Fiscal Year 2017 President's Budget

Missile Defense Agency (MDA)

February 2016

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Missile Defense Agency
Operation and Maintenance, Defense-Wide
Fiscal Year (FY) 2017 President's Budget

Operation and Maintenance, Defense-Wide Summary ($ in thousands)
Budget Activity (BA) 1: Operating Forces
Subactivity Group 11A

	FY 2015 Actual	Price Change	Program Change	FY 2016 Enacted	Price Change	Program Change	FY 2017 Estimate
MDA	402,462	6,665	14,942	424,069	7,524	15,382	446,975

I. Description of Operations Financed:

A. Aegis Ballistic Missile Defense (BMD). Funding provides a wide range of support activities for deployed Aegis BMD ships and Ashore facilities. The three main segments of Operations and Maintenance support include Standard Missile-3 (SM-3) Sustainment, Aegis Weapon System (AWS) Sustainment, and Operational Sustainment for Aegis Ashore facilities.

The SM-3 sustainment program includes the recertification of missiles that have reached their four-year mid-life, repair during recertification, installation of Third Stage Rocket Motor (TSRM) nozzle reliability enhancements into SM-3 Block IB, demilitarization of SM-3 missiles that have reached their end of the eight-year service-life, Ordnance Assessment/Surveillance, modeling and simulation and logistics efforts. Funding also provides SM-3 first destination All Up Round (AUR) transportation post recertification, ballistic barrier maintenance for transportation, system maintenance spares replenishment, and SM-3 operational support to fleet forces. Funding in FY 2017 also includes a one-time cost to standup the Seal Beach Missile Recertification Facility to support future increased SM-3 recertification requirements.

Weapon System sustainment includes system readiness support for all fielded Aegis BMD Weapon System baselines including In-Service Engineering Agent (ISEA), Lifetime Support Engineering Agent (LSEA), and Technical Design Agent support to provide systems engineering services and analysis, integrated logistics support, and technical

I. Description of Operations Financed (cont.)

documentation maintenance. Funding provides fleet support, identification and resolution of software operability issues with Aegis Combat System elements, correction of Weapon System software deficiencies identified after completion of operational testing, certification/delivery of updated weapon systems capabilities, Reliability, Maintainability & Availability analysis/metrics, review/implementation of maintenance concepts, and analysis/resolution of Diminishing Manufacturing Sources/obsolete material issues.

Operational sustainment support for the Aegis Ashore Hawaii and Romania sites and equipment includes AWS sparing and consumables, facility operations including transportation, power and communications, and Command, Control, Communications, Computers and Intelligence (C4I), ISEA and LSEA engineering. Funds also provide portable Aegis BMD Mission Planning tools for Fleet Maritime Operation Centers, Regional BMD Commanders, and Training Commands which enables off-line planning by senior BMD staffs to develop and revise regional and homeland defense plans, Pre-Planned Responses and Global Force Management requests.

B. Ballistic Missile Defense (BMD) Midcourse Defense Segment. The Ground-based Midcourse Defense (GMD) program is the element of the Ballistic Missile Defense System (BMDS) that provides combatant commanders with a continuously available (24 hours a day, 7 days a week, 365 days a year) capability to defend the Homeland against limited intermediate and long-range ballistic missile threats in the midcourse battle space. The GMD weapon system consists of Ground Based Interceptors (GBI), GMD Fire Control systems (GFC), GMD Communications Network (GCN), In-Flight Interceptor Communications System (IFICS) Data Terminals (IDT) and all of the ground Launch Support Systems (LSS), silos, Silo Interface Vaults (SIVs), environmental control systems, Command Launch Equipment (CLE), firing circuits and safety systems. Funding provides sustainment of fielded GBIs located at Fort Greely, Alaska (FGA) and Vandenberg Air Force Base (VAFB), California; and IDTs located at Eareckson Air Station (EAS), Alaska, FGA, VAFB and Fort Drum, New York.

I. Description of Operations Financed (cont.)

Funding provides maintenance, repair, training, supply support, sustaining engineering, network operations, integrated logistics support, configuration control, scheduling, execution control, system transitioning and performance reporting functions. Additionally, funding provides Base Operations Support (BOS) for facility sustainment and maintenance at the various GMD sites including utilities, facility maintenance, communications infrastructure support, physical security, grounds maintenance, snow removal and other services required to support the fielded weapon system.

C. Ballistic Missile Defense Systems (BMDS) AN/TPY-2 Radars. Funding provides sustainment of 12 Army Navy/Transportable Radar Surveillance and Control-2 radars including 5 forward-based radars and 7 Terminal High Altitude Area Defense configured radars to include supply support, repair, maintenance, modernization, transportation, parts storage, Special Tools and Test Equipment for the organic depot, recurring and delta training, training device maintenance, engineering support, Interactive Electronic Technical Manual (IETM) updates, software user guide up-dates, software revision certification and depot-level maintenance for the Forward Based Mode (FBM) missile defense unique equipment. Funding also provides Electronic Equipment Unit (EEU) retrofits at Letterkenny Army Depot to enhance radar capability, and provides Upgraded Early Warning Radar (UEWR)/COBRA DANE Radar sustainment which is unique to the Missile Defense mission, which MDA sustains and operates in conjunction with the US Air Force.

D. Terminal High Altitude Area Defense (THAAD). The increase in THAAD program funding provides additional sustainment for the 7th THAAD Battery delivered in FY 2017. Computer programs and updates have transitioned from development to sustainment. Therefore, funding requested has moved from RDT&E to O&M to now sustain fielded THAAD software. As described in the BMDS Transition and Transfer (T2) Annex, the MDA is responsible for the sustainment of the missile defense unique or developmental items, while the U.S. Army is responsible for the operations and sustainment of the common

I. Description of Operations Financed (cont.)

items. Beginning in FY 2017 THAAD will initiate sustainment for Battery 7 upon hardware delivery including hardware maintenance and Contractor Logistics Support (CLS). (Funding for conduct of non-recurring New Equipment Training is included in THAAD's FY 2017 Procurement request). MDA funding also provides: 1) Field and sustainment level supply, maintenance, modernization, hazardous materials/waste and disposal, and Depot level maintenance support for THAAD missile defense unique equipment. 2) Spares, repair parts, and maintenance capability at the location of each THAAD battery. 3) Engineering support for the THAAD missile defense unique equipment. 4) Software support for fielded software, to include reviewing deficiency reports, correcting errors, adding incremental capability improvements, and maintaining compatibility with hardware or other system interfaces. 5) Missile transportation and handling from the missile storage location to the site of the THAAD launchers. 6) Interactive Electronic Technical Manual (IETM) and Software user guide updates, and Software revision certification. 7) THAAD training device maintenance. 8) Supply, maintenance and transportation support for recurring equipment training and delta training for fielded units. 9) Special Tools and Test Equipment for the organic depot. 10) Ensures THAAD assets are properly maintained and the crews are trained to meet Combatant Commanders needs.

II. Force Structure Summary:

A. Aegis Ballistic Missile Defense (BMD). The Aegis Ballistic Missile Defense (Aegis BMD) mission is to deliver an enduring, operationally effective and supportable Ballistic Missile Defense capability to defend the nation, deployed forces, friends and allies. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing United States Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles (SRBM),

II. Force Structure Summary (cont.)

Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight and shorter range missile in terminal phase. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS.

B. Ballistic Missile Defense Midcourse Defense Segment. The GMD fielded weapon system is under the command of U.S. Northern Command (NORTHCOM) and is operated by Soldiers from the 100th Missile Defense Brigade (five crews) headquartered at Colorado Springs, Colorado, and its 49th Missile Defense Battalion (five crews) at Fort Greely, Alaska. By the end of CY 2017 MDA will support 44 operationally deployed GBIs located at FGA (40 GBIs) and VAFB (4 GBIs). Each GBI delivers a single Exoatmospheric Kill Vehicle (EKV) to defeat threat warheads in space during the midcourse phase of the ballistic trajectory. The GMD Fire Control System consists of redundant fire control nodes at FGA (two each) and the Missile Defense Integration and Operations Center (MDIOC) (two each). IDTs are currently located at FGA, VAFB, EAS, and Fort Drum, New York.

C. Ballistic Missile Defense Systems (BMDS) AN/TPY-2 Radars. MDA sustains 12 Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) radars including 5 stand-alone forward-based radars, and 7 radars which are a component of THAAD battery configuration. These services are furnished through Consolidated Contractor Logistics Support (CCLS) contracts. Army force structure for Missile Defense Batteries (MDB) is currently set at 5 batteries with 5 AN/TPY-2 forward-based radars operated at fixed radar sites by 65 Soldiers. The battery is organized to conduct deployments 24 hours a day, 7 days a week, 365 days a year. This operational tempo is currently met by a combination of CCLS and Soldiers operating and maintaining the radar.

D. Terminal High Altitude Area Defense (THAAD). Army force structure for THAAD is currently set at 7 batteries with 6 launchers operated by 95 Soldiers. The battery is organized to conduct 120-day deployments (45 days of entry operations and 75 days of 17-hour/day combat operations). The battery requires support from the Army for

II. Force Structure Summary (cont.)

communications, security, common supplies, and services. THAAD missile defense unique supplies are routed to a non-theater contractor supply and specialized maintenance chain. To this end, the battery brings with it a 13 person contractor support team with its own complement of equipment. The contractor team will facilitate movement of the battery into a war zone. Interceptors are not considered part of battery force structure and are allocated by commanders in accordance with the mission and threat. Batteries will be doctrinally assigned to the theater Army Air and Missile Defense Command. Engagements will be coordinated through the theater Air Operations Center. With the provision of specialized communications and radar software, the battery will be able to communicate directly with the Ballistic Missile Defense System Command and Control Battle Management and Communications (C2BMC) system making it capable of performing surveillance and tracking missions in addition to its normal active defense engagement mission.

III. Financial Summary ($ in thousands)

		FY 2016					
			Congressional Action				
A. BA Subactivities	FY 2015 Actual	Budget Request	Amount	Percent	Appropriated	Current Enacted	FY 2017 Estimate
1. Operational Support	**402,462**	**432,068**	**-7,999**	**-1.9**	**424,069**	**424,069**	**446,975**
Aegis Ballistic Missile Defense (BMD)	11,632	46,445	-334	-0.7	46,111	46,111	73,039
Ballistic Missile Defense (BMD) Midcourse Defense Segment	150,892	134,477	-966	-0.7	133,511	133,511	129,281
Ballistic Missile Defense Systems (BMDS) AN/TPY-2 Radars	177,859	187,486	-1,347	-0.7	186,139	186,139	172,556
Terminal High Altitude Area Defense (THAAD)	62,079	63,660	-5,352	-8.4	58,308	58,308	72,099
Total	**402,462**	**432,068**	**-7,999**	**-1.9**	**424,069**	**424,069**	**446,975**

III. Financial Summary ($ in thousands)

B. Reconciliation Summary	Change FY 2016/FY 2016	Change FY 2016/FY 2017
Baseline Funding	**432,068**	**424,069**
Congressional Adjustments (Distributed)	-7,500	
Congressional Adjustments (Undistributed)		
Adjustments to Meet Congressional Intent		
Congressional Adjustments (General Provisions)	-499	
Subtotal Appropriated Amount	**424,069**	
Fact-of-Life Changes (2016 to 2016 Only)		
Subtotal Baseline Funding	**424,069**	
Supplemental		
Reprogrammings		
Price Changes		7,524
Functional Transfers		
Program Changes		15,382
Current Estimate	**424,069**	**446,975**
Less: Wartime Supplemental		
Normalized Current Estimate	**424,069**	

III. Financial Summary ($ in thousands)

C. Reconciliation of Increases and Decreases	**Amount**	**Totals**
FY 2016 President's Budget Request (Amended, if applicable)		**432,068**
1. Congressional Adjustments		-7,999
a. Distributed Adjustments		
1) Decrease of THAAD Batteries sustainment funded early to need	-4,900	
2) Unaccounted program transfer to OUSD (C)	-2,600	
b. Undistributed Adjustments		
c. Adjustments to Meet Congressional Intent		
d. General Provisions		
1) Section 8128 (Fuel Savings)	-332	
2) Section 8037 (Indian Lands)	-160	
3) Section 8024 (FFRDC)	-7	
FY 2016 Appropriated Amount		**424,069**
2. War-Related and Disaster Supplemental Appropriations		
3. Fact-of-Life Changes		
FY 2016 Baseline Funding		**424,069**
4. Reprogrammings (Requiring 1415 Actions)		
Revised FY 2016 Estimate		**424,069**
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings		
FY 2016 Normalized Current Estimate		**424,069**
6. Price Change		7,524
7. Functional Transfers		
8. Program Increases		38,135
a. Annualization of New FY 2016 Program		
b. One-Time FY 2017 Increases		
1) Aegis BMD program Growth provides non-recurring stand-up cost for the Seal Beach recertification facility in order to support future increased Standard Missile-3 (SM-3)	11,900	

III. Financial Summary ($ in thousands)

C. Reconciliation of Increases and Decreases	Amount	Totals
recertification requirements.		
c. Program Growth in FY 2017		
1) THAAD program Growth initiates CLS support for the 7th THAAD Battery delivered in FY 2017, increases recurring THAAD training, and funds contractor FTEs to sustain fielded THAAD software. (FY 2016 Baseline $58,308 thousand, 0 FTEs)	12,502	
2) Aegis SM-3 program Growth is due to FY 2017 initiation of IA service life extensions, IB mid-life recertifications and Third Stage Rocket Motor nozzle retrofit installations. (FY2016 Baseline $46,111 thousand, 0 FTEs)	8,580	
3) Aegis BMD program Growth initiates sustainment costs of software for BMD 4.x (4.0.3). (FY 2016 Baseline $0 thousand, 0 FTEs)	5,153	
9. Program Decreases		-22,753
a. Annualization of FY 2016 Program Decreases		
b. One-Time FY 2016 Increases		
c. Program Decreases in FY 2017		
1) BMDS Radar program Decrease in contractor services requirements for logistics support and deferred radar spare purchases. (FY 2016 Baseline $186,139 thousand, 0 FTEs)	-16,408	
2) Midcourse Defense Segment program Decrease is due to the reduction and deferment of all FY 2017 non-mission critical facility FSRM efforts. (FY 2016 Baseline $133,511 thousand, 0 FTEs)	-6,345	

III. Financial Summary ($ in thousands)

C. Reconciliation of Increases and Decreases	Amount	Totals
FY 2017 Budget Request		446,975

IV. Performance Criteria and Evaluation Summary:

A. Aegis Ballistic Missile Defense BMD Standard Missile 3 Performance Objectives are defined in the SM-3 contracts as follows: The performance incentive of the SM-3 Cost Plus/ Incentive Fee/Award Fee (CP/IF/AF) contracts is determined by a formula designed to focus on reduction of overall maintenance cost and efficiency of recertification and the timely return of SM-3s to the fleet.

B. Ballistic Missile Defense Midcourse Defense Segment. The Ground-based Midcourse System utilizes a performance clause on the Development and Sustainment Contract (DSC) with Boeing using GMD System Availability (SA) criteria as the primary operational readiness metric to gauge the DSC Prime Contractor's sustainment performance.

The intent of using SA criteria is to maximize availability of the GMD weapon system to the warfighter for the Homeland Defense mission and to maximize the availability of operational interceptors to the Warfighter. Specifically, at any given time during performance of the contract, the DSC Contractor is responsible for making a minimum number of healthy GBIs available, and ensuring that Combatant Command minimum asset availability is maintained per established readiness criteria.

Specific SA: All calculations are based on times measured to the nearest minute.

$$SA = \frac{(TT - TCM - TPM - \text{Government Directed Down Time})}{(TT - \text{Government Directed Down Time})}$$

IV. Performance Criteria and Evaluation Summary:

SA Calculation Notes:

TT	Total Time (24 hrs/X days in Month)
TCM	Total downtime due to corrective maintenance actions including logistics
TPM	Total downtime due to preventative maintenance actions including logistics delay
Government Directed Down Time	When the Government expressly directs the Contractor to take the system or selected prime mission equipment asset(s) out of an operational state for a specified period of time for activities that are neither Corrective Maintenance (CM) nor Preventive Maintenance (PM). Further, GDDT includes periods when the system or assets are turned off based on unforeseen or scheduled events (beyond the control, fault or negligence of the contractor or any of its subcontractors) which created conditions that render the system unavailable to the Warfighter GDDT does not include scheduled CM and PM activities covered in the Warfighter Asset Management Process. Under Performance Based Logistics (PBL), the DSC Contractor should schedule maintenance using the Asset Management Process in a way that minimizes down time.

IV. Performance Criteria and Evaluation Summary:

C. Ballistic Missile Defense Systems (BMDS) AN/TPY-2 Radars. Upgraded Early Warning Radars (UEWR) and COBRA DANE operations and sustainment are managed by the Air Force to maintain radars' multi-mission capability and meet specified operational availability requirements to maintain and enhance the Missile Defense mission for these radars.

For Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) radars, the contractor's performance in operations and sustainment will be measured by the radars' demonstrated operational demonstrated availability (Ao), defined as:

$$A_o = \frac{\text{Total Time} - \text{Non Mission Capable Time}}{\text{Total Time}}$$

For AN/TPY-2 radars: "Total time" is defined as 24 hours per day times the number of days in the period of performance of the task order. Performance measurement does not include contractually-defined conditions that are outside the control of the Contractor and are exceptions to Ao downtime. For AN/TPY-2 radars, performance incentives are calculated as follows:

IV. Performance Criteria and Evaluation Summary:

Target A_o = 95%	
A_o > 95%	100% of Performance Incentive Pool
A_o ≥ 70%, <95%	Actual A_o% achieved times pool amount
A_o < 70%	Performance Fee = 0%

D. Terminal High Altitude Area Defense (THAAD). THAAD utilizes a Performance Clause in the Interim Contractor Support (ICS) contract with Lockheed Martin (LM) to incentivize LM for THAAD weapon system readiness. The assessment of the performance clause is based on evaluation of Battery Operational Readiness and Minimum Capability:

Operational Readiness (OR) is calculated by dividing the number of hours the required components (1 or 2 Tactical Statin Groups's (TSG) and 3 or 6 Launchers depending on battery) are available to accomplish the mission during a rating period by the number of hours possible during the rating period. For OR levels greater than 70% and less than or equal to 100%, the contractor is awarded an incentive fee on a sliding scale for that portion. Minimum Capability (MC) is also calculated by dividing the number of hours the required components (1 TSG and 2 Launchers) are available to accomplish the mission during a rating period by the number of hours possible during the rating period. For MC, readiness levels less than 100% the contractor is awarded zero fee for that portion.

V. Personnel Summary	FY 2015	FY 2016	FY 2017	Change FY 2015/ FY 2016	Change FY 2016/ FY 2017
Contractor FTEs (Total)	909	941	964	32	23

The FY 2015 to FY 2016 growth provides increased operation and maintenance activities for additional deployed Aegis weapon and missile systems, and increased THAAD contractor logistics support (CLS) team and training support for the 6th THAAD Battery and AN/TPY-2 Radars.

The FY 2016 to FY 2017 growth provides increased operations and maintenance activities for additional deployed Aegis weapon and missile systems, additional Aegis missile recertifications at Maintenance Depots, post deployment Aegis computer program baseline support, initiates CLS support for the 7th THAAD Battery delivered in FY 2017, provides additional recurring THAAD training, and funds FTEs transitioned from Research, Development, Test and Evaluation (RDT&E) that are now funded with Operation and Maintenance (O&M) to provide sustainment of fielded THAAD software.

Missile Defense Agency
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VI. OP 32 Line Items as Applicable (Dollars in thousands):

		Change			Change		
	FY 2015	FY 2015/FY 2016		FY 2016	FY 2016/FY 2017		FY 2017
OP 32 Line	Actual	Price	Program	Enacted	Price	Program	Estimate
308 Travel of Persons	0	0	337	337	6	-4	339
399 Total Travel	**0**	**0**	**337**	**337**	**6**	**-4**	**339**
401 DLA Energy (Fuel Products)	1,909	-139	-690	1,080	-89	88	1,079
499 Total Supplies & Materials	**1,909**	**-139**	**-690**	**1,080**	**-89**	**88**	**1,079**
771 Commercial Transport	3,495	59	-1,532	2,022	36	-155	1,903
799 Total Transportation	**3,495**	**59**	**-1,532**	**2,022**	**36**	**-155**	**1,903**
912 Rental Payments to GSA (SLUC)	0	0	0	0	0	244	244
913 Purchased Utilities (Non-Fund)	3,365	57	-530	2,892	52	95	3,039
914 Purchased Communications (Non-Fund)	0	0	1,211	1,211	22	-19	1,214
915 Rents (Non-GSA)	0	0	238	238	4	-4	238
917 Postal Services (U.S.P.S)	0	0	5	5	0	0	5
920 Supplies & Materials (Non-Fund)	9,497	161	4,378	14,036	253	4,969	19,258
922 Equipment Maintenance By Contract	291,636	4,958	16,599	313,193	5,637	-37,243	281,587
923 Facilities Sust, Rest, & Mod by Contract	18,692	318	-8,089	10,921	197	2,222	13,340
925 Equipment Purchases (Non-Fund)	0	0	13,957	13,957	251	2,173	16,381
930 Other Depot Maintenance (Non-Fund)	0	0	10,432	10,432	188	7,812	18,432
932 Mgt Prof Support Svcs	7,680	131	3,259	11,070	199	672	11,941
933 Studies, Analysis & Eval	0	0	21	21	0	3,664	3,685
934 Engineering & Tech Svcs	0	0	1,647	1,647	30	463	2,140
937 Locally Purchased Fuel (Non-Fund)	53	-4	-49	0	0	1,510	1,510
987 Other Intra-Govt Purch	20,726	352	-11,391	9,687	174	8,779	18,640
989 Other Services	45,188	768	-30,036	15,920	287	6,682	22,889
990 IT Contract Support Services	221	4	15,175	15,400	277	13,434	29,111
999 Total Other Purchases	**397,058**	**6,745**	**16,827**	**420,630**	**7,571**	**15,453**	**443,654**
Total	**402,462**	**6,665**	**14,942**	**424,069**	**7,524**	**15,382**	**446,975**

The difference between the OP-32 and the Program Resources Collection Process (PRCP) system for object classes 922 (Equipment Maintenance by Contract) and 923 (Facilities Sustainment, Restoration, and Modernization by Contract) for the FY 2016 Enacted and FY 2017 Estimate columns is due to a data entry error that was not discovered until after PRCP had locked. The error has been corrected in the above OP-32.
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