Offer and Acceptance. The THAAD program is on track for 2015 delivery of the first of two THAAD batteries, including AN/TPY-2 radar, and the first THAAD interceptors to UAE.
- Received and began developing response to Qatar Letter of Request for technical assistance to develop detailed requirements for prospective THAAD FMS case.
- Continued coordination with other Middle East countries through the Gulf Coordination Council to strengthen cooperation and determine common missile defense interests.

In Israel, MDA continued its Cooperative Development Program on several BMD systems and to facilitate interoperability with the U.S. BMDS. Work continued under existing agreements for the Arrow Weapons System, David's Sling, the Upper Tier Interceptor programs, and Iron Dome. Notably in 2014, MDA expeditiously re-aligned planned cooperative tests and executed transfer of additional funds that were appropriated by Congress to support Israeli rocket defense efforts as part of Operation Protective Edge.

In Europe, MDA continued to collaborate closely with Romania and Poland as planning and progress continued toward construction and deployment for EPAA Phases II and III.

In the Asia-Pacific region, MDA continues to expand bilateral relationships with Australia, Japan, and Republic of Korea (ROK). Substantial BMD cooperation with Japan progressed as the KCS AN/TPY-2 radar was delivered and became operational and the SM-3 Block IIA Program continued cooperative development of the next Aegis missile.

General

Program funding and production quantities listed in this SAR are consistent with the FY 2016 PB.

There are no significant software-related issues with the program at this time.

Threshold Breaches

APB Breaches

- Schedule
- Performance
- Cost
 - RDT&E
 - Procurement
 - MILCON
 - Acq O&M
- O&S Cost
- Unit Cost
 - PAUC
 - APUC

Nunn-McCurdy Breaches

- Current UCR Baseline**
 - PAUC None
 - APUC None
- Original UCR Baseline**
 - PAUC None
 - APUC None

Schedule

No schedule events exist for BMDS.

Notes

For schedule milestones see the Unclassified BMDS Accountability Report (BAR) and BAR Classified Annex dated February 20, 2015.

Performance

No performance characteristics exist for BMDS.

Notes

For performance characteristics see the Unclassified BMDS Accountability Report (BAR) and BAR Classified Annex dated February 20, 2015.

Track to Budget

General Notes

Reflects the latest budget structure for PB 2016.

RDT&E

Appn	BA	PE	
Defense-Wide	0400	04	0305103C
	Project	Name	
	MDCS	Cyber Security Initiative	
Defense-Wide	0400	03	0603175C
	Project	Name	
	MD25	Advanced Technology	
	MD40	Program Wide Support	
	MD85	Common Kill Vehicle	
Defense-Wide	0400	03	0603176C
	Project	Name	
	MD40	Program-Wide Support	
	MD71	Advanced Concepts	
Defense-Wide	0400	03	0603177C
	Project	Name	
	MC95	Cyber Operations	
	MD40	Program-Wide Support	
	MD95	Discrimination Sensor Technology	
	MT95	Discrimination Sensor Tech-Flight Test Execution	
Defense-Wide	0400	03	0603178C
	Project	Name	
	MD40	Program-Wide Support	
	MD69	Weapons Technology	
	MD72	Interceptor Technology	
Defense-Wide	0400	03	0603179C
	Project	Name	
	MD01	Command & Control, Battle Management, Communications (C2BMC)	
	MD40	Program Wide Support	
	MD73	Advanced C4ISR	
Defense-Wide	0400	03	0603180C
	Project	Name	
	MD25	Advanced Research	
	MD40	Program-Wide Support	
Defense-Wide	0400	03	0603274C
	Project	Name	

	MD81		Special Programs - MDA Technology
Defense-Wide	0400	03	0603294C
	Project		Name
	MD40		Program-Wide Support
	MD85		Common Kill Vehicle
Defense-Wide	0400	04	0603881C
	Project		Name
	MC07		BMDS Cyber Program
	MD06		Patriot Advanced Capability-3 (PAC-3)
	MD07		THAAD
	MD40		Program Wide Support
	MT07		THAAD Test
Defense-Wide	0400	04	0603882C
	Project		Name
	MC08		BMDS Cyber Program
	MD08		Ground Based Midcourse
	MD40		Program Wide Support
	MT08		Ground Based Midcourse Test
	MX08		Ground Based Midcourse Development Support
Defense-Wide	0400	04	0603884C
	Project		Name
	MC11		BMDS Cyber Program
	MD11		BMDS Radars
	MD40		Program Wide Support
	MT11		BMDS Radars Test
Defense-Wide	0400	04	0603890C
	Project		Name
	MC30		BMDS Cyber Program
	MC31		BMDS Cyber Program
	MD24		Systems Engineering & Integration
	MD28		Intelligence & Security
	MD30		BMD Information Management Systems
	MD31		Modeling & Simulation
	MD32		Quality, Safety, and Mission Assurance
	MD40		Program Wide Support
	MT23		Enabling - Test
Defense-Wide	0400	04	0603891C
	Project		Name
	MD27		Special Programs
Defense-Wide	0400	04	0603892C
	Project		Name
	MC09		BMDS Cyber Program
	MD09		Aegis BMD
	MD40		Program Wide Support
	MT09		Aegis BMD Test
	MX09		Aegis BMD Development Support

 Defense-Wide 0400 04 0603893C

Project	Name
MD12	Space Tracking & Surveillance System (STSS)
MD40	Program Wide Support

 Defense-Wide 0400 04 0603895C

Project	Name
MD33	MD Space Exp Center (MDSEC)
MD40	Program Wide Support

 Defense-Wide 0400 04 0603896C

Project	Name
MC01	BMDS Cyber Program
MD01	Command & Control, Battle Management, Communications (C2BMC)
MD40	Program Wide Support
MT01	C2BMC Test
MX01	C2BMC Development Support

 Defense-Wide 0400 04 0603898C

Project	Name
MD03	Joint Warfighter Support
MD40	Program Wide Support
MT03	Joint Warfighter Test Support

 Defense-Wide 0400 04 0603904C

Project	Name
MC22	BMDS Cyber Program
MD22	Missile Defense Integration & Operations Center (MDIOC)
MD40	Program Wide Support

 Defense-Wide 0400 04 0603906C

Project	Name
MD35	Regarding Trench

 Defense-Wide 0400 04 0603907C

Project	Name
MD40	Program Wide Support
MX46	Sea Based X-Band Radar Development Support

 Defense-Wide 0400 04 0603913C

Project	Name
MD20	Israeli Upper Tier
MD26	Israeli ARROW Program
MD34	Short Range Ballistic Missile Defense (SRBMD)
MD83	Iron Dome

 Defense-Wide 0400 04 0603914C

Project	Name
MC04	BMDS Cyber Program
MD40	Program Wide Support
MT04	BMDS Test Program

Defense-Wide 0400 04 0603915C

Project	Name
---------	------

MD40 Program Wide Support
MT05 BMDs Targets Program

Defense-Wide 0400 04 0604115C

Project	Name
---------	------

MC98 Cyber Operation
MD40 Program Wide Support
MD98 Directed Energy Prototype Development
MD99 Discrimination Sensor Prototype Development
MT99 Technology Maturation Initiatives Test

Defense-Wide 0400 04 0604873C

Project	Name
---------	------

MD40 Program Wide Support
MD96 Long Range Discrim Radar (LRDR)

Defense-Wide 0400 04 0604874C

Project	Name
---------	------

MD40 Program Wide Support
MD97 Improved HD Interceptors

Defense-Wide 0400 04 0604876C

Project	Name
---------	------

MD40 Program Wide Support
MT07 THAAD Test

Defense-Wide 0400 04 0604878C

Project	Name
---------	------

MD40 Program Wide Support
MT09 Aegis BMD Test

Defense-Wide 0400 04 0604879C

Project	Name
---------	------

MD40 Program Wide Support
MT11 BMDs Radars Test

Defense-Wide 0400 04 0604880C

Project	Name
---------	------

MD40 Program-Wide Support
MD68 Aegis Ashore
MT68 Aegis Ashore Test

Defense-Wide 0400 04 0604881C

Project	Name
---------	------

MD09 SM-3 Block IIA Co-Development
MD40 Program-Wide Support
MT09 SM-3 Block IIA Co-Development Test

Defense-Wide 0400 04 0604887C

Project	Name
---------	------

MD40 Program Wide Support

	MT08		Midcourse Test
Defense-Wide	0400	04	0605502C
	Project	Name	
	MD45		Small Business Innovative Research
Defense-Wide	0400	04	0901598C
	Project	Name	
	MD38		Management Headquarters

Procurement

	Appn	BA	PE
Defense-Wide	0300	01	0208866C
	Line Item	Name	
	MD07	THAAD	
	MD08	Ground Based Midcourse	
	MD09	Aegis BMD	
	MD11	BMDS AN/TPY-2 Radars	
	MD73	Aegis Ashore Phase III	
	MD78	Aegis Spares	
	MD83	Iron Dome	

MILCON

	Appn	BA	PE
Defense-Wide	0500		0603882C
	Project	Name	
	MM08	Ground Based Midcourse	
Defense-Wide	0500		0603884C
	Project	Name	
	MM11	BMDS Radars	
	MM96	Long Range Discriminating Radar	
Defense-Wide	0500		0604880C
	Project	Name	
	MM68	Aegis Ashore	
Defense-Wide	0500		22299902
	Project	Name	
	MM14	MILCON Planning and Design	
Defense-Wide	0500		31299903
	Project	Name	
	MM32	MILCON Planning Design	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY \$M			BY 2002 \$M	TY \$M		
	SAR Baseline Planning Estimate	Current APB Objective/Threshold		Current Estimate	SAR Baseline Planning Estimate	Current APB Objective	Current Estimate
RDT&E	44740.1	--	--	110494.6	47217.1	--	129409.9
Procurement	0.0	--	--	12480.4	0.0	--	16251.3
Flyaway	--	--	--	12480.4	--	--	16251.3
Recurring	--	--	--	12480.4	--	--	16251.3
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	--	--	880.3	0.0	--	1141.0
Acq O&M	0.0	--	--	0.0	0.0	--	0.0
Total	44740.1	--	--	123855.3	47217.1	--	146802.2

Cost Notes

For Major Defense Acquisition Programs, DoD requires an APB at program initiation. The APB establishes cost, quantity, schedule, and performance parameters that form the basis for unit cost reporting under 10 U.S.C. Sec. 2433. As a single integrated system of systems, the BMDS does not have an APB. In response to other statutory requirements, however, Missile Defense Agency provides the Congress with an annual BMDS Accountability Report (BAR), which includes schedule, technical, operational capacity, resource, and contract baselines that guide development of ballistic missile defense capabilities. The BAR includes unit cost baselines for key assets (e.g. Ground-Based Interceptors and AN/TPY-2 radars) comprising the BMDS.

Total Quantity			
Quantity	SAR Baseline Planning Estimate	Current APB	Current Estimate
RDT&E	0	0	0
Procurement	0	0	0
Total	0	0	0

Quantity Notes

Quantities of Key BMDS Assets (grouped by appropriation, total buys from FY 2002-20)

<u>Program</u>	<u>Component</u>	<u>RDT&E Procurement</u>	
Terminal High Altitude Area Defense (THAAD)	Batteries	2	5
	Interceptors	50	286
Aegis	SM-3 Block I/IA Interceptors	95	55
	SM-3 Block IB Interceptors	21	396
Ground Based Midcourse Defense (GMD)	Ground Based Interceptors (GBIs)	58	6
Sensors	AN/TPY-2 Radars	7	5

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	96336.7	5647.8	6190.4	5884.7	5227.8	5010.4	5112.1	0.0	129409.9
Procurement	6709.7	1758.5	1335.0	1343.1	1544.3	1719.1	1841.6	0.0	16251.3
MILCON	584.5	60.7	169.2	126.9	119.4	69.6	10.7	0.0	1141.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	103630.9	7467.0	7694.6	7354.7	6891.5	6799.1	6964.4	0.0	146802.2
PB 2015 Total	103211.6	7042.5	7399.9	7204.9	6915.9	6824.5	0.0	0.0	138599.3
Delta	419.3	424.5	294.7	149.8	-24.4	-25.4	6964.4	0.0	8202.9

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	0	0	0	0	0	0	0	0	0
PB 2016 Total	0	0	0	0	0	0	0	0	0	0
PB 2015 Total	0	0	0	0	0	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
0400 RDT&E Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	6618.8
2003	--	--	--	--	--	--	6446.3
2004	--	--	--	--	--	--	7566.8
2005	--	--	--	--	--	--	8826.7
2006	--	--	--	--	--	--	7690.3
2007	--	--	--	--	--	--	9382.8
2008	--	--	--	--	--	--	8655.3
2009	--	--	--	--	--	--	8411.9
2010	--	--	--	--	--	--	6947.9
2011	--	--	--	--	--	--	7406.7
2012	--	--	--	--	--	--	6809.2
2013	--	--	--	--	--	--	5867.3
2014	--	--	--	--	--	--	5706.7
2015	--	--	--	--	--	--	5647.8
2016	--	--	--	--	--	--	6190.4
2017	--	--	--	--	--	--	5884.7
2018	--	--	--	--	--	--	5227.8
2019	--	--	--	--	--	--	5010.4
2020	--	--	--	--	--	--	5112.1
Subtotal	--	--	--	--	--	--	129409.9

Annual Funding							
0400 RDT&E Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	BY 2002 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	6496.7
2003	--	--	--	--	--	--	6238.0
2004	--	--	--	--	--	--	7320.1
2005	--	--	--	--	--	--	8432.1
2006	--	--	--	--	--	--	7078.7
2007	--	--	--	--	--	--	8350.7
2008	--	--	--	--	--	--	7655.5
2009	--	--	--	--	--	--	7195.8
2010	--	--	--	--	--	--	5903.1
2011	--	--	--	--	--	--	6223.6
2012	--	--	--	--	--	--	5636.8
2013	--	--	--	--	--	--	4718.8
2014	--	--	--	--	--	--	4478.0
2015	--	--	--	--	--	--	4395.9
2016	--	--	--	--	--	--	4765.9
2017	--	--	--	--	--	--	4447.3
2018	--	--	--	--	--	--	3874.7
2019	--	--	--	--	--	--	3641.0
2020	--	--	--	--	--	--	3641.9
Subtotal	--	--	--	--	--	--	110494.6

Annual Funding								
0300 Procurement Procurement, Defense-Wide								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2009	--	--	206.6	--	206.6	--	206.6	--
2010	--	--	835.7	--	835.7	--	835.7	--
2011	--	--	1070.8	--	1070.8	--	1070.8	--
2012	--	--	1347.2	--	1347.2	--	1347.2	--
2013	--	--	1464.2	--	1464.2	--	1464.2	--
2014	--	--	1785.2	--	1785.2	--	1785.2	--
2015	--	--	1758.5	--	1758.5	--	1758.5	--
2016	--	--	1335.0	--	1335.0	--	1335.0	--
2017	--	--	1343.1	--	1343.1	--	1343.1	--
2018	--	--	1544.3	--	1544.3	--	1544.3	--
2019	--	--	1719.1	--	1719.1	--	1719.1	--
2020	--	--	1841.6	--	1841.6	--	1841.6	--
Subtotal	--	--	16251.3	--	16251.3	--	16251.3	--

Annual Funding 0300 Procurement Procurement, Defense-Wide							
Fiscal Year	Quantity	BY 2002 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	--	174.6	--	174.6	--	174.6
2010	--	--	703.9	--	703.9	--	703.9
2011	--	--	892.1	--	892.1	--	892.1
2012	--	--	1106.0	--	1106.0	--	1106.0
2013	--	--	1165.5	--	1165.5	--	1165.5
2014	--	--	1388.3	--	1388.3	--	1388.3
2015	--	--	1354.6	--	1354.6	--	1354.6
2016	--	--	1018.7	--	1018.7	--	1018.7
2017	--	--	1005.7	--	1005.7	--	1005.7
2018	--	--	1133.9	--	1133.9	--	1133.9
2019	--	--	1237.5	--	1237.5	--	1237.5
2020	--	--	1299.6	--	1299.6	--	1299.6
Subtotal	--	--	12480.4	--	12480.4	--	12480.4

Annual Funding 0500 MILCON Military Construction, Defense-Wide	
Fiscal Year	TY \$M
	Total Program
2002	8.2
2003	24.9
2004	24.4
2005	22.3
2006	4.9
2007	0.8
2008	--
2009	18.2
2010	96.7
2011	1.2
2012	67.1
2013	138.7
2014	177.1
2015	60.7
2016	169.2
2017	126.9
2018	119.4
2019	69.6
2020	10.7
Subtotal	1141.0

Annual Funding 0500 MILCON Military Construction, Defense-Wide	
Fiscal Year	BY 2002 \$M
	Total Program
2002	7.9
2003	23.7
2004	23.2
2005	21.0
2006	4.4
2007	0.7
2008	--
2009	15.3
2010	80.9
2011	1.0
2012	54.3
2013	108.4
2014	134.2
2015	45.6
2016	125.8
2017	92.5
2018	85.3
2019	48.8
2020	7.3
Subtotal	880.3

Low Rate Initial Production

There is no LRIP for this program.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Saudi Arabia	12/14/2014	0	2.7	FMS Case SR-I-WIA USG technical assistance. Deliveries: no major deliveries.
Japan	8/5/2013	0	7.5	FMS Case JA-P-FTZ: SM-3 SCD Propulsion Test Vehicle / Control Test Vehicle Test Execution. No major deliveries.
Japan	11/5/2012	0	2.0	FMS Case JA-P-FUE: Standard Missile-3 (SM-3) Cooperative Development (SCD) Insensitive Munitions Testing. No major deliveries.
Japan	9/27/2012	0	2.0	FMS Case JA-P-FUD: SM-3 SCD Ground Flight Testing. No major deliveries.
United Arab Emirates	12/25/2011	2	4904.8	FMS Case AE-B-UAF, Two THAAD Batteries, consisting of 192 interceptors, 2 AN/TPY-2 Radars, 12 Launchers, 8 Missile Round Pallets, 7 MIDS Terminals, 4 AMMPS, 10 PR4G TRC-9105 Radios, 6 PR4G TRC-9301C Radios, various tactical vehicles, trucks, training aids & devices, spare parts, training, government and contractor technical assistance, Tracking Exercise, books & publications, and repair & return. [Quantity is 2 batteries]
United Arab Emirates	4/30/2010	0	13.8	FMS Case AE-B-UAE, Technical Assistance & Site Survey. Deliveries: no major deliveries.
Japan	3/22/2010	2	20.0	FMS Case JA-P-FON: SM-3 BLK IA Spares and Return, Repair, Re-Shipment (RRR). Deliveries: SM-3 Kinetic Warhead (KW); MK72 Rocket Booster Motor.
Japan	1/15/2010	0	8.0	FMS Case JA-P-FPX: Japan Hardware in the Loop (HWIL). No major deliveries.
Japan	11/19/2008	0	21.0	FMS Case JA-P-CAM: Japan Computer Program Test Site JABMD Upgrade. No major deliveries.
Japan	9/11/2008	0	12.0	FMS Case JA-P-FQV: SM-3 BLK IA Spares. No major deliveries.
Japan	8/19/2008	0	59.0	FMS Case JA-P-CAN: JS KIRISHIMA (DDG 174) Firing Event. No major deliveries.
Japan	3/3/2008	9	202.0	FMS Case JA-P-LWA: Japan Aegis BMD Block 2004 Upgrade of JS KIRISHIMA (DDG 174). Deliveries: 1 JBMD BLK 04 Computer Program, Peripherals, and SM-3 BLK IA Missiles.
Japan	1/18/2008	0	53.0	FMS Case JA-P-CAE: JS MYOKO (DDG 175) Firing Event. No major deliveries.
Netherlands	8/31/2006	0	7.0	FMS Case NE-P-GLK: Participation in ABMD Test Events and NATO BMD Trade Studies. No major deliveries.
Japan	8/21/2006	0	56.0	FMS Case JA-P-BIR: JS CHOKAI (DDG 176) Firing Event. No major deliveries.

Japan	8/21/2006	9	209.0	FMS Case JA-P-LVK: Japan Aegis BMD Block 2004 Upgrade of JS MYOKO (DDG 175). Deliveries: 1 JBMD BLK 04 Computer Program, Peripherals, and SM-3 BLK IA Missiles.
Japan	10/12/2005	9	167.0	FMS Case JA-P-LUX: Japan Aegis BMD Block 2004 Upgrade of JS CHOKAI (DDG 176). Deliveries: 1 JBMD BLK 04 Computer Program, Peripherals, and SM-3 BLK IA Missiles.
Japan	8/17/2004	9	309.0	FMS Case JA-P-LUH, Japan Aegis BMD Block 2004 Upgrade of JS KONGO (DDG 173). Deliveries: 1 JBMD BLK 04 Computer Program, Peripherals, and SM-3 BLK IA Missiles.
Netherlands	9/28/2000	0	4.0	FMS Case NE-P-GJS: Theater Ballistic Missile Defense Concept Validation Phase. No major deliveries.

Notes**Nuclear Costs**

None

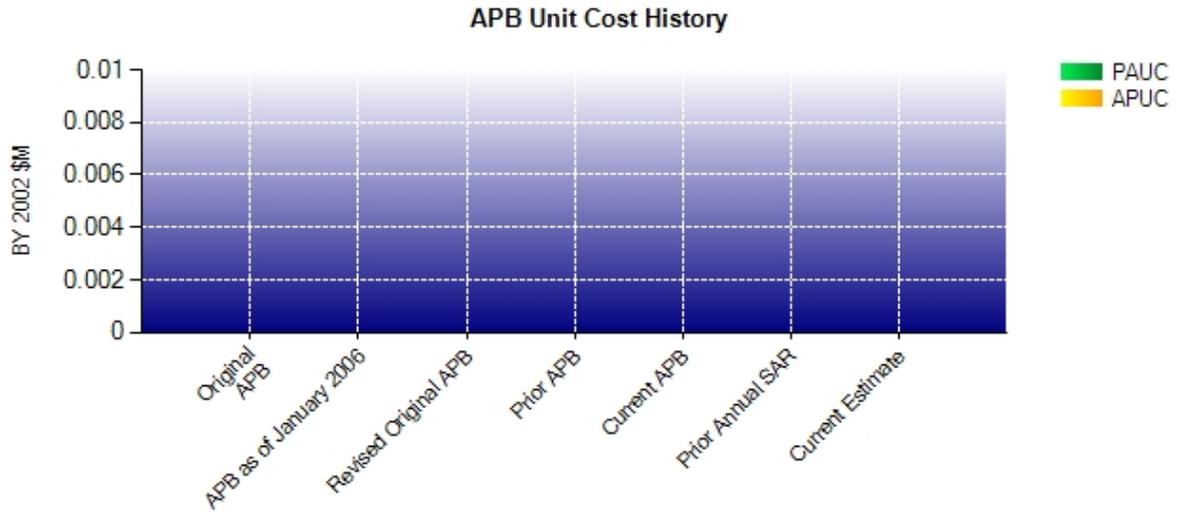
Unit Cost

Unit Cost Report

Item	BY 2002 \$M	BY 2002 \$M	% Change
	Current UCR Baseline	Current Estimate (Dec 2014 SAR)	
Program Acquisition Unit Cost			
Cost	--	123855.3	
Quantity	--	0	
Item	--	--	--
Average Procurement Unit Cost			
Cost	--	12480.4	
Quantity	--	0	
Unit Cost	--	--	--

For Major Defense Acquisition Programs, DoD requires an APB at program initiation. The APB establishes cost, quantity, schedule, and performance parameters that form the basis for unit cost reporting under 10 U.S.C. Sec. 2433. As a single integrated system of systems, the BMDS does not have an APB. In response to other statutory requirements, however, Missile Defense Agency provides the Congress with an annual BMDS Accountability Report (BAR), which includes schedule, technical, test, operational capacity, resource, and contract baselines that guide development of ballistic missile defense capabilities. The BAR includes unit cost baselines for key assets (e.g. Ground-Based Interceptors and AN/TPY-2 radars) comprising the BMDS.

Unit Cost History



Item	Date	BY 2002 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	N/A	N/A	N/A	N/A	N/A
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	N/A	N/A	N/A	N/A	N/A
Prior Annual SAR	Dec 2013	N/A	N/A	N/A	N/A
Current Estimate	Dec 2014	N/A	N/A	N/A	N/A

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Planning Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	--	--	--	--	--	--	--	--	0.000

A PAUC Unit Cost History is not available, since no Initial PAUC Estimate had been calculated due to a lack of defined quantities.

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Planning Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	--	--	--	--	--	--	--	--	0.000

An APUC Unit Cost History is not available, since no Initial APUC Estimate had been calculated due to a lack of defined quantities.

SAR Baseline History					
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate	
Milestone A		N/A	N/A	N/A	N/A
Milestone B		N/A	N/A	N/A	N/A
Milestone C		N/A	N/A	N/A	N/A
IOC		N/A	N/A	N/A	N/A
Total Cost (TY \$M)	47217.1		N/A	N/A	146802.2
Total Quantity	0		N/A	N/A	0
PAUC		N/A	N/A	N/A	N/A

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (PlanningRDTE Estimate)	47217.1	--	--	47217.1
Previous Changes				
Economic	+1584.3	+121.5	-12.9	+1692.9
Quantity	--	--	--	--
Schedule	-1684.3	-124.7	--	-1809.0
Engineering	+49715.4	-1296.1	-31.8	+48387.5
Estimating	-10887.2	-702.8	+1030.5	-10559.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+38728.2	-2002.1	+985.8	+37711.9
Current Changes				
Economic	-1834.0	-260.1	-19.0	-2113.1
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+1695.1	--	--	+1695.1
Estimating	+2059.1	-428.1	+25.5	+1656.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1920.2	-688.2	+6.5	+1238.5
Adjustments	+41544.4	+18941.6	+148.7	+60634.7
Total Changes	+82192.8	+16251.3	+1141.0	+99585.1
CE - Cost Variance	129409.9	16251.3	1141.0	146802.2
CE - Cost & Funding	129409.9	16251.3	1141.0	146802.2

Summary BY 2002 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (PlanningRDTE Estimate)	44740.1	--	--	44740.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	-1417.0	-91.5	--	-1508.5
Engineering	+42026.3	-977.2	-24.3	+41024.8
Estimating	-9009.4	-557.5	+779.4	-8787.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+31599.9	-1626.2	+755.1	+30728.8
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	+1278.4	--	--	+1278.4
Estimating	+1734.8	-294.2	+18.7	+1459.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+3013.2	-294.2	+18.7	+2737.7
Adjustments	+31141.4	+14400.8	+106.5	+45648.7
Total Changes	+65754.5	+12480.4	+880.3	+79115.2
CE - Cost Variance	110494.6	12480.4	880.3	123855.3
CE - Cost & Funding	110494.6	12480.4	880.3	123855.3

Previous Estimate: December 2013

Cost Variance Notes

Adjustments	Then-Year \$M				Base-Year \$M			
	RDT&E	PROC	MILCON	TOTAL	RDT&E	PROC	MILCON	TOTAL
Dec 2009 SAR	14,302.0	9,520.3	38.1	23,860.4	11,204.2	7,582.5	29.4	18,816.1
Dec 2010 SAR	6,279.4	2,191.1	10.1	8,480.6	4,805.2	1,662.4	7.6	6,475.2
Dec 2011 SAR	5,895.6	1,533.8	10.5	7,439.9	4,368.4	1,126.6	7.6	5,502.6
Dec 2012 SAR	5,164.3	1,890.0	10.6	7,064.9	3,715.1	1,347.4	7.4	5,069.9
Dec 2013 SAR	4,791.0	1,964.8	68.7	6,824.5	3,406.6	1,382.3	47.2	4,836.1
Dec 2014 SAR	5,112.1	1,841.6	10.7	6,964.4	3,641.9	1,299.6	7.3	4,948.8
Total	41,544.4	18,941.6	148.7	60,634.7	31,141.4	14,400.8	106.5	45,648.7

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1834.0
Added funding to Ground-Based Midcourse Defense (GMD) for reliability improvements; other GMD adjustments (Engineering)	+1196.6	+1585.1
Fund THAAD follow-on capability (Engineering)	+81.8	+110.0
Adjustment for current and prior escalation. (Estimating)	+1229.9	+1400.2
FY 2015 Congressional plus-up for Israeli programs (Estimating)	+133.9	+172.0
Integrated Master Test Plan adjustments (Estimating)	+83.3	+110.0
Special Programs adjustments (Estimating)	+43.6	+56.2
Increased funding to extend Sea-Based X-band Radar (SBX) operations tempo (Estimating)	+37.6	+50.1
Aegis funding realignment to O&M for SM-3 IB sustainment (Estimating)	-124.9	-166.9
Refined cost estimates, indice methodology change resulting in adjustment to previously reported Economic Variance, other adjustments (Estimating)	+331.4	+437.5
RDT&E Subtotal	+3013.2	+1920.2

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-260.1
Adjustment for current and prior escalation. (Estimating)	+80.6	+99.1
Iron Dome FY 2014-15 Congressional plus-ups and FY 2016 increase (Estimating)	+351.8	+455.0
FY 2015 Congressional plus-up for Aegis SM-3 IB missiles (Estimating)	+122.5	+159.0
Reduced THAAD interceptors to fund GMD reliability; other THAAD adjustments and Congressional reductions (Estimating)	-465.1	-626.6
Aegis realignment to implement SM-3 IB multi-year procurement; reduced SM-3 IIA buys and other program/Congressional adjustments (Estimating)	-243.3	-328.8
Delayed initial Ground-Based Interceptor (GBI) procurement from FY 2016 to FY 2018 to fund Homeland Gaps; other GMD adjustments (Estimating)	-238.4	-316.0
Adjusted Sensor spares procurement to meet program requirements (Estimating)	-21.5	-30.8
Refined cost estimates, indice methodology change resulting in adjustment to previously reported Economic Variance; other adjustments (Estimating)	+119.2	+161.0
Procurement Subtotal	-294.2	-688.2

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-19.0
Adjustment for current and prior escalation. (Estimating)	+7.5	+9.0
FY 2015 Congressional plus-up to expedite missile defense assets (Estimating)	+15.0	+20.0
Refined cost estimates and other adjustments (Estimating)	-3.8	-3.5
MILCON Subtotal	+18.7	+6.5

Contracts

Contract Identification	
Appropriation:	RDT&E
Contract Name:	Development and Sustainment Contract
Contractor:	The Boeing Co., Missile Defense Systems
Contractor Location:	499 Boeing Blvd., SW Huntsville, AL 35824-3001
Contract Number:	HQ0147-12-C-0004
Contract Type:	Cost (CR), Cost Plus Fixed Fee (CPFF), Cost Plus Incentive Fee (CPIF), Cost Plus Award Fee (CPAF), Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	December 30, 2011
Definitization Date:	December 30, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2816.8	N/A	N/A	3449.9	N/A	N/A	3794.6	3794.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the following contract actions:

2012

- Options Exercised: Clear Radar Integration and Development; Cape Cod Radar Integration and Development; Distributed Multi-echelon Training System (DMETS) Support.
- Engineering Change Proposals (ECPs): Additional Warfighter Training; Capability Enhancement (CE) II Exo-atmospheric Kill Vehicle (EKV) Software for Flight Test Ground-Based Interceptor (FTG-06b); CE-I FTG-07 execution.
- Task Instructions: Signature Measurement Test Article; Ground-Based Interceptor (GBI) Probabilistic Risk Assessment; Integrated System Test Capability (ISTC 2) Ballistic Missile Defense System (BMDS) Integrated Lab Concept and associated extension; BMDS System Specifications; Shoot Assess Shoot (SAS); In-flight Interceptor Communications System (IFICS) Data Terminal Technical Refresh; Increment 2 Probabilistic Risk Assessment (PRA) approach for GBI.

2013

- Options Exercised: Manufacture of Operational Interceptors; Distributed Multi-Echelon Training (DMETS) Support.
- ECPs: Joint Ground-Based Midcourse Defense Training and Exercise Center (JGTEC) Relocation; Conversion of Launch Facility (LF23) Switch Hitter; Boeing High Frequency Test Bed (HFTB) Support to Common Inertial Measurement Unit (IMU) Low Noise (LN200) Development; CE-11 Upgrade; and Alternate Divert Thruster Phase IV.
- Task Instructions: EKV Design Turn Options; GBI Fleet Reliability Assessment Training; Independent Fleet Assessment; FTG-07 Separation Identification for EKV; GBI EKV Laser Initiation Device for Service Life Extension (SLE); Stockpile Reliability Program (SRP) Asset #1 Phase 2; Peterson Air Force Base (PAFB) NORAD & U.S. Northern Command (N-NC) Bldg 2; Arm/Disarm Switch Diode; and Installation of Encryption Keys.

2014

- Options Exercised: Ground System Tech Refresh, Distributed Multi-Echelon Training Support, National Security Agency Encryptor.
- CCPs: CY 2014-2016 Test Baseline Schedule, Alternate Divert Thruster Phase IV, Modeling and Simulation HW, CE-1 FTG-07, FTG-09, FTG-15. GS Product SW Dot Builds, BMDS SPEC 12.2/GM-SN Interface, MF1 Integration and Check-out,

FTG-07 Risk Mitigations, DSC Systems Ops 24/7 Coverage, Power Control Monitoring System, Phase 3 GMD Vehicle Transportation Plan, GMD Program Re-plan, Booster Receiving and Storage, RFEA for GBI Motor Storage, Integrated System Test Capability Phase 2 BMDS Integration Development Lab.

- Task Instructions: Separation Study, Orbital Sneak Circuit Analysis, Time Server Replacement, Tactical 2 Stage Booster Trade Study, Mid-Range Coverage of 24-7 Maintenance, Discrimination Improvements for Homeland Defense (DIHD), Test and Installation Security Patch, Boeing Support of Independent Verification and Validation, Support of Single Simulation of Framework KIV Maintenance, Replace Inertial Measurement Unit (IMU) in EKV SN004, BMDS Situation Awareness, Ft Greely Power Plant Cybersecurity Vulnerability, MILSATCOM Tail Circuit Interface, CLE/GFT Re-architecture, GMD Infrastructure Reliability, Availability & Maintainability Analysis and Electrical Power Study, Missile Transporter Trailer Structural Modification, EKV Software Version 22.2, BMDS Situational Awareness Tool, Probability Risk Assessment, Stockpile Reliability Program Asset #1 and GBI EK Laser Initiation Devices.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2014)	-30.2	-53.5
Previous Cumulative Variances	-6.8	-43.4
Net Change	-23.4	-10.1

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to :

- Raytheon EKV alternate propellant tank (APT) costing more than planned due to technical development challenges. The APT cost will continue to degrade until the development effort is complete. The program office is working jointly with the Prime Contractor to determine a path forward to include cost reduction initiatives and streamlining of acceptance and qualification tests.
- Acceleration of software Build 22.2 ahead of Build 10.0 required heavier labor resources to complete and to regain schedule for software Build 10.0. Software build 22.2 is complete and Build 10.0 is expected to complete in Feb 15.
- Orbital Sciences EEE and other material costing more than planned due to higher than expected minimum buy requirements and higher than planned cost for parts. The material overrun is not recoverable, however the majority of the material has now been ordered and there is limited risk for additional cost growth.
- Software Engineering personnel issues and turnover drove cost growth. Critical software positions have been filled with qualified experienced employees and SW metrics have improved.

The unfavorable net change in the schedule variance is due to :

- GBI CE-I Upgrades have been delayed due to program reprioritization. Recovery is expected with incorporation of CCP 0025-1 GMD Program Replan of GBI Upgrades.
- SW Build 10.0 was delayed due to conflicting requirements for SW resources due to prioritization of SW Build 22.2. Build 10.0 slipped tasks are being worked and recovery is expected in Feb 2015.
- Kill Vehicle Preliminary Design Review and Enhanced Homeland Defense Critical Design Review delays. Recovery is expected with incorporation of ECP 0018 GMDS Specification 12.2.

Contract Identification

Appropriation: RDT&E
Contract Name: SM-3 Technology Development of Production Missiles
Contractor: Raytheon Missile Systems
Contractor Location: PO Box 11337
 1151 East Hermans Rd
 Tucson, AZ 85745-1337
Contract Number: N00024-07-C-6119
Contract Type: Cost Plus Incentive Fee (CPIF)
Award Date: May 14, 2007
Definitization Date: February 15, 2008

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
146.9	N/A	N/A	1552.0	N/A	N/A	1422.0	1433.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of an additional Missile Development Contract Line Item Numbers (CLINs).

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2014)	-20.0	-2.0
Previous Cumulative Variances	-13.0	-36.0
Net Change	-7.0	+34.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to manufacture readiness efforts at suppliers. This is primarily due to the cost of labor to manufacture and assemble components of the Guidance Unit Assembly has been higher than what was planned in the baseline, however it is still within contract Target Price.

The favorable net change in the schedule variance is due to corrective actions from the Third Stage Rocket Motor energetic event. Subsequent Failure Review Board identified reliability actions. Initial production transition from Development resulted in Production line efficiency. Labor utilization has improved by additional manufacturing floor space available to the program. More floor space reduced bottlenecks and improved manufacturing capabilities and build span time.

Notes

Total Contract Price has increased as Missile Production CLINs are awarded while missile round price per unit has decreased in subsequent CLIN awards. The contract completed three CLINs (19, 23, 24) during the past year at or under plan.

The extended period of nine months from award to definitization for N00024-07-C-6119 allowed for Long Lead Material to begin in 2007, then the remaining portion of the contract in 2008. Additionally, the Foreign Military Sales efforts under the contract required additional time to complete.

Contract Identification

Appropriation: RDT&E
Contract Name: Block IIA AUR Development & Integration
Contractor: Raytheon Company
Contractor Location: PO Box 11337
 1151 East Hermans Rd
 Tucson, AZ 85745-1337
Contract Number: HQ0276-10-C-0005
Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Award Fee (CPAF)
Award Date: September 08, 2010
Definitization Date: September 08, 2010

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
160.0	N/A	N/A	1481.0	N/A	N/A	1569.0	1584.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the award of an additional Missile Development effort.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (1/31/2014)	-114.0		-8.0
Previous Cumulative Variances	-41.0		-26.0
Net Change	-73.0		+18.0

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to additional effort and resources required to support Guidance Electronics Unit Circuit Card Assembly Pre-Production designs, and Actuation System & Avionics efforts at Aerojet. Primary goal for the IIA program is to aggressively implement changes with best potential to address cost with minimal risk to technical or schedule performance.

The favorable net change in the schedule variance is due to delayed material and completion of Guidance Section Production CCAs and Kinetic Warhead Inertial Measurement Unit efforts.

Contract Identification

Appropriation: RDT&E
Contract Name: Targets and Countermeasures Prime Contract
Contractor: Lockheed Martin Corporation Space Systems Company
Contractor Location: 4800 Bradford Drive NW
 Huntsville, AL 35805-1930
Contract Number: HQ0006-04-D-0006
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: December 09, 2003
Definitization Date: April 19, 2004

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
210.7	N/A	N/A	2511.0	N/A	N/A	2380.7	2391.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to evolving BMDS test requirements. These requirements, documented through semi-annual changes to the Integrated Master Test Plan, drive modifications to the Targets and Countermeasures Lockheed Martin Prime Contract. The modifications have resulted in additional costs which increased the current contract price target.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/31/2014)	-131.6	-4.4
Previous Cumulative Variances	-92.3	-10.3
Net Change	-39.3	+5.9

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to negative cost variances incurred in DO-29 programs of \$40.0M for the following reasons:

- Modified Ballistic Re-entry Vehicle (MBRV)-5:
 - Program incurred additional Systems Engineering efforts, subcontract management, and first article Manufacturing assembly issues;
 - Significant issues developing the MBRV-5 including three (3) Command Enabled Antenna (CEA) re-designs and an Enhanced Multi Function Interface Unit (EMIU) causing in software development and testing and integration delays increasing the costs to the program;
 - The Enhancement Package (EP), another critical component, was delayed as LMSSC made repeated specification and qualification requirement changes;
 - NRE Avionics Unplanned Engineering interface increased support;
 - NRE Aeroshell Overtime and extended Period of Performance due to more complex stress analysis;
 - Re-entry Vehicle directed scope changes, added support to overcome late deliveries;
 - NRE and RE SE&I Phase 1 increased drawing review, Phase 2 requirements surge support;
 - Premium time to maintain Front End #2 schedule;
 - NRE and RE AI&T Front End #1 rework;
 - Program Operations, Subcontracts Management extended Period of Performance caused additional overruns following Cure Notice issued by the Government for schedule and cost deficiencies.
- MBRV-7/MBRV-8:
 - Experienced delays in qualification testing
 - Delayed technical reviews based on availability and analysis of objective evidence, target mission requirement changes
 - Additional costs incurred due to two unplanned MBRV-8 Delta CDR's.

The favorable net change in the schedule variance is due to the following:

- Schedule variance recovery in CY 2014 was mainly due to changes in the BMDS test schedule and requirements across all Delivery Orders.
- DO29 MBRV-5 experienced a negative CY 2014 schedule variance change of -\$0.6M due to delays in Software & NGC efforts, late engineering changes for Phase II, ICM design issues, anomalies encountered during test activities, and FS2 and FS3 delays related to lack of manufacturing and test support personnel.

Notes

The following actions have added scope to this contract over the course of CY 2014:

Delivery Order	Amount	Description
022 - Hardware	\$4.3M	Additional scope
025 – Launch Activities	\$0.8M	Additional scope
027 – Medium Range Ballistic Missile (MRBM) T-3	\$0.0M	No Change
029 – Re-Entry Vehicles	\$22.7M	Additional scope
Total	\$27.8M	

Contract Identification

Appropriation: RDT&E
Contract Name: THAAD Advanced Capability Development
Contractor: Lockheed Martin Corporation
Contractor Location: 4800 Bradford Drive NW
 Huntsville, AL 35805-1930
Contract Number: HQ0147-12-D-0001
Contract Type: Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP)
Award Date: February 01, 2012
Definitization Date: February 01, 2012

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
961.2	N/A	N/A	1236.0	N/A	N/A	1236.0	1236.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to an increase to an amount previously approved by the MDA Director in order to support continuing THAAD development and test activities.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/28/2014)	-2.3	-1.9
Previous Cumulative Variances	+5.9	-0.4
Net Change	-8.2	-1.5

Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to an increase in support for Task Order (TO) 6 Contract Line Item Number (CLIN) 1 Institutional Conduct of Fire Trainer (ICOFT) System Engineering, Integrated Logistics Support and Program Management due to subcontractor inefficiencies in software and hardware development and integration complexity; the additional support was required to mitigate a delivery schedule delay.

The unfavorable net change in the schedule variance is due to TO 6 CLIN 2 ICOFT Material ordered in advance of the schedule and material delayed for necessary revisions to the engineering drawings. In addition, a TO 6 CLIN 2 ICOFT Subcontractor Performance Based Payment Plan Milestone 3 (all material received) scheduled for November 2014 was delayed until February 2015.

Contract Identification

Appropriation: RDT&E
Contract Name: SM-3 Technology Development of Block IB/IA Missiles
Contractor: Raytheon Missile Systems
Contractor Location: PO Box 11337
 1151 East Hermans Rd
 Tucson, AZ 85745-1337
Contract Number: HQ0276-11-C-0002
Contract Type: Cost Plus Award Fee (CPAF)
Award Date: January 15, 2011
Definitization Date: March 15, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
594.0	N/A	N/A	671.0	N/A	N/A	590.0	592.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to Flight Test Support, continued verification of technology insertion, discrimination improvement and service life extension to September 30, 2015.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (1/31/2014)	+13.0		-3.0
Previous Cumulative Variances	+5.0		-3.0
Net Change	+8.0		+0.0

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to strong performance on Flight Test pedigree evaluation and under-plan on Service Life Evaluation (SLEP). These efforts resulted in positive cost savings.

Notes

Effort remaining includes Flight Test Support, continued verification of technology insertion, discrimination improvement and service life evaluation to end of Period of Performance September 30, 2015.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	0	--
Total Program Quantity Delivered	0	0	0	--

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	146802.2	Years Appropriated	14
Expended to Date	100176.3	Percent Years Appropriated	73.68%
Percent Expended	68.24%	Appropriated to Date	111097.9
Total Funding Years	19	Percent Appropriated	75.68%

The above data is current as of January 30, 2015.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

Sustainment Strategy

None

Antecedent Information

None

Annual O&S Costs BY2002 \$K			
Cost Element	BMDS		No Antecedent (Antecedent)
Unit-Level Manpower	0.000		0.000
Unit Operations	0.000		0.000
Maintenance	0.000		0.000
Sustaining Support	0.000		0.000
Continuing System Improvements	0.000		0.000
Indirect Support	0.000		0.000
Other	0.000		0.000
Total	--		--

Item	Total O&S Cost \$M			
	BMDS		No Antecedent (Antecedent)	
	APB Objective/Threshold	Current Estimate		
Base Year	N/A	N/A	N/A	N/A
Then Year	N/A	N/A	N/A	0.0

O&S Cost Variance		
Category	BY 2002 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2013 SAR	0.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	

Energy Rate	0.0
Technical Input	0.0
Other	0.0
<hr/>	
Total Changes	0.0
<hr/>	
Current Estimate	0.0

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2002 \$M):