

**CLEARED**  
**For Open Publication**

By kempr on Apr 17, 2023

Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

## **Selected Acquisition Report (SAR)**



### **Missile Defense System**

FY 2024 President's Budget

Defense Acquisition Visibility Environment  
(DAVE)

Table of Contents

Acronyms and Abbreviations .....3

Program Information .....5

Responsible Office .....5

Mission and Description .....6

Executive Summary .....7

Schedule .....11

Performance .....12

Acquisition Budget Estimate .....13

Unit Cost .....16

Risks .....18

Low Rate Initial Production .....19

Contracts .....20

Deliveries and Expenditures .....33

Operating and Support Costs .....35

## Common Acronyms and Abbreviations

\$B - Billions of Dollars  
\$K - Thousands of Dollars  
\$M - Millions of Dollars  
ACAT - Acquisition Category  
Acq O&M - Acquisition-Related Operations and Maintenance  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
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  
FMS - Foreign Military Sales  
FOC - Full Operational Capability  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
Inc - Increment  
IOC - Initial Operational Capability  
JROC - Joint Requirements Oversight Council  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
O&S - Operating and Support  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
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
- U.S. - United States
- UCR - Unit Cost Reporting
- USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
- USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

### Program Name

Missile Defense System

### DoD Component

MDA

---

## Responsible Office

## Program Manager

Name: VADM Jon Hill

Phone: 571-231-8006

Email: [jon.hill@mda.mil](mailto:jon.hill@mda.mil) -

## Mission and Description

Mission and Description: To develop and deploy a layered Missile Defense System (MDS) to defend the United States, its deployed forces, allies, and friends from hypersonic and missile attacks of all ranges and in all phases of flight. Following guidance from the President, the Secretary of Defense approved the 2019 Missile Defense Review (MDR) Report (dated January 2019), which established the following principles and elements governing U.S. Missile Defense:

1. The U.S. homeland missile defense will stay ahead of rogue states' missile threats
2. The missile defense will defend U.S. forces deployed abroad and support the security of allies and partners
3. The United States will pursue new concepts and technologies
4. Comprehensive missile defense capabilities will support a broad, multi-layered approach to preventing and defeating missile attacks
5. Flexibility and adaptability will enable the United States to tailor its missile defense strategy to potential adversaries
6. Tighter offense-defense integration and interoperability will leverage the full range of assets available
7. A focus on the importance of space will provide a more effective, resilient, and adaptable missile defense posture

## Executive Summary

### MDS

#### Program Highlights Since Last Report

##### Introduction:

As the threat evolves and includes new offensive systems such as hypersonic glide vehicles, our Nation will need to increase investments in cutting-edge missile defense technologies, to include a persistent overhead sensor capability. If we are to support the Warfighter in a highly uncertain strategic environment, we must meet technology maturation, systems development, and manufacturing challenges head-on and continue to demonstrate missile defense capabilities through robust, operationally realistic live-fire testing. The Missile Defense Agency's (MDA's) overriding program lines of effort are to:

1. Build Warfighter confidence through focus on readiness and sustainment,
2. Increase missile defense engagement capability and capacity to outpace emerging threats, and
3. Increase speed of delivery of new capability to address evolving threats

MDA's mission today is "to develop and deploy a layered Missile Defense System to defend the United States, its deployed forces, allies, and friends from missile attacks in all phases of flight." The mission includes the capability to intercept ballistic, hypersonic and cruise missile threats.

The growing threats from ballistic and non-ballistic missiles, many of which can be armed with weapons of mass destruction, drive MDA programs. Some weapon systems have characteristics of both ballistic and cruise missiles. For example, ballistic missile-launched hypersonic glide vehicles (HGVs) are unpowered and maneuverable, capable of delivering various payloads that travel at hypersonic speed (greater than Mach 5) and spend most of their flight at much lower altitudes than a typical ballistic missile. Russia and China are developing advanced cruise missiles and hypersonic missile capabilities that can take unpredictable flight paths that challenge existing defenses.

Missile defense remains a high priority investment within the 2018 National Defense Strategy, which states, "it is now undeniable that the homeland is no longer a sanctuary." The missile defense architecture must evolve to give the Warfighter the ability to counter these threats, which now include non-ballistic threats. MDA intends to continue making progress in the design, development and delivery of an integrated and layered system and to support the investigation of new concepts and development of new technologies to address the challenging missile threat of tomorrow.

##### Highlights since the previous SAR

Nov 2022 Flight Test Aegis Weapon System (JFTM)-07. JFTM was a four-event Japanese funded Foreign Military Sales (FMS) flight test campaign. All four (JFTM) test events were successful. JFTM-07 successfully tracked and intercepted a Medium Range Ballistic Missile (MRBM) T4-E Target with a Standard Missile (SM)-3 Block IIA missile launched from the Japanese Ship (JS) MAYA. JFTM-07 Events 1 and 2 both successfully simulated engagements to include a live MRBM and a simulated Anti-Air Warfare (AAW) from the JS HAGURO. JFTM-07 Event 3 involved a MRBM launched from Pacific Missile Range Facility (PMRF) in which the JS MAYA demonstrated the ability to detect, track, and forward track messages to the JS HARGURO. The JS HARGURO successfully executed a simulated Engage-on-Remote (EoR) with a simulated SM-3 Block IIA. JFTM-07 Event 4 included a live concurrent engagement of a Short Range Ballistic Missile (SRBM) T4-B and an air breathing target with an SM-3 Block 1B Threat Upgrade (TU) and an SM-2 Block IIIB missile respectively launched from the JS HAGURO operating in Integrated Air and Missile Defense Priority Mode. JFTM-07 Event 2 was the first mission for the new High Altitude Observatory (HALO)-IR aircraft used to collect Electro-Optical/Infrared (EO/IR) truth data that will confirm critical test information and provide calibrated EO/IR data used in modeling and simulation.

Oct 2022 Sea-Based X-Band Radar (SBX) arrived at Joint Based Pearl Harbor-Hickam to begin the in-port maintenance period after setting a new record of 661 continuous days at sea

Aug 2022 MDA participated in Pacific Dragon 2022 (PD-22). PD-22 consisted of three Integrated Air and Missile Defense (IAMD) events, including an intercept of a MRBM with the SM-3 Block IA, simulated BMD and Anti-Air Warfare engagements, and additional SM-3 Block IA flights for stockpile surveillance as well as assessments for using SM-3 Block IA missiles as surrogate ballistic missile targets for future BMD tests. MDA utilized this campaign to test and evaluate critical new missile defense capabilities on ships from Republic of Korea Navy (ROKN) and Japanese Maritime Self-Defense Force (JMSDF) and to support risk reduction and readiness for future international flight tests

Apr 2022 Flight Test Aegis Weapon System (FEM-01). An Aegis Ballistic Missile Defense (BMD) System-equipped destroyer successfully fired at a threat-representative MRBM target with a SM-3 Block IIA missile

Apr 2022 The Long Range Discrimination Radar (LRDR), Clear Space Force Station (SFS) successfully conducted the final inspection of the LRDR Power Plant and achieved Beneficial Occupancy

Feb-Mar 2022 MDA partnered with the U.S. Army Program Executive Office Missiles and Space in the execution of the culminating events for U.S. Forces Korea's Urgent Material Release request for Terminal High Altitude Area Defense (THAAD)/Patriot integration. Flight Test THAAD Weapon System (FTT)-21 successfully demonstrated THAAD's capability to fire and control two PAC-3 Missile System Enhancement (MSE) interceptors and intercept one SRBM target (Black Dagger). FTT-21 verified the THAAD Weapon System using THAAD 4.0 software can compute MSE firing solutions, communicate with an M903 launcher, control two MSE interceptors in flight, and successfully intercept an SRBM target

Mar 2022 Space Tracking and Surveillance System (STSS) decommissioned. Designed for 2 years of service, STSS completed 12 Years and 2 months providing data from orbit



History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
Dec - 2021	Construction completed on the Long Range Discrimination Radar, Clear Space Force Station (SFS). Clear Air Force Station (AFS) was redesignated Clear SFS in Jun 2021
Nov - 2021	Upgraded Early Warning Radar (Gen 2 Phase 2) at Fylingdales, United Kingdom operationally accepted by the U.S. Space Force (USSF)
Jul - 2021	Flight Test Aegis Weapon System (FTM)-33. FTM-33 was the first operational test of Sea-Based Terminal capability to detect, track, and lethally engage a raid of two SRBM targets with four Standard Missile (SM)-6 missiles. The firing ship, USS RALPH JOHNSON, successfully detected, tracked, and engaged the raid of two SRBMs with dual salvos of SM-6 Dual IIs and intercepted one of the SRBM targets
May - 2021	Flight Test Aegis Weapon System (FTM)-31. Executed by the USS RALPH JOHNSON, the Sea-Based Terminal flight test FTM-31 Event 1 demonstrated the ability of an Aegis Baseline 9.C2.0 (BMD 5.1) ship to detect, track, and lethally intercept an MRBM target, in a salvo of two SM-6 Dual II (BMD initialized) missiles. Ultimately, the flight test was unsuccessful in achieving intercept, but MDA gathered critical data to inform future developments.
Apr - 2021	Final three silos installed in Missile Field 4 (MF4), Fort Greely, Alaska. This was the first time that three Ground-Based Midcourse Defense Interceptor (GBI) silos had been installed in one day
Nov - 2020	Flight Test Aegis Weapon System (FTM)-44. An Aegis Ballistic Missile Defense (BMD) System-equipped destroyer, intercepted and destroyed a threat-representative Intercontinental Ballistic Missile (ICBM) target with a Standard Missile-3 (SM-3) Block IIA missile. In this developmental test, the destroyer used engage-on-remote capabilities through the Command and Control Battle Management Communications (C2BMC) network
Nov - 2020	Upgraded Early Warning Radar (UEWR) at Cape Cod AFS, Massachusetts operationally accepted by the United States Space Force (USSF). Earlier, the UEWR at Clear Air Force Station (AFS), Alaska had been operationally accepted by USSF in May 2020
Oct - 2020	Flight Test Patriot (FTP)-27 Event 1. Successfully executed a flight test to demonstrate the Patriot Weapon System Missile Segment Enhancement extended ground range salvo engagement of threat-representative Short Range Ballistic Missile (SRBM) target exercising Patriot Launch-on-Remote using THAAD AN/TPY-2 (Terminal Mode) track and discrimination data. The test supported the THAAD Advanced Capabilities Urgent Material Release
Feb - 2020	Flight Test Patriot (FTP)-27. Joint test with the U.S. Army Lower Tier Project Office that demonstrated Patriot's Launch-on-Remote capability with Army/Navy Transportable Radar Surveillance (AN/TPY)-2's capability to detect, track and transmit that data to the Patriot Weapon System. The Patriot missile did not successfully intercept the Short Range Ballistic Missile (SRBM) target.
Aug - 2019	Flight Test Aegis Weapon System (FTM)-31, Event 2. The Navy successfully conducted this test at the Pacific Missile Range Facility, Hawaii. The USS JOHN FINN (DDG 113) with Aegis Baseline 9.C2 (BMD 5.1) software, tracked, engaged, and intercepted for the first time a subsonic Anti-Air Warfare target with a Standard Missile-6 Dual II missile.
Aug - 2019	Flight Test Terminal High Altitude Area Defense (THAAD) (FTT)-23. THAAD successfully demonstrated its expanding capabilities by intercepting a medium-range ballistic missile that was dropped from a C-17 aircraft. FTT-23 demonstrated the ability to increase the defended area of a single battery and provide additional engagement opportunities against threat ballistic missiles. Soldiers of the E-62 battery were not aware of the target launch timing. This was the 16th successful intercept in 16 attempts for the operational THAAD weapon system.

Aug - 2019	The first radar panel for the new Long Range Discriminating Radar (LRDR) delivered to Clear Air Force Station, Alaska.
Mar - 2019	Flight Test Ground-based Midcourse Defense (FTG)-11. With the successful intercept of an advanced ICBM-class target with countermeasures launched from Kwajalein, MDA executed the first Ground-based Midcourse Defense test involving a salvo engagement, involving two Ground Based Interceptors (GBIs) launched from the missile field at Vandenberg Air Force Base, California. Following detection by Air Force satellites, the Command and Control, Battle Management and Communication (C2BMC) system directed early tracking information to precision discrimination sensors deployed on Wake Island (AN/TPY-2 radar) and in the Pacific Ocean (Sea-Based X-band radar). We achieved an intercept of the lethal warhead using the lead GBI, with the trailing GBI observing the intercept flash and debris scene then intercepting the next most lethal object. During the test of homeland defenses, for the first time, Spacebased Kill Assessment sensors successfully provided data required to assess successful intercepts.
Nov - 2017	44th GBI deployed to silo at Fort Greely, Alaska, completing a DoD-mandated plus-up before the end of the year.
May - 2017	GBI with Redesigned Kill Vehicle successfully intercepted an ICBM target over the Pacific.
Apr - 2017	THAAD battery deployed to South Korea.
Apr - 2013	THAAD battery deployed to Guam.
Jan - 2012	AN/TPY-2 radar deployed to Turkey.
Sep - 2009	Deputy Secretary of Defense signed DoDD 5134.09, the MDA "Charter."
Sep - 2008	AN/TPY-2 radar deployed to Israel.
Jun - 2008	The U.S. Navy successfully shot down a damaged U.S. satellite with an SM-3 interceptor. The non-functioning National Reconnaissance Office satellite was traveling at over 17,000 mph at an altitude of 153 nautical miles above the earth. The satellite's fuel (over 1000 pounds of hydrazine) represented a danger to people if allowed to reenter the atmosphere.
May - 2008	U.S. Army activated the first Terminal High Altitude Area Defense (THAAD) Battery.
Sep - 2007	Sea-Based X-Band Radar deployed for first time to collect data during GBI Test.
Mar - 2007	The Airborne Laser completed the first in-flight test of the laser targeting system.
Mar - 2005	MDA completed first series of sea test of the Sea-Based X-Band Radar (SBX).
Jul - 2004	First Ground-based Midcourse Defense Interceptor (GBI) was deployed to an underground silo at Fort Greely, Alaska. Four more GBIs were deployed before the end of the year.
Dec - 2002	President George W. Bush directed that the Secretary of Defense "proceed with fielding an initial set of missile defense capabilities."
Jan - 2002	First successful intercept test of the SM-3.
Jan - 2002	Secretary of Defense signed memorandum changing the name of the Ballistic Missile Defense Organization (BMDO) to the Missile Defense Agency (MDA).
Sep - 2001	Following an unsuccessful test in July 2000, President Clinton announced that he was not going to initiate deployment of the national missile defense system.
Jan - 2001	Aegis cruiser USS Lake Erie conducted first successful flight test of newly-developed Standard Missile-3 (SM-3) interceptor.
Jul - 1999	President William J. Clinton signed the National Missile Defense Act of 1999 (Public Law 106-38) that required the United States to deploy an effective national missile defense system capable of defending the territory of the United States against limited ballistic missile attacks.

## Schedule

### MDS

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold	Current Estimate/Actual	Deviation

#### Notes

For schedule milestones, see the unclassified Missile Defense Accountability Report (MDAR) and the MDAR Classified Annex scheduled for release in the 3rd Quarter FY 2023.

#### Deviation Explanation

No deviations for this program/subprogram

## Performance

### MDS

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation
0 -				

### Requirement Reference

None

### Deviation Explanation

No deviations for this program/subprogram

### Notes

For performance characteristics, see the unclassified Missile Defense Accountability Report (MDAR) and the MDAR Classified Annex scheduled for release in the 3rd Quarter FY 2023.

## Acquisition Budget Estimate

MDS

### Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2002				154,846.4	201,892.9	
Procurement	2002				24,016.3	35,049.9	
MILCON	2002				1,553.9	2,275.5	
Acq. O&M	2002						
<b>Total</b>		.0	.0		180,416.6	239,218.3	
PAUC	2002	.000	.000	.000			
APUC	2002	.000	.000	.000			

### Appropriation Category Deviation Explanations

#### PAUC Deviation Explanation

#### APUC Deviation Explanation

#### Budget 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 Missile Defense Accountability Report (MDAR), which includes schedule, technical, operational capacity, resource, and contract baselines that guide development of ballistic missile defense capabilities. The MDAR includes unit cost baselines for key assets (e.g. SM-3 missiles and THAAD interceptors) comprising the BMDS.

#### Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development		
Procurement		
O&M-Acquired		

#### Quantity Notes

Quantities of Key BMDS Assets (grouped by appropriation, total buys from FY 2002-28):

Program Component		RDT&E	Proc
Terminal High Altitude Area Defense (THAAD)	Batteries	2	6
	Interceptors	50	793
Aegis	SM-3 Block IA	79	71
	SM-3 Block IIA	17	146
	SM-3 Block IB	21	654
Ground-Based Midcourse Defense (GMD)	Ground-Based Interceptors (GBIs)	58	0
Sensors	AN/TPY-2	7	5



# Unit Cost

## MDS

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:2002	Current UCR Baseline	Current Estimate	% Change

**Program Acquisition Unit Cost**

Cost			
Quantity		0	
Unit Cost			

**Average Procurement Unit Cost**

Cost
Quantity
Unit Cost

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category (\$M) Base Year:	Original UCR Baseline	Current Estimate	% Change

**Program Acquisition Unit Cost**

Cost			
Quantity		0	
Unit Cost			

**Average Procurement Unit Cost**

Cost
Quantity
Unit Cost

**Cost Growth Details**

**Current Baseline PAUC Breach Explanation**

**Current Baseline APUC Breach Explanation**

**Original Baseline PAUC Breach Explanation**

**Original Baseline APUC Breach Explanation**

**Impacts of Schedule Changes on Unit Cost**

**Impacts of Performance Changes on Unit Cost**

**Actions Taken or Proposed to Control Future Cost Growth**



**Notes**

The Missile Defense Agency (MDA) designs, develops and delivers sensors, command and control, and engagement systems, integrated into a single system that enables all Joint Force counter-missile operations. MDA works with the Services to transition subsystems as they mature, allowing MDA to return to focusing on its core research mission. Although MDA does budget for a subsystem's Missile Defense System (MDS) unique mission costs leading up to transition, it does not capture the Service's budget. Therefore, since the MDA portion does not represent the entire operating and support cost of each subsystem, MDA does not report these in the SAR.

*Risk and Sensitivity Analysis*

**MDS**

---

<b>Risk and Sensitivity Analysis</b>
Current Procurement Cost(December - 2022)
Original Baseline Estimate ()
Current Baseline Estimate ()

Schedule Risk		
Technical Risks		

## Low Rate Initial Production

MDS

Item	Initial LRIP Decision	Current Total LRIP
------	-----------------------	--------------------

Approval Date

Approved Quantity

Reference

Start Year

End Year

Rationale if quantity exceeds 10% of the total number of articles to be procured:

Notes

There is no LRIP for this program.

**Contracts & Efforts**

<b>Contract Data</b>	
Contract Number	HQ0147-11-C-0006
Effort Number	
Modification Number	P00322
Award Date	03/07/2011
Definitization Date	03/07/2011
Order Number	
CAGE Code/CAGE Legal Name	8LM16/Northrop Grumman
Contract Title	IRBM/ICBM Targets
Contract Address	Chandler, AZ
Contracting Office	MDA/TCK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	December 15, 2022
Work Start Date	March 07, 2011
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	85.58

**Contracts/Effort Price, Quantity, and Performance (TY\$M)**

Initial Target Price: 217.08	Current Target Price: 1306.57	
Initial Ceiling Price: 244.78	Current Ceiling Price: 1388.57	
Contractor EAC: 1156.46	PM EAC: 1157.30	
Initial Quantity: 8	Current Quantity: 27	Delivered Quantity: 23
BAC: 1182.45	BCWP: 1011.90	ACWP: 1015.12

BCWS: 1019.39	Cost Variance: -\$3.23	Schedule Variance: -\$7.50

**Contract Notes:****Factors Contributing to Cost Variance and Projected Effects on Program Costs:**

Factors contributing to the cost variance are closed CLINs, (\$32.8M), and Kit-15 Non-Recurring Engineering, (\$3.5M), which has been offset by material costing less than baselined, production learning curve efficiencies, and labor efficiencies in production and pre/post mission tasks, \$33.1M. No concerns currently with costs. Program Costs will continue to trend favorably as contract moves forward.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

Factors contributing to the schedule variance are early receipt of material and completion of Motor and Carriage Extraction System production milestones ahead of baseline. No concerns currently with schedule. All future deliveries are on track to complete as currently planned.

Contract Data	
Contract Number	HQ0147-19-C-0005
Effort Number	
Modification Number	P00036
Award Date	09/20/2019
Definitization Date	09/20/2019
Order Number	
CAGE Code/CAGE Legal Name	8LM16/Northrop Grumman
Contract Title	Type 4 (T4) Subscale Targets
Contract Address	Chandler, AZ
Contracting Office	MDA/TCK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	December 28, 2022
Work Start Date	September 20, 2019
Technical Data Rights	None
Work Completed	37.99

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price: 189.28	Current Target Price: 210.18	
Initial Ceiling Price: 200.18	Current Ceiling Price: 220.48	
Contractor EAC: 241.33	PM EAC: 250.76	
Initial Quantity: 9	Current Quantity: 9	Delivered Quantity: 0
BAC: 229.04	BCWP: 87.02	ACWP: 97.99
BCWS: 105.72	Cost Variance: -\$10.97	Schedule Variance: -\$18.69

**Contract Notes:**

None to date. The Contractor has submitted documentation to support their request to incorporate data rights, but they have not been accepted.

**Factors Contributing to Cost Variance and Projected Effects on Program Costs:**

The main cost contributor is higher vendor prices in multiple areas and low value material cable components. No effects on costs at this time, majority of contract is on Fixed Price CLINs. Program overruns are covered within program controls.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

The main schedule contributor is driven by Castor IVB motor milestone delays due to case insulation issues and program material delays. No impact to program milestones at this time.

Contract Data	
Contract Number	HQ0147-12-C-0004
Effort Number	
Modification Number	P00162
Award Date	12/30/2011
Definitization Date	12/30/2011
Order Number	
CAGE Code/CAGE Legal Name	3A768/The Boeing Company
Contract Title	Development and Sustainment Contract (DSC)
Contract Address	Huntsville, AL
Contracting Office	MDA/GMK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	December 22, 2022
Work Start Date	December 30, 2011
Technical Data Rights	None
Work Completed	78.56

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price: 2816.80	Current Target Price: 11509.15	
Initial Ceiling Price: 2816.80	Current Ceiling Price: 11509.15	
Contractor EAC: 10749.47	PM EAC: 10887.00	
Initial Quantity	Current Quantity	Delivered Quantity
BAC: 10574.99	BCWP: 8307.25	ACWP: 8565.01
BCWS: 8356.96	Cost Variance: -\$257.76	Schedule Variance: -\$49.71

**Contract Notes:**



1) Contract: HQ0147-12-C-0004 / HQ0147-19-C-0004; Title: Development & Sustainment Contract (DSC). 2) Contract Types: Cost (CR), Cost Plus Fixed Fee (CPFF), Cost Plus Incentive Fee (CPIF), Cost Plus Award Fee (CPAF), Fixed Price Incentive (Firm Target) (FPIF).

**Factors Contributing to Cost Variance and Projected Effects on Program Costs:**

Cumulative Cost Variance primarily driven by:

- 1) Terminated Redesigned Kill Vehicle
- 2) Ground Based Interceptor (GBI) historical technical issues and
- 3) Ground Systems (GS), Launch Support Systems (LSS) / Launch Site Components (LSC) Development.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

Cumulative Schedule Variance primarily driven by:

- 1) GBI Vehicle Integration and Booster motor delays and
- 2) GS Launch Support Equipment-2 (LSE2) rack design, complexities, and supply chain constraints.

Contract Data	
Contract Number	HQ0147-14-C-0001
Effort Number	
Modification Number	168
Award Date	10/31/2013
Definitization Date	10/31/2013
Order Number	
CAGE Code/CAGE Legal Name	7VXX4/AEROJET ROCKETDYNE COLEMAN AEROSPACE, IN
Contract Title	Medium Range Ballistic Missile Type 1 / Type 2 (T1/T2) Targets
Contract Address	Orlando, FL
Contracting Office	MDA/TCK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Fixed-Price Incentive (Firm Target)
Modification Date	December 15, 2022
Work Start Date	October 31, 2013
Technical Data Rights	Limited Rights to Technical Data--Non-Commercial Items Only
Work Completed	81.59

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price: 73.36	Current Target Price: 1087.06	
Initial Ceiling Price: 78.69	Current Ceiling Price: 1462.88	
Contractor EAC: 481.75	PM EAC: 484.93	
Initial Quantity: 6	Current Quantity: 18	Delivered Quantity: 5
BAC: 398.29	BCWP: 324.98	ACWP: 402.58
BCWS: 336.59	Cost Variance: -\$77.60	Schedule Variance: -\$11.61

**Contract Notes:**

Technical Data/Computer Software to be Furnished with Restrictions (Limited Rights) eSR19 and Roll Control

**Factors Contributing to Cost Variance and Projected Effects on Program Costs:**

Factors contributing to cost variance are the majority of cost overrun in the past from Non-Recurring Engineering efforts with future cost growth in the enhanced solid rocket motor and roll control system areas. The cost overrun on the program is unrecoverable, however, costs are currently covered within controls and there are no funding impacts.

Note: The information presented above does not include any FFP CLINs or CLINs with EVM Waivers, so the EV data computes less than the Current Target Price.

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule:**

Factors contributing to the schedule variance are production delays from delayed design due to ongoing enhanced solid rocket motor issues; and Thrust Vector Control System (TVCS) delays due to ongoing de-scope of effort in order to move TVCS redesign.

Contract Data	
Contract Number	HQ0276-15-C-0003
Effort Number	
Modification Number	P00130
Award Date	06/11/2015
Definitization Date	08/28/2017
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missile Defense
Contract Title	Standard Missile 3 (SM3) Block IIA All Up Round (AUR)
Contract Address	Tucson, AZ
Contracting Office	MDA/ABK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	December 30, 2022
Work Start Date	June 11, 2015
Technical Data Rights	None
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TYSM)		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

**Contract Notes:**

Contract: HQ0276-15-C-0003; Title: Standard Missile 3 Block IIA All Up Round. Contract Types: CPIF, COST, CPFFNOTE: Requested data for SM3 Block IIA is CUI in accordance with the United States Navy Security Classification Guide for SM-2/3/4/6 missiles. The data will be submitted via SIPR.

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

<b>Contract Data</b>	
Contract Number	HQ0851-20-C-0002
Effort Number	
Modification Number	P0021
Award Date	
Definitization Date	3/27/2020
Order Number	
CAGE Code/CAGE Legal Name	15090/Raytheon Missile Systems
Contract Title	Standard Missile 3 (SM3) Block IB Multi-Year Procurement (MYP)
Contract Address	Tucson, AZ
Contracting Office	MDA/ABK
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Multiple Types
Modification Date	November 22, 2022
Work Start Date	March 27, 2020
Technical Data Rights	None
Work Completed	

<b>Contracts/Effort Price, Quantity, and Performance (TYSM)</b>		
Initial Target Price	Current Target Price	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

--	--	--

**Contract Notes:**

Contract: HQ0851-20-C-0002; Title: Standard Missile 3 Block IB Multi-Year Procurement. Contract Types: FPI, FFP, CPFF  
NOTE: Requested data for SM3 Block IB is CUI in accordance with the United States Navy Security Classification Guide for SM-2/3/4/6 missiles. The data has been submitted via SIPR.

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

### External Government Activities

Activity Title		Government Entity	Supported Phase
CAGE		Work Start Date	
City		State/Province:	
Notes			







## Operating and Support Costs

### MDS

#### *O&S Cost Breakdown:*

Category (BY\$ Million)	BMDS
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
<b>Total</b>	.0

#### Cost Estimate Source:

**O&S Cost Notes:** The Missile Defense Agency (MDA) designs, develops and delivers sensors, command and control, and engagement systems, integrated into a single system that enables all Joint Force counter-missile operations. MDA works with the Services to transition subsystems as they mature, allowing MDA to return to focusing on its core research mission. Although MDA does budget for a subsystem's Missile Defense System (MDS) unique mission costs leading up to transition, it does not capture the Service's budget. Therefore, since the MDA portion does not represent the entire operating and support cost of each subsystem, MDA does not report these in the SAR.

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
<b>Total O&amp;S</b>	0	0	0.0		

Note:

See note above.

#### O&S Cost Deviation Explanation

***Operating and Support Costs - Disposal and Unitized Costs*****MDS****Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name:	Antecedent System Name:
Quantity to Sustain		
Unit of Measure		
Unit Expected Service Life		

**Base Year:**

	System Name:	Antecedent System Name:
Unit-Level Manpower		
Unit Operations		
Maintenance		
Sustaining Support		
Continued System Improvements		
Other		
Total O&S	0.0	0.0

**Disposal/Demilitarization Cost Estimate**

(Base Year \$Millions)	System Name:	Antecedent System Name:
Total Disposal		

**Cost Estimate Source - Disposal**

Type:

Approval Authority and Date:

Note:

The Missile Defense Agency (MDA) designs, develops and delivers sensors, command and control, and engagement systems, integrated into a single system that enables all Joint Force counter-missile operations. MDA works with the Services to transition subsystems as they mature, allowing MDA to return to focusing on its core research mission. Although MDA does budget for a subsystem's Missile Defense System (MDS) unique disposal costs, it does not capture the Service's budget. Therefore, since the MDA portion does not represent the entire disposal cost of each subsystem, MDA does not report these in the SAR.

Disposal Cost Notes:

Antecedent Estimate Assumptions:

Additional O&S Estimate Assumptions:

Sustainment Strategy: