

Fiscal Year (FY) 2018 President's Budget
Missile Defense Agency (MDA)



May 2017

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<u>Appropriation Summary</u>	<u>FY 2016 Actual</u>	<u>Price Change</u>	<u>Program Change</u>	<u>FY 2017 Estimate</u>	<u>Price Change</u>	<u>Program Change</u>	<u>FY 2018 Estimate</u>
O&M, Defense-Wide	\$423.0	\$8.1	\$36.2	\$467.3	\$9.3	\$27.5	\$504.1

Provides the following Ballistic Missile Defense (BMD) operations and maintenance support:

A. Aegis BMD. Funding provides a wide range of support activities for deployed Aegis BMD ships and Aegis Ashore facilities including Standard Missile-3 (SM-3) Sustainment, BMD Aegis Weapon System (AWS) Sustainment, and sustainment for Aegis Ashore sites.

The SM-3 sustainment program includes the recertification/repair of missiles, installation of software and hardware updates, demilitarization of SM-3 missiles, modeling and simulation and logistics efforts. Also provides missile first destination transportation, transportation ballistic barrier maintenance, spares replenishment and operational fleet support.

BMD AWS sustainment includes In-Service Engineering Agent (ISEA), Lifecycle Support Engineering Agent (LSEA), and Technical Design Agent support for fielded Aegis BMD AWS baselines. Provides engineering services, identification and resolution of BMD software and hardware Aegis Combat System operability deficiencies/issues, fleet maintenance support for BMD ships, certification/delivery of updated weapon systems capabilities, Reliability, Maintainability & Availability analysis/metrics and review/implementation of maintenance concepts. Provides integrated logistics support such as technical documentation maintenance and resolution of Diminishing Manufacturing Sources/obsolete material issues.

Operational sustainment support for the Aegis Ashore Romania site and equipment includes BMD unique AWS sparing and consumables during interim support, facility operations including transportation, power and communications, and Command, Control, Communications, Computers and Intelligence (C4I), ISEA and LSEA engineering. Also provides portable Aegis BMD Mission Planning tools for Fleet Maritime Operation Centers, Test Site Support, development and revision of regional and homeland defense plans and Pre-Planned Responses and Global Force Management requests.

B. Ground Base Midcourse. Funding provides maintenance, repair, training, supply support, sustaining engineering, network operations, integrated logistics support, configuration control, scheduling, execution control, system transitioning and performance reporting. Additionally, funding provides Base Operations Support (BOS) for facility sustainment and maintenance at the various GMD sites.

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C. Ballistic Missile Defense System (BMDS) AN/TPY-2 Radars. Sustainment of 12 Army Navy/Transportable Radar Surveillance and Control-2 radars including forward-based radars and Terminal High Altitude Area Defense configured radars to include supply support, repair, maintenance, modernization, transportation, parts storage, Special Tools and Test Equipment, recurring and delta training, training device maintenance, engineering support, Interactive Electronic Technical Manual (IETM) updates, software user guide updates, 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 sustainment unique to the Missile Defense mission for the Upgraded Early Warning Radar (UEWR)/COBRA DANE Radar, which MDA sustains and operates in conjunction with the US Air Force.

D. Terminal High Altitude Area Defense (THAAD). MDA is responsible for the sustainment of the THAAD missile defense unique or developmental items, while the U.S. Army is responsible for the operations and sustainment of the common items. Funding provides sustainment for all fielded THAAD Batteries, ensures THAAD assets are properly maintained and crews are trained to meet Combatant Commanders needs including; 1.) Field and sustainment level supply, maintenance, modernization, hazardous materials/waste disposal, and Depot level maintenance 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.) Deployment software support for fielded software, to include deficiency report review, error correction, incremental capability improvements, and hardware/systems interface compatibility maintenance. 5.) Missile transportation and handling from the missile storage location to the site of the THAAD launchers. 6.) Interactive Electronic Technical Manual (IETM) updates software users' guide updates, and software revision certification. 7.) Maintenance and upkeep for all THAAD training devices. 8.) Supply, maintenance and transportation support for all new Equipment Training and Delta training for fielded units required due to design changes for replacement soldiers. 9.) Special Tools and Test Equipment for the organic depot. 10.) RESET program.

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	FY 2016 <u>Actual</u>	FY 2017 <u>Estimate</u>	FY 2018 <u>Estimate</u>
4. Administrative and Servicewide Activities	422,950	467,275	504,058
Aegis BMD Program	43,500	73,039	96,346
BMDS AN/TPY-2 Radars Program	187,820	192,856	191,055
Ground Base Midcourse Program	133,705	129,281	137,896
THAAD Program	57,925	72,099	78,761
Total Operation and Maintenance, Defense-Wide	422,950	467,275	504,058

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	FY 2016 <u>Actual</u>	FY 2017 <u>Estimate</u>	FY 2018 <u>Estimate</u>
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Total Operation and Maintenance, Defense-Wide	422,950	467,275	504,058

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	<u>FY 2016</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2017</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2018</u>
	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>
		<u>Percent</u>				<u>Percent</u>			
<u>Travel</u>									
308 Travel of Persons	299	1.90%	6	34	339	2.00%	7	-5	341
399 Total Travel	299		6	34	339		7	-5	341
<u>Supplies & Materials</u>									
401 DLA Energy (Fuel Products)	1,081	6.00%	65	-67	1,079	-0.40%	-4	32	1,107
499 Total Supplies & Materials	1,081		65	-67	1,079		-4	32	1,107
<u>Transportation</u>									
771 Commercial Transport	4,178	1.90%	79	-2,354	1,903	2.00%	38	2	1,943
799 Total Transportation	4,178		79	-2,354	1,903		38	2	1,943
<u>Other Purchases</u>									
912 Rental Payments to GSA (SLUC)	0	1.90%	0	244	244	2.00%	5	-2	247
913 Purchased Utilities (Non-Fund)	4,542	1.90%	86	-1,589	3,039	2.00%	61	-136	2,964
914 Purchased Communications (Non-Fund)	2,751	1.90%	52	-1,589	1,214	2.00%	24	5	1,243
915 Rents (Non-GSA)	238	1.90%	5	-5	238	2.00%	5	1	244
917 Postal Services (U.S.P.S)	5	1.90%	0	0	5	2.00%	0	0	5
920 Supplies & Materials (Non-Fund)	22,567	1.90%	429	-3,738	19,258	2.00%	385	3,500	23,143
922 Equipment Maintenance By Contract	198,583	1.90%	3,773	-24,716	177,640	2.00%	3,553	8,470	189,663
923 Facilities Sust, Rest, & Mod by Contract	45,244	1.90%	860	80,883	126,987	2.00%	2,540	9,061	138,588
925 Equipment Purchases (Non-Fund)	988	1.90%	19	15,374	16,381	2.00%	328	-524	16,185
930 Other Depot Maintenance (Non-Fund)	28,927	1.90%	550	-11,045	18,432	2.00%	369	13,590	32,391
932 Mgt Prof Support Svcs	22,330	1.90%	424	-10,813	11,941	2.00%	239	-20	12,160
933 Studies, Analysis & Eval	5,893	1.90%	112	-2,320	3,685	2.00%	74	1,484	5,243
934 Engineering & Tech Svcs	6,845	1.90%	130	-4,835	2,140	2.00%	43	405	2,588

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	<u>FY 2016</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2017</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2018</u>
	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>
		<u>Percent</u>				<u>Percent</u>			
937 Locally Purchased Fuel (Non-Fund)	1,533	6.00%	92	-115	1,510	-0.40%	-6	16	1,520
985 Research & Development, Contracts	471	0.00%	0	-471	0	0.00%	0	0	0
987 Other Intra-Govt Purch	24,390	1.90%	463	4,387	29,240	2.00%	585	-8,316	21,509
989 Other Services	941	1.90%	18	21,930	22,889	2.00%	458	1,630	24,977
990 IT Contract Support Services	51,144	1.90%	972	-23,005	29,111	2.00%	582	-1,696	27,997
999 Total Other Purchases	417,392		7,985	38,577	463,954		9,245	27,468	500,667
Total	422,950		8,135	36,190	467,275		9,286	27,497	504,058

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	<u>FY 2016 Program</u>	<u>Price Growth Percent</u>	<u>Price Growth</u>	<u>Program Growth</u>	<u>FY 2017 Program</u>	<u>Price Growth Percent</u>	<u>Price Growth</u>	<u>Program Growth</u>	<u>FY 2018 Program</u>
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	<u>FY 2016</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2017</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2018</u>
	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>
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	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Change</u> <u>FY 2017/2018</u>
Contractor FTEs (Total)	853	964	986	22

Personnel Summary Explanations:

The FY 2017 to FY 2018 growth provides for maintenance of increasing quantity of in-service missiles and computer programs, and installation of upgrades and reliability improvements such as SM-3 IB Threat Upgrade (TU), G-switch and Third Stage Rocket Motor (TSRM) upgrades; Increased maintenance and sustainment of ten additional GBIS fielded at Fort Greely, AK; and transition of the 7th THAAD battery to an operational status which increases operational tempo. In addition, the Army Global Posture Strategy requires a deployment of a second OCONUS THAAD battery, increasing costs to support the Army mission.

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FY 2017 President's Budget Request (Amended, if applicable)	<u>TOTAL</u> 467,275
1. Congressional Adjustments	
a. Distributed Adjustments	
b. Undistributed Adjustments	
c. Adjustments to Meet Congressional Intent	
d. General Provisions	
FY 2017 Appropriated Amount	467,275
2. War-Related and Disaster Supplemental Appropriations	
3. Fact-of-Life Changes	
FY 2017 Baseline Funding	467,275
4. Reprogrammings (Requiring 1415 Actions)	
Revised FY 2017 Estimate	467,275
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings	
FY 2017 Normalized Current Estimate	467,275
6. Price Change	9,286
7. Functional Transfers	
8. Program Increases	
a. Annualization of New FY 2017 Program	
b. One-Time FY 2018 Increases	
c. Program Growth in FY 2018	
1) Aegis BMD SM-3 Program	19,426
2) Aegis BMD program	11,532
3) BMDS AN/TPY-2 Program	8,497

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	<u>TOTAL</u>
4) Ground Base Program	6,332
5) THAAD Program	4,460
9. Program Decreases	
a. Annualization of FY 2017 Program Decreases	
b. One-Time FY 2017 Increases	
1) BMDS AN/TPY-2 Program	-10,106
c. Program Decreases in FY 2018	
1) Aegis Ashore Romania	-9,865
2) BMDS AN/TPY-2 Program	-2,779
FY 2018 Budget Request	504,058

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

	FY 2016	Price	Program	FY 2017	Price	Program	FY 2018
	<u>Actual</u>	<u>Change</u>	<u>Change</u>	<u>Estimate</u>	<u>Change</u>	<u>Change</u>	<u>Estimate</u>
MDA	422,950	8,135	36,190	467,275	9,286	27,497	504,058

I. Description of Operations Financed: Provides the following Ballistic Missile Defense (BMD) operations and maintenance support:

A. Aegis BMD. Funding provides a wide range of support activities for deployed Aegis BMD ships and Aegis Ashore facilities including Standard Missile-3 (SM-3) Sustainment, BMD Aegis Weapon System (AWS) Sustainment, and sustainment for Aegis Ashore sites.

The SM-3 sustainment program includes the recertification/repair of missiles, installation of software and hardware updates, demilitarization of SM-3 missiles, modeling and simulation and logistics efforts. Also provides missile first destination transportation, transportation ballistic barrier maintenance, spares replenishment and operational fleet support.

BMD AWS sustainment includes In-Service Engineering Agent (ISEA), Lifecycle Support Engineering Agent (LSEA), and Technical Design Agent support for fielded Aegis BMD AWS baselines. Provides engineering services, identification and resolution of BMD software and hardware Aegis Combat System operability deficiencies/issues, fleet maintenance support for BMD ships, certification/delivery of updated weapon systems capabilities, Reliability, Maintainability & Availability analysis/metrics and review/ implementation of maintenance concepts. Provides integrated logistics support such as technical

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I. Description of Operations Financed (cont.)

documentation maintenance and resolution of Diminishing Manufacturing Sources/obsolete material issues.

Operational sustainment support for the Aegis Ashore Romania site and equipment includes BMD unique AWS sparing and consumables during interim support, facility operations including transportation, power and communications, and Command, Control, Communications, Computers and Intelligence (C4I), ISEA and LSEA engineering. Also provides portable Aegis BMD Mission Planning tools for Fleet Maritime Operation Centers, Test Site Support, development and revision of regional and homeland defense plans and Pre-Planned Responses and Global Force Management requests.

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I. Description of Operations Financed (cont.)

support, Interactive Electronic Technical Manual (IETM) updates, software user guide updates, 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 sustainment unique to the Missile Defense mission for the Upgraded Early Warning Radar (UEWR)/COBRA DANE Radar, which MDA sustains and operates in conjunction with the US Air Force.

D. Terminal High Altitude Area Defense (THAAD). MDA is responsible for the sustainment of the THAAD missile defense unique or developmental items, while the U.S. Army is responsible for the operations and sustainment of the common items. Funding provides sustainment for all fielded THAAD Batteries, ensures THAAD assets are properly maintained and crews are trained to meet Combatant Commanders needs including; 1.) Field and sustainment level supply, maintenance, modernization, hazardous materials/waste disposal, and Depot level maintenance 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.) Deployment software support for fielded software, to include deficiency report review, error correction, incremental capability improvements, and hardware/systems interface compatibility maintenance. 5.) Missile transportation and handling from the missile storage location to the site of the THAAD launchers. 6.) Interactive Electronic Technical Manual (IETM) updates software users' guide updates, and software revision certification. 7.) Maintenance and upkeep for all THAAD training devices. 8.) Supply, maintenance and transportation support for all new Equipment Training and Delta training for fielded units required due to design changes for replacement soldiers. 9.) Special Tools and Test Equipment for the organic depot. 10.) RESET program. %%%

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II. Force Structure Summary:

N/A

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III. Financial Summary (\$ in thousands)

	FY 2017						
	FY 2016	Budget	Congressional Action			Current	FY 2018
			Amount	Percent	Appropriated		
A. <u>BA Subactivities</u>	<u>Actual</u>	<u>Request</u>				<u>Estimate</u>	<u>Estimate</u>
4. Administrative and	422,950	467,275	0	0.0	0	467,275	504,058
 Servicewide Activities							
Aegis BMD Program	43,500	73,039	0	0.0	0	73,039	96,346
BMDS AN/TPY-2 Radars	187,820	192,856	0	0.0	0	192,856	191,055
Program							
Ground Base Midcourse	133,705	129,281	0	0.0	0	129,281	137,896
Program							
THAAD Program	57,925	72,099	0	0.0	0	72,099	78,761
Total	422,950	467,275	0	0.0	0	467,275	504,058

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III. Financial Summary (\$ in thousands)

B. <u>Reconciliation Summary</u>	Change <u>FY 2017/FY 2017</u>	Change <u>FY 2017/FY 2018</u>
Baseline Funding	467,275	467,275
Congressional Adjustments (Distributed)		
Congressional Adjustments (Undistributed)		
Adjustments to Meet Congressional Intent		
Congressional Adjustments (General Provisions)		
Subtotal Appropriated Amount	467,275	
Fact-of-Life Changes (2017 to 2017 Only)		
Subtotal Baseline Funding	467,275	
Supplemental		
Reprogrammings		
Price Changes		9,286
Functional Transfers		
Program Changes		27,497
Current Estimate	467,275	504,058
Less: Wartime Supplemental		
Normalized Current Estimate	467,275	

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III. Financial Summary (\$ in thousands)

	<u>Amount</u>	<u>Totals</u>
C. <u>Reconciliation of Increases and Decreases</u>		
FY 2017 President's Budget Request (Amended, if applicable)		467,275
1. Congressional Adjustments		
a. Distributed Adjustments		
b. Undistributed Adjustments		
c. Adjustments to Meet Congressional Intent		
d. General Provisions		
FY 2017 Appropriated Amount		467,275
2. War-Related and Disaster Supplemental Appropriations		
3. Fact-of-Life Changes		
FY 2017 Baseline Funding		467,275
4. Reprogrammings (Requiring 1415 Actions)		
Revised FY 2017 Estimate		467,275
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings		
FY 2017 Normalized Current Estimate		467,275
6. Price Change		9,286
7. Functional Transfers		
8. Program Increases		50,247
a. Annualization of New FY 2017 Program		
b. One-Time FY 2018 Increases		
c. Program Growth in FY 2018		
1) Aegis BMD SM-3 Program	19,426	
Growth is due to increased number of SM-3 missile recertification, Third Stage Rocket Motor Nozzle retrofit installations reliability improvements. (FY 2017 Baseline: \$54,691 thousand)		
2) Aegis BMD program	11,532	
+\$10,000 Growth provides additional Aegis BMD Test Ship operations and maintenance support.		

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III. Financial Summary (\$ in thousands)

C. <u>Reconciliation of Increases and Decreases</u>	<u>Amount</u>	<u>Totals</u>
+\$1,532 Growth provides for annual BMD 4.x software maintenance as opposed to every other year.		
(FY 2017 Baseline: \$73,039 thousand)		
3) BMDS AN/TPY-2 Program	8,497	
+\$7,459 Growth is due to additional COBRA DANE sustainment costs to redesign obsolete or unreliable components to extend the service life of CD.		
+\$1,038 Additional sustainment cost for Terminal Mode radar deployed to the Republic of Korea. (FY 2017 Baseline: \$172,556 thousand)		
4) Ground Base Program	6,332	
+\$5,309 Growth to address the backlog of critical Facility Sustainment, Restoration, and Modernization (FSRM) projects at FGA and Vandenberg AFB, CA.		
+\$1,023 Growth is due to sustainment of ten additional fielded GBIs at Fort Greely, AK (FGA) (FY 2017 Baseline: \$129,281 thousand)		
5) THAAD Program	4,460	
+\$3,122 Growth is due to transition of the 7th THAAD battery to an operational status which increases operational tempo.		
+\$1,338 Growth is due to the Army Global Posture Strategy requires a deployment of a second OCONUS		

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III. Financial Summary (\$ in thousands)

C. <u>Reconciliation of Increases and Decreases</u>	<u>Amount</u>	<u>Totals</u>
THAAD battery, increasing costs to support the Army mission. (FY 2017 Baseline: \$72,099 thousand)		
9. Program Decreases		-22,750
a. Annualization of FY 2017 Program Decreases		
b. One-Time FY 2017 Increases		
1) BMDS AN/TPY-2 Program	-10,106	
Decrease due to completion of AN/TPY-2 Prime Power Unit (PPU) Deep Maintenance. (FY 2017 Baseline: \$172,556 thousand)		
c. Program Decreases in FY 2018		
1) Aegis Ashore Romania	-9,865	
Decrease due to Aegis Ashore Romania Site Sustainment transitioned to US Navy in FY 2018. (FY 2017 Baseline: \$13,865 thousand)		
2) BMDS AN/TPY-2 Program	-2,779	
Decrease in contractor logistics support (FY 2017 Baseline: \$172,556 thousand)		
FY 2018 Budget Request		504,058

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IV. Performance Criteria and Evaluation Summary:

	FY 2016 <u>Estimate</u>	FY 2017 <u>Estimate</u>	FY 2018 <u>Estimate</u>
1. Operational Support	422,950	446,975	504,058
Aegis Program	43,500	73,039	96,346
Ground Base Midcourse	133,705	129,281	137,896
BMDS AN/TPY-2 Radars	187,820	172,556	191,055
THAAD Program	57,925	72,099	78,761
Total Operations and Maintenance, Defense Wide	422,950	446,975	504,058

The MDA Ballistic Missile Defense (BMD) mission is to deliver an enduring, operationally effective and supportable Ballistic Missile Defense capability to defend the nation, deployed forces, friends and allies.

A. Aegis Ballistic Missile Defense (BMD). 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, Medium-Range, and Intermediate-Range Ballistic Missiles 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. By the end of FY 2017, there will be 34 BMDS capable ships.

B. Ground Base Midcourse (GMD). 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

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IV. Performance Criteria and Evaluation Summary:

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. 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 seven batteries with six 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). During actual deployments batteries have been operating at a 365-day, 24/7 operational tempo, with increased CLS costs. This increased tempo has been sustained through the increase of appropriate attachments and support.

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V. <u>Personnel Summary</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Change FY 2016/ FY 2017</u>	<u>Change FY 2017/ FY 2018</u>
<u>Contractor FTEs (Total)</u>	<u>853</u>	<u>964</u>	<u>986</u>	<u>111</u>	<u>22</u>

The FY 2017 to FY 2018 growth provides for maintenance of increasing quantity of in-service missiles and computer programs, and installation of upgrades and reliability improvements such as SM-3 IB Threat Upgrade (TU), G-switch and Third Stage Rocket Motor (TSRM) upgrades; Increased maintenance and sustainment of ten additional GBIS fielded at Fort Greely, AK; and transition of the 7th THAAD battery to an operational status which increases operational tempo. In addition, the Army Global Posture Strategy requires a deployment of a second OCONUS THAAD battery, increasing costs to support the Army mission.

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

		Change			Change		
<u>OP 32 Line</u>	<u>FY 2016</u>	<u>FY 2016/FY 2017</u>		<u>FY 2017</u>	<u>FY 2017/FY 2018</u>		<u>FY 2018</u>
	<u>Actual</u>	<u>Price</u>	<u>Program</u>	<u>Estimate</u>	<u>Price</u>	<u>Program</u>	<u>Estimate</u>
308 Travel of Persons	299	6	34	339	7	-5	341
399 Total Travel	299	6	34	339	7	-5	341
401 DLA Energy (Fuel Products)	1,081	65	-67	1,079	-4	32	1,107
499 Total Supplies & Materials	1,081	65	-67	1,079	-4	32	1,107
771 Commercial Transport	4,178	79	-2,354	1,903	38	2	1,943
799 Total Transportation	4,178	79	-2,354	1,903	38	2	1,943
912 Rental Payments to GSA (SLUC)	0	0	244	244	5	-2	247
913 Purchased Utilities (Non-Fund)	4,542	86	-1,589	3,039	61	-136	2,964
914 Purchased Communications (Non-Fund)	2,751	52	-1,589	1,214	24	5	1,243
915 Rents (Non-GSA)	238	5	-5	238	5	1	244
917 Postal Services (U.S.P.S)	5	0	0	5	0	0	5
920 Supplies & Materials (Non-Fund)	22,567	429	-3,738	19,258	385	3,500	23,143
922 Equipment Maintenance By Contract	198,583	3,773	-24,716	177,640	3,553	8,470	189,663
923 Facilities Sust, Rest, & Mod by Contract	45,244	860	80,883	126,987	2,540	9,061	138,588
925 Equipment Purchases (Non-Fund)	988	19	15,374	16,381	328	-524	16,185
930 Other Depot Maintenance (Non-Fund)	28,927	550	-11,045	18,432	369	13,590	32,391
932 Mgt Prof Support Svcs	22,330	424	-10,813	11,941	239	-20	12,160
933 Studies, Analysis & Eval	5,893	112	-2,320	3,685	74	1,484	5,243
934 Engineering & Tech Svcs	6,845	130	-4,835	2,140	43	405	2,588
937 Locally Purchased Fuel (Non-Fund)	1,533	92	-115	1,510	-6	16	1,520
985 Research & Development, Contracts	471	0	-471	0	0	0	0
987 Other Intra-Govt Purch	24,390	463	4,387	29,240	585	-8,316	21,509
989 Other Services	941	18	21,930	22,889	458	1,630	24,977
990 IT Contract Support Services	51,144	972	-23,005	29,111	582	-1,696	27,997
999 Total Other Purchases	417,392	7,985	38,577	463,954	9,245	27,468	500,667

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		Change			Change		
	FY 2016	<u>FY 2016/FY 2017</u>		FY 2017	<u>FY 2017/FY 2018</u>		FY 2018
<u>OP 32 Line</u>	<u>Actual</u>	<u>Price</u>	<u>Program</u>	<u>Estimate</u>	<u>Price</u>	<u>Program</u>	<u>Estimate</u>
Total	422,950	8,135	36,190	467,275	9,286	27,497	504,058

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CONTRACT SERVICES FUNDING
(\$ in Millions)

Line	By PB/OP-32 Inflation Category Code	FY 2016 Base & OCO <u>Actual</u>	FY 2017 Base <u>Request</u>	FY 2017 OCO <u>Request</u>	FY 2018 Base <u>Request</u>	FY 2018 OCO <u>Request</u>
914	Purchased Communications (Non-Fund)	3	1	0	1	0
	Total 23.1 - Communications, Utilities, and Misc. Charges	3	1	0	1	0
932	Mgmt and Professional Support Services	22	12	0	12	0
934	Engineering and Technical Services	0	2	0	3	0
	Total 25.1 - Advisory and Assistance Services	22	14	0	15	0
989	Other Contracts	1	23	0	25	0
926	Other Overseas Purchases	0				
	Total 25.2 - Other Services	1	23	0	25	0
987	Other Intra-Government Purchases	24	29	0	25	0
	Total 25.3 - Other Goods and Services from Federal Sources	24	29	0	25	0
923	Facility Maintenance	45	127	0	139	0
	Total 25.4 - Operation and Maintenance of Facilities	45	127	0	139	0
985	Research and Development Contracts	1				
	Total 25.5 - Research and Development Contracts	1	0	0	0	0
922	Equipment Maintenance - Contract	196	178	0	190	0
930	Other Depot Maintenance (Non-Fund)	29	18	0	32	0
990	IT Contract Support Services	51	29	0	28	0
	Total 25.7 - Operation and Maintenance of Equipment	276	225	0	250	0
964	Subsistence Contracts					
	Total 25.8- Subsistence and Support of Persons	0	0	0	0	0
	Total	372	419	0	455	0

Source: Program Resources Collection Process as of 6 December, 2016

Numbers may not add due to rounding

MISSILE DEFENSE AGENCY
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Contractor Full-Time Equivalents

Line	By PB/OP-32 Inflation Category Code	FY 2016 Base & OCO <u>Actual</u>	FY 2017 Base <u>Request</u>	FY 2017 OCO <u>Request</u>	FY 2018 Base <u>Request</u>	FY 2018 OCO <u>Request</u>
914	Purchased Communications (Non-Fund)	4	4	0	4	0
	Total 23.1 - Communications, Utilities and Misc. Charges	4	4	0	4	0
932	Mgmt and Professional Support Services	29	29	0	29	0
934	Engineering and Technical Services	33	25		27	
	Total 25.1 - Advisory and Assistance Services	62	54	0	56	0
989	Other Contracts	12	31	0	31	0
926	Other Overseas Purchases					
	Total 25.2 - Other Services	12	31	0	31	0
987	Other Intra-Government Purchases	1	1	0	1	0
	Total 25.3 - Other Goods and Services from Federal Sources	1	1	0	1	0
923	Facility Maintenance	276	376	0	371	0
	Total 25.4 - Operation and Maintenance of Facilities	276	376	0	371	0
985	Research and Development Contracts					
	Total 25.5 - Research and Development Contracts	0	0	0	0	0
922	Equipment Maintenance - Contract	444	444	0	468	0
930	Other Depot Maintenance (Non-Fund)	22	22		23	
990	IT Contract Support Services	32	32		32	0
	Total 25.7 - Operation and Maintenance of Equipment	498	498	0	523	0
	Total	853	964	0	986	0

Source: Program Resources Collection Process as of 6 December, 2016

Numbers may not add due to rounding

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CONTRACT SERVICES

Defense-Wide Missile Defense Agency
Operation and Maintenance
Justification Narrative

Description of Services Financed:

Provides the following Ballistic Missile Defense (BMD) operations and maintenance support:

A. Aegis BMD. Funding provides a wide range of support activities for deployed Aegis BMD ships and Aegis Ashore facilities including Standard Missile-3 (SM-3) Sustainment, BMD Aegis Weapon System (AWS) Sustainment, and sustainment for Aegis Ashore sites.

The SM-3 sustainment program includes the recertification/repair of missiles, installation of software and hardware updates, demilitarization of SM-3 missiles, modeling and simulation and logistics efforts. Also provides missile first destination transportation, transportation ballistic barrier maintenance, spares replenishment and operational fleet support.

BMD AWS sustainment includes In-Service Engineering Agent (ISEA), Lifecycle Support Engineering Agent (LSEA), and Technical Design Agent support for fielded Aegis BMD AWS baselines. Provides engineering services, identification and resolution of BMD software and hardware Aegis Combat System operability deficiencies/issues, fleet maintenance support for BMD ships, certification/delivery of updated weapon systems capabilities, Reliability, Maintainability & Availability analysis/metrics and review/implementation of maintenance concepts. Provides integrated logistics support such as technical documentation maintenance and resolution of Diminishing Manufacturing Sources/obsolete material issues.

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Operational sustainment support for the Aegis Ashore Romania site and equipment includes BMD unique AWS sparing and consumables during interim support, facility operations including transportation, power and communications, and Command, Control, Communications, Computers and Intelligence (C4I), ISEA and LSEA engineering. Also provides portable Aegis BMD Mission Planning tools for Fleet Maritime Operation Centers, Test Site Support, development and revision of regional and homeland defense plans and Pre-Planned Responses and Global Force Management requests.

B. Ground Base Midcourse. Funding provides maintenance, repair, training, supply support, sustaining engineering, network operations, integrated logistics support, configuration control, scheduling, execution control, system transitioning and performance reporting. Additionally, funding provides Base Operations Support (BOS) for facility sustainment and maintenance at the various GMD sites.

C. Ballistic Missile Defense System (BMDS) AN/TPY-2 Radars. Sustainment of 12 Army Navy/Transportable Radar Surveillance and Control-2 radars including forward-based radars and Terminal High Altitude Area Defense configured radars to include supply support, repair, maintenance, modernization, transportation, parts storage, Special Tools and Test Equipment, recurring and delta training, training device maintenance, engineering support, Interactive Electronic Technical Manual (IETM) updates, software user guide updates, 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 sustainment unique to the Missile Defense mission for the Upgraded Early Warning Radar (UEWR)/COBRA DANE Radar, which MDA sustains and operates in conjunction with the US Air Force.

D. Terminal High Altitude Area Defense (THAAD). MDA is responsible for the sustainment of the THAAD missile defense unique or developmental items, while the U.S. Army is responsible for the operations and sustainment of the common items. Funding provides sustainment for all fielded THAAD Batteries, ensures THAAD assets are properly maintained and crews are trained to meet Combatant Commanders needs including; 1.) Field and sustainment level supply, maintenance, modernization, hazardous materials/waste disposal, and Depot level maintenance 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.) Deployment software support for fielded software, to include deficiency report review, error correction, incremental capability improvements, and hardware/systems interface compatibility maintenance. 5.) Missile transportation and handling from the missile storage location to the site of the THAAD launchers. 6.) Interactive Electronic Technical Manual (IETM) updates software users' guide updates, and software revision certification. 7.) Maintenance and upkeep for all THAAD training devices. 8.) Supply, maintenance and transportation support for all new Equipment Training and Delta

MISSILE DEFENSE AGENCY
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training for fielded units required due to design changes for replacement soldiers. 9.) Special Tools and Test Equipment for the organic depot. 10.) RESET program.

Reporting Limitations:

N/A

Summary of Increases/Decreases:

A. Aegis BMD program growth initiates software sustainment for all BMD 4 baselines. The increase supports maintenance for Aegis Test Ships, and maintenance on an increasing quantity of in-service missiles.

B. Ground Base Midcourse program growth is due to sustainment of ten additional fielded GBIs at Fort Greely, AK (FGA) and to address the backlog of critical Facility Sustainment, Restoration, and Modernization (FSRM) projects at FGA and Vandenberg AFB, CA.

C. Ballistic Missile Defense Systems (BMDS) AN/TPY-2 Radars program growth is due to additional sustainment for the Cobra Dane Radar in accordance with the cost sharing agreement with the Air Force to provide radar operations, on-site maintenance, and depot level support. Additional sustainment costs include mission critical spares for components with increased failure rates, critical spare vendor qualifications, depot level support (not covered under prior MDA-AFSPC agreement), and additional initiatives to replace Transmitter Groups and redesign the Traveling Wave Tube. Additional sustainment cost for Terminal Mode radar deployed to the Republic of Korea.

D. THAAD program growth is due to transition of the 7th THAAD battery to an operational status which increases operational tempo. In addition, the Army Global Posture Strategy requires a deployment of a second OCONUS THAAD battery, increasing costs to support the Army mission.

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<u>Appropriation/Fund</u>	<u>FY 2016 Actual</u>	<u>FY 2017 Estimate</u>	<u>FY 2018 Estimate</u>
I. Management & Professional Support Services			
FFRDC Work	0	305	305
Non-FFRDC Work	<u>22,330</u>	<u>11,636</u>	<u>11,855</u>
Subtotal	22,330	11,941	12,160
II. Studies, Analysis & Evaluations			
FFRDC Work	0	0	0
Non-FFRDC Work	<u>5,893</u>	<u>3,685</u>	<u>5,243</u>
Subtotal	5,893	3,685	5,243
III. Engineering & Technical Services			
FFRDC Work	0	1,143	1,367
Non-FFRDC Work	<u>6,845</u>	<u>997</u>	<u>1,221</u>
Subtotal	6,845	2,140	2,588
TOTAL			
FFRDC Work	0	1,448	1,672
Non-FFRDC Work	35,068	16,318	18,319
Reimbursable	0	0	0

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Explanation of Funding Changes (FY 2016 to FY 2017):

The FY2016 to FY2017 growth provides additional engineering and technical services required to sustain new Aegis BMD computer program baseline variants (BMD 3.6 and 4.0) after completion of development and operational testing. Growth is also attributed to additional technical assessments, recommendations and assistance to Aegis BMD on all aspects of the SM-3 missile(s) design and performance analysis as missiles process through recertification and sustainment of the Upgraded Early Warning Radars and COBRA DANE Radar.

Explanation of Funding Changes (FY 2017 to FY 2018):

The FY 2017 to FY2018 growth provides additional deployment software support for THAAD fielded software and delineates sustainment support from all other THAAD software development activities. Further, the growth is attributed to increased engineering and technical services required to sustain new Aegis BMD computer program baseline variants (BMD 5.0CU) after completion of development and operational testing and additional technical assessments, recommendations and assistance to Aegis BMD on all aspects of the SM-3 missile(s) design and performance analysis as missiles process through recertification.

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Missile Defense Agency

(Dollars in Thousands)

Appropriation/Fund: RDT&E (0400)		FY 2016	FY 2017	FY 2018
Management & Professional Support Services				
FFRDC Work	932	14,726	7,206	7,832
Non-FFRDC Work	932	<u>444,832</u>	<u>217,676</u>	<u>236,933</u>
Sub-Total		459,558	224,882	244,765
Studies, Analysis & Evaluations				
FFRDC Work	933	1,239	3,348	3,198
Non-FFRDC Work	933	<u>2,345</u>	<u>6,436</u>	<u>6,152</u>
Sub-Total		3,584	9,784	9,350
Engineering & Technical Services				
FFRDC Work	934	10,372	115,877	115,899
Non-FFRDC Work	934	<u>11,903</u>	<u>151,862</u>	<u>151,766</u>
Sub-Total		22,275	267,739	267,665
TOTAL		485,417	502,405	521,780
FFRDC Work		26,337	126,431	126,929
Non-FFRDC Work		459,080	375,974	394,851

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MISSILE DEFENSE AGENCY

	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Foreign National Indirect Hire</u>	<u>Total</u>
1. FY 2016 FTEs	0	0	0	0
2. FY 2017 FTEs	0	0	0	0
3. FY 2018 FTEs	0	0	0	0

MDA - Operation and Maintenance (O&M)

	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Foreign National Indirect Hire</u>	<u>Total</u>
1. FY 2016 FTEs	0	0	0	0
2. FY 2017 FTEs	0	0	0	0
3. FY 2018 FTEs	0	0	0	0

MDA - Research, Development, Test and Evaluation (RDT&E)

	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Foreign National Indirect Hire</u>	<u>Total</u>
1. FY 2016 FTEs	0	0	0	0
2. FY 2017 FTEs	0	0	0	0
3. FY 2018 FTEs	0	0	0	0

MDA - Defense Working Capital Fund (DWCF)

	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Foreign National Indirect Hire</u>	<u>Total</u>
1. FY 2016 FTEs	0	0	0	0
2. FY 2017 FTEs	0	0	0	0
3. FY 2018 FTEs	0	0	0	0

4. SUMMARY

FY 2016

	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Foreign National Indirect Hire</u>	<u>Total</u>
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RDT&E Total	2,380	0	0	2,380
Direct Funded	2,328	0	0	2,328
Reimbursable Funded	52	0	0	52
Total Component	2,380	0	0	2,380
Direct Funded	2,328	0	0	2,328
Reimbursable Funded	52	0	0	52
FY 2017				
RDT&E Total	2,309	0	0	2,309
Direct Funded	2,309	0	0	2,309
Reimbursable Funded	0	0	0	0
Total Component	2,309	0	0	2,309
Direct Funded	2,309	0	0	2,309
Reimbursable Funded	0	0	0	0
FY 2018				
RDT&E Total	2,282	0	0	2,282
Direct Funded	2,249	0	0	2,249
Reimbursable Funded	33	0	0	33
Total Component	2,282	0	0	2,282
Direct Funded	2,249	0	0	2,249
Reimbursable Funded	33	0	0	33

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Research, Development, Test and Evaluation (RDT&E)

Change from FY 2016 to FY 2017:

FY 2016 FTE of 2,380 reflect actuals for the year, while the programmed FY 2016 civilian FTE was 2,551. MDA under executed its civilian FTE in FY2016 due to the continuation of an strategic hiring pause where all positions were scrutinized to ensure the agency was postured for out-year reductions and allocated our manpower to our highest priority missions. The FY 2017 FTE total of 2,388 reflects the 2017 President's Budget Submission. FY 2017 programmed FTE reduction from the FY 2016 programmed FTE reflects the continued implementation of civilian FTE efficiencies resulting from the Department's Civilian Workload Analysis initiative and the 25% reduction to Management Headquarters civilian FTE.

Change from FY 2017 to FY 2018:

MDA's total decrease of 106 FTE in FY 2018 reflects civilian manpower efficiencies resulting from the Department's Civilian Workload Analysis and the continued implementation of 25% Management Headquarters Civilian FTE efficiency. Consistent with Comptroller guidance, MDA no longer includes positions funded by the Defense Acquisition Workforce Development Fund as RDT&E reimbursable funded positions.

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