

**Missile Defense Agency  
Operation and Maintenance, Defense-Wide  
Fiscal Year (FY) 2021 Budget Estimates**

**Operation and Maintenance, Defense-Wide Summary (\$ in thousands)  
Budget Activity (BA) 4: Administration and Service-Wide Activities**

	FY 2019 <u>Actuals</u>	Price <u>Change</u>	Program <u>Change</u>	FY 2020 <u>Enacted</u>	Price <u>Change</u>	Program <u>Change</u>	FY 2021 <u>Estimate</u>
MDA	471,048	9,339	60,939	541,326	10,729	-46,197	505,858

**I. Description of Operations Financed:** Provides the following Ballistic Missile Defense (BMD) unique sustainment support:

**A. Aegis Ballistic Missile Defense (BMD).** Provides MD unique sustainment support for deployed Aegis BMD ships, Standard Missile (SM-3), BMD Aegis Weapons System (AWS), and Aegis Ashore sites.

SM-3 missile sustainment includes recertification/repair/second destination transportation of missiles, installation of software and hardware updates, modeling and simulation and logistics efforts.

BMD AWS sustainment support includes:

- Technical and engineering services for in-service BMD ships and sites BMDS test infrastructure maintenance to ensure in-service BMD AWS baselines maintain directed operational availability.
- BMD Engineering Agent technical support and operational analysis for BMD units for casualty correction, technical issues, improvements, maintenance, certification, and delivery of BMD AWS computer program updates to the Fleet;
- Aegis software maintenance corrections in the common source library
- Test site infrastructure and maintenance
- Integrated logistics support of BMD unique parts including technical documentation review and updates, diminishing manufacturing sources, and obsolete materiel surveillance, identification, and resolution

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**I. Description of Operations Financed (cont.)**

- AEGIS BMD mission planner re-host to fleet warfighters

Aegis Ashore sustainment support includes:

- Repairs and rework required post construction to support of site transition
- Host Nation planning yard activities to track modernization updates to the Aegis Ashore technical data package to ensure core Aegis Ashore Deckhouse attributes are maintained
- Development of required test procedures to support on-site installation and checkout and system operations verification testing
- Updates to training, warfighter technical publications
- Initial outfitting for maintenance and logistics materiel

**B. Ground-Based Midcourse (GMD).** Funding provides sustainment support for 44 Ground-Based Interceptors (GBIs) and GMD systems based at Fort Greely, AK (40 GBIs) and Vandenberg AFB, CA (4 GBIs), Schriever AFB, CO, Fort Drum, NY and Eareckson AS, AK.

Funding also ensures GMD assets are properly maintained and crews are trained to meet Combatant Commanders needs including:

1. Weapon system sustainment support, equipment maintenance, and sustaining engineering.
2. Mission support, network operations and defense, and integrated logistics support.
3. GMD unique Base Operations Support (BOS), facility maintenance and repairs, facility restoration and modernization, communication support, and utilities.
4. Configuration management and control for the fielded weapon system.

**C. Ballistic Missile Defense Systems (BMDS) Radars.** Funding provides sustainment support for 12 Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) Forward-Based

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**I. Description of Operations Financed (cont.)**

and Terminal High Altitude Area Defense (THAAD) configured Terminal Mode radars to include supply support, repair, maintenance, modernization, transportation, parts, storage, special tools and test equipment, recurring and delta training, technical interface, training device maintenance, engineering support, interactive electronic technical manual (IETM) updates, software user guide updates, software revision certification, and depot-level maintenance for MDA's missile defense unique equipment. Funding also provides Electronic Equipment Unit (EEU) retrofits at Letterkenny Army Depot to replace obsolete equipment, incorporate updates to upgrade servers, and enhance radar capabilities. Additionally, funding provides sustainment unique to the MDA Missile Defense mission for the five Upgraded Early Warning Radars (UEWRs) and COBRA DANE Radar, which MDA sustains and operates in conjunction with the U.S. Air Force.

**D. Terminal High Altitude Area Defense (THAAD).** MDA is responsible for the sustainment of the THAAD missile defense unique and development items, while the U.S. Army is responsible for the operations and sustainment of the common items. MDA 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, Interceptor 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 reviews, error correction, incremental capability improvements, and hardware/system interface compatibility maintenance.

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**I. Description of Operations Financed (cont.)**

5. Missile transportation and handling from the missile storage location to the site of the THAAD launchers.
6. 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 sustainment training relating to design changes and equipment upgrades.

**II. Force Structure Summary:**

N/A

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III. Financial Summary (\$ in thousands)

	FY 2020						
	FY 2019 <u>Actuals</u>	Budget <u>Request</u>	<u>Congressional Action</u>		<u>Appropriated</u>	Current <u>Enacted</u>	FY 2021 <u>Estimate</u>
			<u>Amount</u>	<u>Percent</u>			
<b>A. BA Subactivities</b>							
<b>4. Administrative and Servicewide Activities</b>	<b>471,048</b>	<b>522,529</b>	<b>18,797</b>	<b>3.6</b>	<b>541,326</b>	<b>541,326</b>	<b>505,858</b>
Aegis BMD Program	77,434	75,237	-350	-0.5	74,887	74,887	80,440
BMDS Radars Program	166,850	194,255	32,937	17.0	227,192	227,192	176,868
Ground-Based Midcourse Program	139,204	153,218	-714	-0.5	152,504	152,504	158,054
THAAD Program	87,560	99,819	-13,076	-13.1	86,743	86,743	90,496
<b>Total</b>	<b>471,048</b>	<b>522,529</b>	<b>18,797</b>	<b>3.6</b>	<b>541,326</b>	<b>541,326</b>	<b>505,858</b>

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III. Financial Summary (\$ in thousands)

<u>B. Reconciliation Summary</u>	<u>Change</u> <u>FY 2020/FY 2020</u>	<u>Change</u> <u>FY 2020/FY 2021</u>
<b>Baseline Funding</b>	<b>522,529</b>	<b>541,326</b>
Congressional Adjustments (Distributed)	21,330	
Congressional Adjustments (Undistributed)	-2,533	
Adjustments to Meet Congressional Intent		
Congressional Adjustments (General Provisions)		
<b>Subtotal Appropriated Amount</b>	<b>541,326</b>	
Fact-of-Life Changes (2020 to 2020 Only)		
<b>Subtotal Baseline Funding</b>	<b>541,326</b>	
Supplemental		
Reprogrammings		
Price Changes		10,729
Functional Transfers		
Program Changes		-46,197
<b>Current Estimate</b>	<b>541,326</b>	<b>505,858</b>
Less: Wartime Supplemental		
<b>Normalized Current Estimate</b>	<b>541,326</b>	

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**III. Financial Summary (\$ in thousands)**

<b><u>C. Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
<b>FY 2020 President's Budget Request (Amended, if applicable)</b>		<b>522,529</b>
1. Congressional Adjustments		18,797
a. Distributed Adjustments		
1) Program Increase: Electronic Equipment Unit (EEU) modernization	16,000	
2) Program Increase: Cooling Equipment Unit (CEU) refurbishment	15,000	
3) Program Increase: Cooling Equipment Unit (CEU) refurbishment kits	3,000	
4) THAAD prior year under-execution	-12,670	
b. Undistributed Adjustments		
1) Unjustified Growth: Across-the-board reduction to the Operations and Maintenance, Defense-Wide, Account.	-1,930	
2) Budget Justification Inconsistencies: Across-the-board reduction to the Operations and Maintenance, Defense-Wide, Account.	-603	
c. Adjustments to Meet Congressional Intent		
d. General Provisions		
<b>FY 2020 Appropriated Amount</b>		<b>541,326</b>
2. War-Related and Disaster Supplemental Appropriations		
3. Fact-of-Life Changes		
<b>FY 2020 Baseline Funding</b>		<b>541,326</b>
4. Reprogrammings (Requiring 1415 Actions)		
<b>Revised FY 2020 Estimate</b>		<b>541,326</b>
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings		
<b>FY 2020 Normalized Current Estimate</b>		<b>541,326</b>
6. Price Change		10,729
7. Functional Transfers		

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**III. Financial Summary (\$ in thousands)**

<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
8. Program Increases		23,965
a. Annualization of New FY 2020 Program		
b. One-Time FY 2021 Increases		
1) Aegis BMD Program	3,035	
+\$3,035 increase provides the replacement of 20 Air Rovers in Romania required to fix deficiency at operational site. This repair by replacement will eliminate risk of overheating and a corresponding shutdown of the Aegis Weapon System. (FY 2020 Baseline: \$74,887 thousand)		
c. Program Growth in FY 2021		
1) THAAD Program	5,894	
+\$4,808 increase provides additional logistics subject matter expertise required to conduct replacement training for fielded THAAD Batteries transitioning the funding requirements to Operations and Maintenance for all future battery sustainment support requirements.		
+\$1,086 increase provides mission critical items to include field data collection, AMCOM Logistics Center support, and base support agreements due to actual cost and updated cost estimates. (FY 2020 Baseline: \$86,743 thousand)		
2) BMDS Radars Program	5,735	
\$5,735 increase procures mission-critical and fleet spares required due to the high optempo corrosive environments to ensure 24 hours a day, 365 days per year availability. (FY 2020 Baseline: \$227,192)		

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**III. Financial Summary (\$ in thousands)**

<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
thousand)		
3) Ground-Based Midcourse Defense Program	5,027	
+\$4,124 growth provides Fort Greely, AK prime contractor maintenance and sustainment of the new missile field (Missile Field 4) and its 20 new launch silos, silo interface vaults, associated utilidors, and Mechanical Electrical Building (MEB); purchases new High Altitude Electromagnetic Pulse (HEMP) glands to replace aging and deteriorating glands in existing, older silos.		
+\$903 growth provides GMD facility sustainment and communication infrastructure upgrades to address obsolescence issues to include fiber/cable enhancements and robust cyber security support at Fort Greely, AK, HEMP filter purchases/installations, and shielding initiatives at Fort Greely, AK; Eareckson Air Station, AK; and Fort Drum, NY. (FY 2020 Baseline: \$152,504 thousand; +0 FTEs)		
4) Aegis BMD Program	4,274	
+\$4,141 increase provides additional missile repair materiels (i.e. Booster P2/P3, G-Switch Test and repair Kits such as non-usable hardware, mostly fasteners).		
+\$133 increase provides maintenance support to an increased number of BMDS capable ships deployed with Aegis' Common Source Library (CSL) baseline. (FY 2020 Baseline: \$74,887 thousand; +0 FTEs)		

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**III. Financial Summary (\$ in thousands)**

<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
9. Program Decreases		-70,162
a. Annualization of FY 2020 Program Decreases		
b. One-Time FY 2020 Increases		
1) Congressional Program Increases for Electronics Equipment Unit (EEU) modernization, Cooling Equipment Unit (CEU) refurbishment, and Cooling Equipment Unit (CEU) refurbishment kits	-34,000	
c. Program Decreases in FY 2021		
1) BMDS Radars Program	-26,525	
-\$26,457 decrease reflects completion of material purchases for AN/TPY-2 Cooling Equipment Unit (CEU) refurbishments and completion of long lead purchases necessary for the AN/TPY-2 Electric Equipment Unit (EEU) Modernization program.		
(FY 2020 Baseline: \$227,192 thousand)		
2) Defense Wide Review (DWR): Missile Recertification and Repair	-7,000	
-\$7,000 decrease reflects the reduction to Missile Recertification and repairs identified as a part of the Defense Wide Review (DWR), which resulted in de-scope of requirements. Per program allocations is as follows:		
• -\$3,760 THAAD Program (FY2020 Baseline: \$86,743)		
• -\$3,240 Aegis BMD Program (FY2020 Baseline: \$74,887)		

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<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
3) DWR: Reduce Facilities Sustainment, Restoration, and Modernization (FSRM) Projects	-2,600	
- \$2,600 decrease reflects the reduction to Facilities Restoration, and Modernization (FSRM) Projects as identified as a part of the DWR, which resulted in the de-scope of requirements. Per program allocations is as follows:		
• -\$2,500 Ground-Based Midcourse Program (FY2020 Baseline: \$152,504)		
• -\$100 THAAD Program (FY2020 Baseline: \$86,743)		
4) DWR: Elimination of Redundant Point-to-Point Circuits	-37	
- \$37 decrease reflects the elimination of Point-to-Point Circuits as a part of the DWR, which resulted in the de-scope of requirements. This decrease affects the BMDS Radars Program. (FY2020 Baseline: \$227,192)		
<b>FY 2021 Budget Request</b>		<b>505,858</b>

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**IV. Performance Criteria and Evaluation Summary:**

	FY 2019 <u>Actuals</u>	FY 2020 <u>Enacted</u>	FY 2021 <u>Estimate</u>
<b>1. Operational Support</b>	<b>471,048</b>	<b>541,326</b>	<b>505,858</b>
Aegis Program	77,434	74,887	80,440
Ground Base Midcourse	139,204	152,504	158,054
BMDS Radars	166,850	227,192	176,868
THAAD Program	87,560	86,743	90,496
<b>Total Operations and Maintenance, Defense Wide</b>	<b>471,048</b>	<b>541,326</b>	<b>505,858</b>

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

A. Aegis BMD. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing U. S. 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 2021 there will be 48 total BMDS capable ships requiring maintenance support.

B. Ground-Based 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

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**IV. Performance Criteria and Evaluation Summary:**

Defense Brigade (five crews) headquartered at Schriever AFB (SAFB), Colorado, and its 49th Missile Defense Battalion (five crews) at Fort Greely, Alaska (FGA). In FY 2021, MDA will support 44 operationally deployed GBIs located at FGA (40 GBIs) and Vandenberg Air Force Base, California (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) at SAFB. In-Flight Interceptor Communications System (IFICS) Data Terminals (IDTs) are currently located at FGA (two each); VAFB (two each); Eareckson Air Station, Alaska (EAS); and Fort Drum, New York.

C. Ballistic Missile Defense Systems (BMDS) Radars Program. The MDA continues to provide sustainment support for 12 Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) radars. Five Forward-Based radars at fixed radar sites operate continuously 24 hours a day, 7 days a week, 365 days a year. Seven radars operate in Terminal Mode when integrated with the THAAD battery. Two of the seven Terminal Mode Radars are permanently stationed at OCONUS sites. The operational tempo is met utilizing military personnel and contractor logistics support (CLS) to operate and maintain the radars. FY 2021 includes AN/TPY-2 operations and maintenance execution and Depot Level Maintenance for CEU refurbishments due to vehicle life expectancy, obsolescence improvements, and high OPTEMPO use in corrosive environments. MDA also provides sustainment unique to the MDA Missile Defense mission for the five Upgraded Early Warning Radars (UEWRs) and COBRA DANE Radar, which MDA sustains and operates in conjunction with the U.S. Air Force.

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

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**IV. Performance Criteria and Evaluation Summary:**

17-hour/day combat operations). During actual deployments, batteries have been operating at a 24 hours a day, 7 days a week, 365 days a year operational tempo, with increased CLS costs. This increased tempo has been sustained through the increase of appropriate attachments and support. Additionally, increasing OCONUS stationing of THAAD Batteries by the Army drives an increase in costs for deployed contractor support, increased transportation costs for spares/repair parts and increased quantities of stocks to support separate locations.

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<b>V. <u>Personnel Summary</u></b>	<b><u>FY 2019</u></b>	<b><u>FY 2020</u></b>	<b><u>FY 2021</u></b>	<b><u>Change FY 2019/ FY 2020</u></b>	<b><u>Change FY 2020/ FY 2021</u></b>
<u>Contractor FTEs (Total)</u>	<u>1,068</u>	<u>1,009</u>	<u>1,028</u>	<u>-59</u>	<u>19</u>

The FY 2020 to FY 2021 net increase in contractor full-time equivalences (cFTE) provides the following changes:

- The GMD Program increase of +17 cFTEs due to Missile Field 4 build out (+9 cFTE), and increased communications support and cyber defense at Fort Greely, AK and Vandenberg AFB, CA (+8 cFTE).
- The Aegis BMD Program increase of +2 cFTE provides increased support for sustainment of critical technologies for all aspects of SM-3 Block IA and IB technologies, technology updates, and performance analysis related to sustainment of the SM-3 Block IA and IB Missile Systems.

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

<b>OP 32 Line</b>	<b>FY 2019 Actuals</b>	<b>Change FY 2019/FY 2020</b>		<b>FY 2020 Enacted</b>	<b>Change FY 2020/FY 2021</b>		<b>FY 2021 Estimate</b>
		<b>Price</b>	<b>Program</b>		<b>Price</b>	<b>Program</b>	
308 Travel of Persons	305	6	-91	220	4	-4	220
<b>399 Total Travel</b>	<b>305</b>	<b>6</b>	<b>-91</b>	<b>220</b>	<b>4</b>	<b>-4</b>	<b>220</b>
401 DLA Energy (Fuel Products)	0	0	1,375	1,375	-70	92	1,397
<b>499 Total Supplies &amp; Materials</b>	<b>0</b>	<b>0</b>	<b>1,375</b>	<b>1,375</b>	<b>-70</b>	<b>92</b>	<b>1,397</b>
677 DISA Telecomm Svcs - Reimbursable	7,822	156	-7,978	0	0	0	0
<b>699 Total DWCF Purchases</b>	<b>7,822</b>	<b>156</b>	<b>-7,978</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
771 Commercial Transport	3,476	70	49	3,595	72	-1,130	2,537
<b>799 Total Transportation</b>	<b>3,476</b>	<b>70</b>	<b>49</b>	<b>3,595</b>	<b>72</b>	<b>-1,130</b>	<b>2,537</b>
913 Purchased Utilities (Non-Fund)	2,744	55	658	3,457	69	0	3,526
914 Purchased Communications (Non-Fund)	58	1	3,479	3,538	71	509	4,118
915 Rents (Non-GSA)	641	13	-390	264	5	0	269
920 Supplies & Materials (Non-Fund)	34,374	687	-14,480	20,581	412	-9,815	11,178
922 Equipment Maintenance By Contract	283,199	5,664	29,589	318,452	6,369	-29,662	295,159
923 Facilities Sust, Rest, & Mod by Contract	33,390	668	-5,926	28,132	563	-2,937	25,758
925 Equipment Purchases (Non-Fund)	0	0	251	251	5	658	914
930 Other Depot Maintenance (Non-Fund)	45,150	903	70,566	116,619	2,332	4	118,955
932 Mgt Prof Support Svcs	2,638	53	-1,162	1,529	31	-5	1,555
933 Studies, Analysis & Eval	842	17	-859	0	0	0	0
934 Engineering & Tech Svcs	151	3	6,946	7,100	142	-168	7,074
937 Locally Purchased Fuel (Non-Fund)	1,453	-10	-1,443	0	0	0	0
984 Equipment Contracts	1,477	30	461	1,968	39	-1,826	181
985 Research & Development, Contracts	2,188	0	-2,188	0	0	0	0
987 Other Intra-Govt Purch	37,447	749	-13,837	24,359	487	-4,972	19,874
989 Other Services	13,651	273	-5,038	8,886	178	3,079	12,143

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<u>OP 32 Line</u>	FY 2019 <u>Actuals</u>	Change <u>FY 2019/FY 2020</u>		FY 2020 <u>Enacted</u>	Change <u>FY 2020/FY 2021</u>		FY 2021 <u>Estimate</u>
		<u>Price</u>	<u>Program</u>		<u>Price</u>	<u>Program</u>	
990 IT Contract Support Services	42	1	957	1,000	20	-20	1,000
<b>999 Total Other Purchases</b>	<b>459,445</b>	<b>9,107</b>	<b>67,584</b>	<b>536,136</b>	<b>10,723</b>	<b>-45,155</b>	<b>501,704</b>
<b>Total</b>	<b>471,048</b>	<b>9,339</b>	<b>60,939</b>	<b>541,326</b>	<b>10,729</b>	<b>-46,197</b>	<b>505,858</b>