Department of Defense Fiscal Year (FY) 2021 Budget Estimates

February 2020



Missile Defense Agency

Defense-Wide Justification Book Volume 2b of 2

Procurement, Defense-Wide (Includes O&M and MILCON)

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Missile Defense Agency • Budget Estimates FY 2021 • Procurement

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Introduction & Explanation of Contents

The Department of Defense Fiscal Year (FY) 2021 Budget Estimate Submission RDT&E (Includes Procurement, O&M, and MILCON), Defense-wide Volume 2, Missile Defense Agency (MDA) justification materials consists of two books titled Volume 2a and 2b. Justification documents are provided in the books as listed below.

Volume 2a

- R-1 Comptroller Exhibit
- MDA FY 2021 Budget Estimate Overview
- MDA Appropriation Summary
- Acronyms
- RDT&E Exhibits in BA-03, BA-04, and BA-06

Volume 2b

- P-1 Comptroller Exhibit
- MDA Operations and Maintenance Exhibit
- MDA MILCON Exhibits
- MDA Procurement Exhibits



Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted
Procurement, Defense-Wide	2,572,400	1,724,734		
Total Defense-Wide	2,572,400	1,724,734		

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

FY 2021

Appropriation	FY 2020 Total Enacted (Base+Emerg+ OCO)	FY 2021 Base	FY 2021 OCO for Base Requirements	OCO for Direct War and Enduring Costs
Procurement, Defense-Wide	1,724,734	1,458,169		
Total Defense-Wide	1,724,734	1,458,169		

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Appropriation

Procurement, Defense-Wide

Total Defense-Wide

FY 2021	FY 2021		
Total	Total		
oco	(Base + OCO)		
	1,458,169		
	1,458,169		

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Organization: Procurement, Defense-Wide	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted
Missile Defense Agency, MDA	2,572,400	1,724,734		
Total	2,572,400	1,724,734		

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Organization: Procurement, Defense-Wide	FY 2020 Total Enacted (Base+Emerg+ OCO)	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs
Missile Defense Agency, MDA	1,724,734	1,458,169		
Total	1,724,734	1,458,169		

P-121PB: FY 2021 President's Budget (Published Version), as of February 7, 2020 at 09:52:12

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

FY 2021

FY 2021

Organization: Procurement, Defense-Wide	Total OCO	Total (Base + OCO)
Missile Defense Agency, MDA		1,458,169
Total		1,458,169

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Appropriation: Procurement, Defense-Wide

Budget Activity	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted
01. Major Equipment	2,572,400	1,724,734		
Total Procurement, Defense-Wide	2,572,400	1,724,734		

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

FY 2021

Appropriation: Procurement, Defense-Wide

	FY 2020 Total Enacted		FY 2021	OCO for Direct War
Budget Activity	(Base+Emerg+ OCO)	FY 2021 Base	OCO for Base Requirements	and Enduring Costs
01. Major Equipment	1,724,734	1,458,169		
Total Procurement, Defense-Wide	1,724,734	1,458,169		

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Appropriation: Procurement, Defense-Wide

Budget Activity

01. Major Equipment

Total Procurement, Defense-Wide

FY 2021	FY 2021			
Total	Total			
oco	(Base + OCO)			
	1,458,169			
	1,458,169			

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

1 Obligational Authority 07 Feb 2020

Appropriation: 0300D Procurement, Defense-Wide

Line No Item Nomenclature	Ident Code		TO 10 10 10 10 10 10 10 10 10 10 10 10 10			FY 2020 Emergeno Quantity	FY 20 OCO Ena Quantity	s e c
Budget Activity 01: Major Equipment								
Major Equipment, Missile Defense Agency								
31 THAAD	В	110	1,025,804	39	407,203			U
32 Ground Based Midcourse Less: Advance Procurement (PY)	A	13	(493,464) (-88,000)	69	(400,471) (-115,000)			U
			405,464		285,471		 	 şîn
33 Ground Based Midcourse Advance Procurement (CY) C (FY 2019 for FY 2020) (M)			115,000 (115,000)					U
34 Aegis BMD Less: Advance Procurement (PY)	В	44	(706,366)	30	(336, 374)		 	 U
			706,366		336,374			
35 Aegis BMD Advance Procurement (CY) C (FY 2020 for FY 2021) (M) C (FY 2020 for FY 2022) (M) C (FY 2020 for FY 2023) (M) C (FY 2021 for FY 2023) (M) C (FY 2021 for FY 2023) (M)					96,995 (46,024) (29,920) (21,051)			Ü
36 BMDS AN/TPY-2 Radars	А		13,585		10,046			U
37 SM-3 IIAs	В			7	238,000			U
38 Arrow 3 Upper Tier Systems	A	1	80,000	1	55,000			U
39 Short Range Ballistic Missile Defense (SRBMD)	A	1	50,000	1	50,000			U
40 Aegis Ashore Phase III	В		15,000		25,659			U

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

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Appropriation: 0300D Procurement, Defense-Wide

Line No Item Nomenclature Budget Activity 01: Major Equipment Major Equipment, Missile Defense Agency	Ident Code	Total (Bas	*		•	FY 20 OCO for Require Quantity	Base	FY 20 OCO i Direct and End Cost Quantity	for War during	S e C -
31 THAAD	В	39	407,203	41	495,396					U
32 Ground Based Midcourse Less: Advance Procurement (PY)	А		(400,471) (-115,000)							U
			285,471							
33 Ground Based Midcourse Advance Procurement (CY) C (FY 2019 for FY 2020) (M)										U
34 Aegis BMD Less: Advance Procurement (PY)	В	30	(336,374)	34	(402,219) (-46,024)					U
			336,374		356,195					
35 Aegis BMD Advance Procurement (CY) C (FY 2020 for FY 2021) (M) C (FY 2020 for FY 2022) (M) C (FY 2020 for FY 2023) (M)			96,995 (46,024) (29,920) (21,051)		44,901					Ū
C (FY 2021 for FY 2022) (M) C (FY 2021 for FY 2023) (M)					(29,845) (15,056)					
36 BMDS AN/TPY-2 Radars	A		10,046							U
37 SM-3 IIAs	В	7	238,000	6	218,322					U
38 Arrow 3 Upper Tier Systems	A	1	55,000	1	77,000					U
39 Short Range Ballistic Missile Defense (SRBMD)	A	1	50,000	1	50,000					U
40 Aegis Ashore Phase III	В		25,659		39,114					U

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

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Appropriation: 0300D Procurement, Defense-Wide

Line No Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity Cost	FY 2021 Total S (Base + OCO) e Quantity Cost c
Budget Activity 01: Major Equipment			
Major Equipment, Missile Defense Agency			
31 THAAD	В		41 495,396 U
32 Ground Based Midcourse Less: Advance Procurement (PY)	A		u u
33 Ground Based Midcourse Advance Procurement (CY) C (FY 2019 for FY 2020) (M)			υ
34 Aegis BMD Less: Advance Procurement (PY)	В		34 (402,219) U (-46,024) U
35 Aegis BMD Advance Procurement (CY) C (FY 2020 for FY 2021) (M) C (FY 2020 for FY 2022) (M) C (FY 2020 for FY 2023) (M) C (FY 2021 for FY 2022) (M) C (FY 2021 for FY 2023) (M)			356,195 44,901 U (29,845) (15,056)
36 BMDS AN/TPY-2 Radars	A		U
37 SM-3 IIAs	В		6 218,322 U
38 Arrow 3 Upper Tier Systems	A		1 77,000 U
39 Short Range Ballistic Missile Defense (SRBMD)	A		1 50,000 U
40 Aegis Ashore Phase III	В		39,114 U

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

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Appropriation: 0300D Procurement, Defense-Wide

		FY 2	2019	FY	2020	FY 20	20	FY 20	20	S
Line	Ident	(Base	+ OCO)	Base	Enacted	Emerge	ency	OCO Ena	cted	e
No Item Nomenclature	Code	Quantity	Cost	Quantit	y Cost	Quantity	Cost	Quantity	Cost	C
										-
41 Iron Dome	A	1	70,000	1	95,000					U
42 Aegis BMD Hardware and Software	A	26	91,181	36	124,986					U
Total Major Equipment		2,	,572,400		1,724,734					
Total Procurement, Defense-Wide			,572,400		1,724,734			5.5.5		

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Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

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FY 2021

Appropriation: 0300D Procurement, Defense-Wide

		FY	2020					oco f	or	
		Total	Enacted			FY 20	21	Direct	War	
		(Base	+Emerg+	FY	2021	OCO for	Base	and End	luring	S
Line	Ident	0	CO)	E	Base	Require	ments	Cost	S	е
No Item Nomenclature	Code	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	C
										-
41 Iron Dome	А	1	95,000	1	73,000					U
42 Aegis BMD Hardware and Software	A	36	124,986	49	104,241					U
Total Major Equipment		1	,724,734		,458,169			75.77.77		3
Total Procurement, Defense-Wide		1	,724,734	1	,458,169					1

Defense-Wide FY 2021President's Budget Exhibit P-1 FY 2021 President's Budget Total Obligational Authority (Dollars in Thousands)

07 Feb 2020

Appropriation: 0300D Procurement, Defense-Wide

Line No Item Nomenclature	Ident Code	FY 2021 Total OCO Quantity Cost	FY 2021 Total S (Base + OCO) e Quantity Cost c
41 Iron Dome	A		1 73,000 ປ
42 Aegis BMD Hardware and Software	A		49 104,241 U
Total Major Equipment			1,458,169
Total Procurement, Defense-Wide			1,458,169

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Appropriation 0300D: Procurement, Defense-Wide

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32	01	17	MD08	Ground Based Midcourse	. Volume 2b - 21
33	01	17	MD08	Ground Based Midcourse, Advance Procurement	.Volume 2b - 35
34	01	17	MD09	AEGIS BMD	Volume 2b - 43
35	01	17	MD09	AEGIS BMD, Advance Procurement	. Volume 2b - 59
36	01	17	MD11	BMDS Sensors	.Volume 2b - 63
37	01	17	MD14	SM-3 Block IIA	. Volume 2b - 83
38	01	17	MD26	Arrow 3 Upper Tier System	. Volume 2b - 87
39	01	17	MD34	Short Range Ballistic Missile Defense (SRBMD)(David's Sling Weapon System (DSWS))	Volume 2b - 91
40	01	17	MD73	Aegis Ashore Phase III	. Volume 2b - 95
41	01	17	MD83	Iron Dome	Volume 2b - 99
42	01	17	MD90	Aegis BMD Hardware and Software	√olume 2b - 103



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Line Item Title	Line Item Number	Line #	ВА	BSA Page
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AEGIS BMD, Advance Procurement	MD09	35	01	17 Volume 2b - 59
Aegis Ashore Phase III	MD73	40	01	17 Volume 2b - 95
Aegis BMD Hardware and Software	MD90	42	01	17 Volume 2b - 103
Arrow 3 Upper Tier System	MD26	38	01	17 Volume 2b - 87
BMDS Sensors	MD11	36	01	17 Volume 2b - 63
Ground Based Midcourse	MD08	32	01	17 Volume 2b - 21
Ground Based Midcourse, Advance Procurement	MD08	33	01	17 Volume 2b - 35
Iron Dome	MD83	41	01	17 Volume 2b - 99
SM-3 Block IIA	MD14	37	01	17 Volume 2b - 83
Short Range Ballistic Missile Defense (SRBMD)(David's Sling Weapon System (DSWS))	MD34	39	01	17 Volume 2b - 91
THAAD	MD07	31	01	17Volume 2b - 1



Fiscal Year (FY) 2021 President's Budget

Operation and Maintenance, Defense-Wide Missile Defense Agency



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OP-32 Exhibit - Appropriation Summary of Price/Program Growth	
PB-31R Exhibit - Personnel Summary	
PB-31D Exhibit - Summary of Funding Increases and Decreases	
OP-5 Exhibit - Operation and Maintenance Detail	
Contract Services	
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PB-61 Exhibit - MDA	

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MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

Appropriation Summary	FY 2019	Price	Program	FY 2020	Price	Program	FY 2021
	Actuals	<u>Change</u>	<u>Change</u>	Enacted	<u>Change</u>	<u>Change</u>	Estimate
O&M, Defense-Wide	\$471.0	\$9.3	\$61.0	\$541.3	\$10.7	\$-46.1	\$505.9

Description of Operations Financed:

Provides Missile Defense Systems (MDS) unique sustainment support for the BMD Aegis Weapon System (AWS), Ground-Based Midcourse Defense (GMD) system, MDS Radars, and Terminal High Altitude Area Defense (THAAD) systems.

- AWS sustainment support includes AWS Aegis Standard Missile-3 (SM-3) missile recertification, repair and maintenance, Aegis Ashore sites, and deployed BMD Aegis ship baselines, which MDA supports in conjunction with the Navy, who is responsible for operations and sustainment of common items.
- GMD Weapon system sustainment support includes 44 Ground-Based Interceptors and GMD systems, which MDA supports in conjunction with the Services, who are responsible for operations and sustainment of common items such as base infrastructure.
- MDS Radars MD unique sustainment support includes 12 Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) radars including forward-based radars, 5 Upgraded Early Warning Radars (UEWRs) and COBRA DANE Radar, which MDA supports in conjunction with the Air Force, who is responsible for operations and sustainment of common items.
- THAAD MD unique sustainment support includes sustainment of the THAAD Missile defense unique and developmental items, which MDA supports in conjunction with the Army, who is responsible for the operations and sustainment of common items.

PBA-19 Exhibit, Introductory Statement (PBA-19, Appropriation Highlights)
MDA-1

MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

	FY 2019 <u>Actuals</u>	FY 2020 Enacted	FY 2021 Estimate
4. Administrative and Servicewide Activities	471,048	541,326	505,858
Aegis BMD Program	77,434	74 , 887	80,440
BMDS Radars Program	166,850	227,192	176,868
Ground-Based Midcourse Program	139,204	152,504	158,054
THAAD Program	87,560	86,743	90,496
Total Operation and Maintenance, Defense-Wide	471,048	541,326	505,858

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MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

	FY 2019 <u>Actuals</u>	FY 2020 Enacted	FY 2021 Estimate
4. Administrative and Servicewide Activities	471,048	541,326	505,858
Aegis BMD Program	77,434	74 , 887	80,440
BMDS Radars Program	166,850	227,192	176,868
Ground-Based Midcourse Program	139,204	152,504	158,054
THAAD Program	87,560	86,743	90,496
Total Operation and Maintenance, Defense-Wide	471,048	541,326	505,858

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		FY 2019 Program	Price Growth <u>Percent</u>	Price <u>Growth</u>	Program <u>Growth</u>	FY 2020 Program	Price Growth <u>Percent</u>	Price <u>Growth</u>	Program <u>Growth</u>	FY 2021 Program
	<u>Travel</u>									
308	Travel of Persons	305	2.00%	6	-91	220	2.00%	4	-4	220
399	Total Travel	305		6	-91	220		4	-4	220
	Supplies & Materials									
401	DLA Energy (Fuel Products)	0	-0.67%	0	1,375	1,375	-5.07%	-70	92	1,397
499	Total Supplies & Materials	0		0	1,375	1,375		-70	92	1,397
	DWCF Purchases									
677	DISA Telecomm Svcs - Reimbursable	7,822	2.00%	156	- 7 , 978	0	0.00%	0	0	0
699	Total DWCF Purchases	7,822		156	-7,978	0		0	0	0
	<u>Transportation</u>									
771	Commercial Transport	3,476	2.00%	70	49	3 , 595	2.00%	72	-1,130	2,537
799	Total Transportation	3,476		70	49	3,595		72	-1,130	2,537
	Other Purchases									
913	Purchased Utilities (Non-Fund)	2,744	2.00%	55	658	3,457	2.00%	69	0	3,526
914	Purchased Communications (Non-Fund)	58	2.00%	1	3 , 479	3,538	2.00%	71	509	4,118
915	Rents (Non-GSA)	641	2.00%	13	-390	264	2.00%	5	0	269
920	Supplies & Materials (Non-Fund)	34,374	2.00%	687	-14,480	20,581	2.00%	412	-9,815	11,178
922	Equipment Maintenance By Contract	283 , 199	2.00%	5 , 664	29 , 589	318,452	2.00%	6,369	-29,662	295,159
923	Facilities Sust, Rest, & Mod by Contract	33,390	2.00%	668	-5, 926	28,132	2.00%	563	-2,937	25 , 758
925	Equipment Purchases (Non-Fund)	0	2.00%	0	251	251	2.00%	5	658	914
930	Other Depot Maintenance (Non-Fund)	45 , 150	2.00%	903	70 , 566	116,619	2.00%	2,332	4	118,955
932	Mgt Prof Support Svcs	2,638	2.00%	53	-1,162	1,529	2.00%	31	-5	1,555
933	Studies, Analysis & Eval	842	2.00%	17	-859	0	2.00%	0	0	0

OP-32 Exhibit, Appropriation Summary of Price/Program Growth MDA-6

			Price				Price			
		FY 2019	Growth	Price	Program	FY 2020	Growth	Price	Program	FY 2021
		Program	<u>Percent</u>	<u>Growth</u>	<u>Growth</u>	Program	<u>Percent</u>	<u>Growth</u>	<u>Growth</u>	Program
934	Engineering & Tech Svcs	151	2.00%	3	6,946	7,100	2.00%	142	-168	7,074
937	Locally Purchased Fuel (Non-Fund)	1,453	-0.67%	-10	-1,443	0	2.00%	0	0	0
984	Equipment Contracts	1,477	2.00%	30	461	1,968	2.00%	39	-1,826	181
985	Research & Development, Contracts	2,188	0.00%	0	-2,188	0	0.00%	0	0	0
987	Other Intra-Govt Purch	37,447	2.00%	749	-13,837	24,359	2.00%	487	-4 , 972	19,874
989	Other Services	13,651	2.00%	273	-5,038	8,886	2.00%	178	3,079	12,143
990	IT Contract Support Services	42	2.00%	1	957	1,000	2.00%	20	-20	1,000
999	Total Other Purchases	459,445		9,107	67,584	536,136		10,723	-45,155	501,704
	Total	471,048		9,339	60,939	541,326		10,729	-46,197	505,858

Change FY 2019 FY 2020 FY 2021 FY 2020 FY 2020/2021

Contractor FTEs (Total) 1,068 1,009 1,028 19

Personnel Summary Explanations:

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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FY 2020 President's Budget Request (Amended, if applicable) 52	<u>TOTAL</u> 22,529
1. Congressional Adjustments	
a. Distributed Adjustments	
1) Program Increase: Electronic Equipment Unit (EEU) modernization	16,000
2) Program Increase: Cooling Equipment Unit (CEU)	15,000
3) Program Increase: Cooling Equipment Unit (CEU) refurbishment kits	3,000
4) THAAD prior year under-execution -3	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.c. Adjustments to Meet Congressional Intent	-603
d. General Provisions	
FY 2020 Appropriated Amount 54	41,326
2. War-Related and Disaster Supplemental Appropriations	
3. Fact-of-Life Changes	
FY 2020 Baseline Funding 54	41,326
4. Reprogrammings (Requiring 1415 Actions)	
Revised FY 2020 Estimate 54	41,326
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings FY 2020 Normalized Current Estimate 54	41,326

6. Price Change	TOTAL 10,729
7. Functional Transfers	10,723
8. Program Increases	
a. Annualization of New FY 2020 Program	
b. One-Time FY 2021 Increases	
1) Aegis BMD Program	3,035
c. Program Growth in FY 2021	
1) THAAD Program	5,894
2) BMDS Radars Program	5 , 735
3) Ground-Based Midcourse Defense Program	5,027
4) Aegis BMD Program	4,274
9. Program Decreases	
a. Annualization of FY 2020 Program Decreases	
b. One-Time FY 2020 Increases	
 Congressional Program Increases for Electronics Equipment Unit (EEU) modernization, Cooling Equipment Unit (CEU) refurbishment, and Cooling Equipment Unit (CEU) refurbishment kits Program Decreases in FY 2021 	-34,000
1) BMDS Radars Program	-26 , 525
2) Defense Wide Review (DWR): Missile Recertification and Repair	-7,000
3) Defense Wide Review (DWR): Reduce Facilities Sustainment, Restoration, and Modernization (FSRM) Projects to 90 Percent	-2,600
4) Defense Wide Review (DWR): Elimination of Redundant Point-to-Point Circuits	-37

<u>TOTAL</u> 505,858

FY 2021 Budget Request

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Operation and Maintenance, Defense-Wide Summary (\$ in thousands)

Budget Activity (BA) 4: Administration and Service-Wide Activities

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

- I. <u>Description of Operations Financed</u>: 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 material surveillance, identification, and resolution

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

I. <u>Description of Operations Financed (cont.)</u>

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.

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

	_				_		
		_	Cong	ressional		-	
A. BA Subactivities	FY 2019 <u>Actuals</u>	Budget <u>Request</u>	Amount	Percent	Appropriated	Current <u>Enacted</u>	FY 2021 Estimate
4. Administrative and	471,048	522,529	18,797	3.6	541,326	541,326	505,858
Servicewide Activities							
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	139,204	153,218	-714	-0.5	152,504	152,504	158,054
Program							
THAAD Program	87 , 560	99,819	-13,076	-13.1	86,743	86,743	90,496
Total	471,048	522,529	18,797	3.6	541,326	541,326	505,858

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

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

C. Reconciliation of Increases and Decreases	<u>Amount</u>	<u>Totals</u>
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	0,031	
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.		
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	3,733	
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		
year avarrability. (II 2020 baseline. 9227,192		

C. Recor	nciliation of Increases and Decreases	<u>Amount</u>	<u>Totals</u>
3)	thousand) Ground-Based Midcourse Defense Program +\$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.	5,027	
4)	+\$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) Aegis BMD Program +\$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)	4,274	

С.	Reconciliation of Increases and Decreases	<u> Amount</u>	<u>Totals</u>
9.	Program Decreases		-70 , 162
	a. Annualization of FY 2020 Program Decreases		
	b. One-Time FY 2020 Increases		
	1) Congressional Program Increases for Electronics	-34,000	
	Equipment Unit (EEU) modernization, Cooling Equipment		
	Unit (CEU) refurbishment, and Cooling Equipment Unit		
	(CEU) refurbishment kits		
	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	-7,000	
	and Repair	- / , 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)		

C. Reconciliation of Increases and Decreases	<u>Amount</u>	<u>Totals</u>
<pre>3) Defense Wide Review (DWR): Reduce Facilities Sustainment, Restoration, and Modernization (FSRM) Projects to 90 Percent - \$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)</pre>	-2,600	
 -\$100 THAAD Program (FY2020 Baseline: \$86,743) 4) Defense Wide Review (DWR): Elimination of Redundant Point-to-Point Circuits \$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) 	-37	
FY 2021 Budget Request		505,858

IV. Performance Criteria and Evaluation Summary:

	FY 2019	FY 2020	FY 2021
	<u>Actuals</u>	Enacted	<u>Estimate</u>
1. Operational Support	471,048	541,326	505,858
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
Total Operations and Maintenance,	471,048	541,326	505,858
Defense Wide			

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

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

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.

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

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

		Change			Chan	ge	
	FY 2019	FY 2019/F	Y 2020	FY 2020	FY 2020/F	Y 2021	FY 2021
OP 32 Line	<u>Actuals</u>	<u>Price</u>	Program	Enacted	<u>Price</u>	<u>Program</u>	<u>Estimate</u>
308 Travel of Persons	305	6	-91	220	4	-4	220
399 Total Travel	305	6	-91	220	4	-4	220
401 DLA Energy (Fuel Products)	0	0	1,375	1,375	-70	92	1,397
499 Total Supplies & Materials	0	0	1,375	1,375	-70	92	1,397
677 DISA Telecomm Svcs - Reimbursable	7,822	156	-7,978	0	0	0	0
699 Total DWCF Purchases	7,822	156	-7,978	0	0	0	0
771 Commercial Transport	3,476	70	49	3,595	72	-1,130	2,537
799 Total Transportation	3,476	70	49	3,595	72	-1,130	2,537
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

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

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CONTRACT SERVICES FUNDING (\$ in Millions)

		FY 2019	FY 2020	FY 2020	FY 2021	FY 2021
		Base & OCO	Base	осо	Base	oco
Line	By PB/OP-32 Inflation Category Code	<u>Actual</u>	Request	Request	Request	Request
914	Purchased Communications (Non-Fund)	0	4	0	4	0
	Total 23.1 - Communications, Utilities, and Misc. Charges	1	4	0	4	0
932	Mgmt and Professional Support Services	3	2	0	2	0
933	Studies, Analysis, and Evaluation Services	1	0	0	0	0
934	Engineering and Technical Services	0	7	0	7	0
	Total 25.1 - Advisory and Assistance Services	4	9	0	9	0
989	Other Contracts	14	9	0	12	0
926	Other Overseas Purchases					
	Total 25.2 - Other Services	14	9	0	12	0
987	Other Intra-Government Purchases	37	24	0	20	0
	Total 25.3 - Other Goods and Services from Federal Sources	37	24	0	20	0
923	Facility Maintenance	33	28	0	26	0
	Total 25.4 - Operation and Maintenance of Facilities	33	28	0	26	0
985	Research and Development Contracts	2	0	0	0	0
	Total 25.5 - Research and Development Contracts	2	0	0	0	0
922	Equipment Maintenance - Contract	283	318	0	295	0
930	Other Depot Maintenance (Non-Fund)	45	116	0	119	0
990	IT Contract Support Services	0	1	0	1	0
	Total 25.7 - Operation and Maintenance of Equipme	nt 328	435	0	415	0
925	Equipment Purchases (Non-Fund)	0	1	0	1	
	Total 31.0- Equipment Purchases	0	1	0	1	0
	Total	419	510	0	487	0

Source: Program Resources Collection Process as of 5 Dec 2019

Numbers may not add due to rounding

CONTRACT SERVICES - MANPOWER

Contractor Full-Time Equivalents

		FY 2019 Base & OCO	FY 2020 Base	FY 2020 OCO	FY 2021 Base	FY 2021 OCO
Line	By PB/OP-32 Inflation Category Code	Actual	Request	Request	Request	Request
914	Purchased Communications (Non-Fund)	4	11	0	15	0
	Total 23.1 - Communications, Utilities and Misc. Charges	4	11	0	15	0
932	Mgmt and Professional Support Services	6	6	0	6	0
933	Studies, Analysis, and Evaluation Services	0	0	0	0	0
934	Engineering and Technical Services	10	12	0	14	0
	Total 25.1 - Advisory and Assistance Services	16	18	0	20	0
989	Other Contracts	35	35	0	35	0
	Total 25.2 - Other Services	35	35	0	35	0
987	Other Intra-Government Purchases	19	2	0	0	0
	Total 25.3 - Other Goods and Services from Federal Sources	19	2	0	0	0
923	Facility Maintenance	94	94	0	98	0
	Total 25.4 - Operation and Maintenance of Facilities	94	94	0	98	0
985	Research and Development Contracts	0	0	0	0	0
	Total 25.5 - Research and Development Contracts	0	0	0	0	0
922	Equipment Maintenance - Contract	800	708	0	685	0
930	Other Depot Maintenance (Non-Fund)	100	141		173	
990	IT Contract Support Services	0	0		0	0
	Total 25.7 - Operation and Maintenance of Equipme	nt 900	849	0	858	0
925	Equipment Purchases (Non-Fund)	0	0	0	2	0
	Total 31.0 - Equipment Purchases (Non-Fund)	0	0	0	2	0
	Total	1,068	1,009	0	1,028	0

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 sustainment support activities for deployed Aegis BMD ships and Aegis Ashore facilities including Standard Missile-3 (SM-3), BMD Aegis Weapon System (AWS), and for Aegis Ashore sites. The SM-3 sustainment support program includes the recertification/repair of missiles, installation of software and hardware updates, modeling and simulation and logistics efforts. Also provides missile second destination transportation, transportation ballistic barrier maintenance, spares replenishment and operational fleet support.

The BMD AWS sustainment support program provides technical and engineering services for in-service BMD ships and sites, along with infrastructure maintenance for BMDS platforms executing BMD test missions, to ensure the in-service BMD AWS baselines maintain the directed operational availability. BMD AWS sustainment includes: BMD Engineering Agent technical support and operational analysis for BMD units engineering reach-back services supporting casualty correction, issues, and 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, technical documentation review, and implementation of updated maintenance concepts diminishing manufacturing sources, and obsolete material surveillance, identification, and resolution.

Provides engineering services for Aegis Ashore Host Nation close out items & repairs, repair by replacement of Air Rovers, and rework required for post construction activities in support of site transition. Includes temporary cooling services and updates to training, warfighter technical publications, and the initial outfitting requirements for maintenance and logistics materiel.

- B. Ground-Based Midcourse. Funding provides sustainment support for 44 Ground-Based Interceptors (GBIs) based at Fort Greely, AK (40 GBIs) and Vandenberg AFB, CA (4 GBIs), Schriever AFB, CO, Fort Drum, NY and Eareckson AFB, AK. Funding also ensures GMD assets are properly maintained and crews are trained to meet Combatant Commanders needs including: Weapon system sustainment, equipment maintenance, and sustaining engineering; mission operations support, network operations and defense, and integrated logistics support; Base Operations Support (BOS), facility maintenance and repairs, facility restoration and modernization, communication support, and utilities; configuration management and control for the fielded weapon system.
- C. Ballistic Missile Defense System (BMDS) Radars. Sustainment support for 12 Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) Forward-Based 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 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. Funding provides sustainment support for items unique to the Missile Defense mission for the 5 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 support for 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 support 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 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.) 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.

Reporting Limitations:

N/A

Summary of Increases/Decreases:

- A. AEGIS Program funding provides:
- 1. Increase provides additional funds for missile repairs materiels (i.e. Booster P2/P3, G-Switch Test and repair Kits such as non-usable hardware, mostly fasteners).
- 2. Increase provides replacement of 20 Air Rovers in Romania to fix deficiency at operational site. This repair by replacement will eliminate risk of overheating and a corresponding shutdown of the Aegis Weapon System.
- 3. Decrease reflects the reduction to Missile Recertification and repairs identified as a part of the Defense Wide Reviews resulting in the de-scope of requirements.
- B. Ground-Based Midcourse program:
- 1. Increase provides for prime contractor maintenance and sustainment of the new Fort Greely, AK 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.
- 2. Increase provides GM facility sustainment and communication infrastructure upgrades to address obsolescence issues. These 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.

- C. Ballistic Missile Defense Systems (BMDS) Radars program 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.
- D. THAAD Program funding provides:
- 1. 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.
- 2. Increase provides for mission critical items to include field data collection, AMCOM Logistics Center support, and base support agreements due to actual costs and updated cost estimates.
- 3. Decrease reflects the reduction to Missile Recertification and Facilities, Sustainment, Restoration, and Modernization (FSRM) Projects identified during the Defense Wide Review (DWR), resulting in the de-scope of requirements.

Appropriation/Fund	FY 2019 <u>Actuals</u>	FY 2020 Enacted	FY 2021 Estimate
I. Management & Professional Support Services FFRDC Work Non-FFRDC Work Subtotal	1,177 1,461 2,638		461 1,094 1,555
<pre>II. Studies, Analysis & Evaluations FFRDC Work Non-FFRDC Work Subtotal</pre>	500 <u>342</u> 842	0 <u>0</u> 0	0 <u>0</u> 0
<pre>III. Engineering & Technical Services FFRDC Work Non-FFRDC Work Subtotal</pre>	0 <u>151</u> 151	3,621 3,479 7,100	
TOTAL FFRDC Work Non-FFRDC Work	1,677 1,95 4	•	•
Reimbursable	0	0	0

Explanation of Funding Changes (FY 2019 to FY 2020):

The FY 2019 to FY 2020 provides the Ground-based Midcourse Defense Program with an increase in Management and Support Services to perform independent assessment of GMD system manuals and processes as well as an increase in Warfighter interface and engagement assistance.

Aegis BMD Program increase provides a realignment of Depot Maintenance efforts to 934 Engineering & Technical Services.

Explanation of Funding Changes (FY 2020 to FY 2021):

Missile Defense Agency

(Dollars in Thousands)

Appropriation/Fund: RDT&E (0400)		FY 2019	FY 2020	FY 2021		
Management & Professional Support Services						
FFRDC Work	932	20,884	10,460	10,344		
Non-FFRDC Work	932	641,583	338,217	334,440		
Sub-Total		662,467	348,677	344,784		
Studies, Analysis & Evaluations						
FFRDC Work	933	34,767	10,443	6,728		
Non-FFRDC Work	933	14,616	21,203	10,628		
Sub-Total		49,383	31,646	17,356		
3. Engineering & Technical Services						
FFRDC Work	934	95,688	1,942	1,389		
Non-FFRDC Work	934	93,535	92,251	66,015		
Sub-Total		189,223	94,193	67,404		
TOTAL FFRDC Work Non-FFRDC Work		901,073 151,339 749,734	474,516 22,845 451,671	429,544 18,461 411,083		
MOII-FFRDC WOIK		143,134	431,0/1	411,003		

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MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

MISSILE DEFENSE AGENCY		Foreign	<u>National</u>	
	US Direct Hire	<u>Direct Hire</u>	<u> Indirect Hire</u>	<u>Total</u>
1. FY 2019 FTEs	0	0	0	0
2. FY 2020 FTEs	0	0	0	0
3. FY 2021 FTEs	0	0	0	0
MDA - Operation and Maintenance (O&M)		Foreign	National National	
	US Direct Hire	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>
1. FY 2019 FTEs	0	0	0	0
2. FY 2020 FTEs	0	0	0	0
3. FY 2021 FTEs	0	0	0	0
MDA - Research, Development, Test and Evalua	ation (RDT&E)			
		Foreign	<u>National</u>	
	US Direct Hire	Direct Hire	Indirect Hire	<u>Total</u>
1. FY 2019 FTEs	0	0	0	0
2. FY 2020 FTEs	0	0	0	0
3. FY 2021 FTEs	0	0	0	0
MDA - Defense Working Capital Fund (DWCF)		Foreign	National National	
	US Direct Hire	Direct Hire	Indirect Hire	<u>Total</u>
1. FY 2019 FTEs	0	0	0	0
2. FY 2020 FTEs	0	0	0	0
3. FY 2021 FTEs	0	0	0	0
4. SUMMARY		Foreign	National National	
	US Direct Hire	Direct Hire	Indirect Hire	<u>Total</u>
FY 2019				

MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

RDT&E Total	2,321	0	0	2,321
Direct Funded	2,321	0	0	2,321
Reimbursable Funded	0	0	0	0
Total Component	2,321	0	0	2,321
Direct Funded	2,321	0	0	2,321
Reimbursable Funded	0	0	0	0
FY 2020				
RDT&E Total	2,183	0	0	2,183
Direct Funded	2,183	0	0	2,183
Reimbursable Funded	0	0	0	0
Total Component	2,183	0	0	2,183
Direct Funded	2,183	0	0	2,183
Reimbursable Funded	0	0	0	0
FY 2021				
RDT&E Total	2,157	0	0	2,157
Direct Funded	2,157	0	0	2,157
Reimbursable Funded	0	0	0	0
Total Component	2,157	0	0	2,157
Direct Funded	2,157	0	0	2,157
Reimbursable Funded	0	0	0	0

MISSILE DEFENSE AGENCY Operation and Maintenance, Defense-Wide Fiscal Year (FY) 2021 President's Budget

5. SUMMARY OF CHANGES

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

Change from FY 2019 to FY 2020:

MDA's direct RDT&E funded FTE reflects the continued implementation of the Management Headquarter Activity (MHA) reductions. MDA's phased implementation will continue through FY 2020, consistent with the plan approved by the office of the Deputy Management Officer (DCMO).

Change from FY 2020 to FY 2021:

MDA's direct RDT&E funded FTE reflects a 5% funding reduction identified as a part of the Defense Wide Review.

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Fiscal Year (FY) 2021 President's Budget

Method of Accomplishment	Weapon System	FY 2019	FY 2020	FY 2021
eration and Maintenance Funding				
Contractor Logistics Support (CLS)	AN/TPY-2 Radar	36,825	90,228	81,699
	Ballistic Missile Defense	19,763	28,148	28,93
	Standard Missile-3	38,983	26,878	25,90
	THAAD	21,857	20,859	23,51
Contractor Logistics Support (CLS) Total		117,428	166,113	160,05
Interim Contract Support (ICS)	THAAD	-	-	-
Interim Contract Support (ICS) Total		-	-	_
Inter-Service	Standard Missile-3	125	180	18
	THAAD	6,109	8,973	7,55
Inter-Service Total		6,234	9,153	7,73
Organic	Ballistic Missile Defense	5,541	7,990	8,03
	Standard Missile-3	5,232	9,622	7,67
	THAAD	2,067	3,428	1,93
Organic Total		12,840	21,040	17,64
	THAAD	19,512	16,509	16,38
Other Contract Total		19,512	16,509	16,38
tal Operation and Maintenance Funding		156,014	212,815	201,81
Interim Contractor Support (ICS) Interim Contractor Support (ICS) Total Other Contract Other Contract	THAAD AN/TPY-2 Radar	5,177 5,177	- 10,046 10,046	- - -
tal Procurement Funding		5,177	10,046	-
search, Development, Test and Evaluation Funding				
Contractor Logistics Support (CLS)	Ballistic Missile Defense	-	-	-
Contractor Logistics Support (CLS) Total		-	-	-
Inter-Service		-	-	-
	THAAD	2,479	-	_
Inter-Service Total		2,479	-	_
Organic	Ballistic Missile Defense	-	-	_
Organic Total		-	-	_
Other Contract	AN/TPY-2 Radar THAAD	103,245	88,737	77 , 82
Other Contract Total		103,245	88,737	77,82
tal Research, Development, Test and Evaluation	Funding	105,724	88,737	77,82
			55,.51	,
otal MDA Depot Maintenance Program	·	266,915	311,598	279,64

NOTE: The funding in each fiscal year represents both the required and funded amounts for that program.

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Missile Defense Agency

Fiscal Year 2021

President's Budget Submittal

Military Construction Exhibit



Feb 2020

MISSILE DEFENSE AGENCY FY 2021 MILITARY CONSTRUCTION PRESIDENT'S BUDGET SUBMITTAL DESCRIPTIVE SUMMARIES

(\$ in Thousands)

<u>Program</u>	Authorization	Appropriation
Major Construction	48,000	48,000
Unspecified Minor Construction	4,922	4,922
MILCON Planning & Design	0	0
TOTAL MILITARY CONSTRUCTION	52,922	52,922

MISSILE DEFENSE AGENCY FY 2021 MILITARY CONSTRUCTION PROJECT SUMMARY BY LOCATION

(\$ in Thousands)

State/Installation/Project	Auth <u>Request</u>	Approp <u>Request</u>	New/ Current <u>Mission</u>	Page <u>No.</u>	
Major Construction					
Alaska Fort Greely Communications Center	48,000	48,000	N		
Unspecified Minor Construction	4,922	4,922			
MILCON Planning and Design	0	0			
TOTAL MILITARY CONSTRUCTION	52,922	52,922			

1. COMPONENT DEF (MDA)		FY 2	2021 MII	_ITARY (CONSTRU	CTION PI	ROGRAI		2. DATE Feb	2020	
3. INSTALLATION A						OMMAND ssile De	efense	Agency		5. AREA CON COST IND	EX	
6. PERSONNEL		(1) PERMANEN	ΙΤ		(2) STUDENTS	S		(3) SUPPOR	TED		
N/A: Tenant of U.S.	Army	FICER	CER ENLISTED CIVILIAN O			ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	(4) TOTAL	
b. AS OF YYYMM	MDD										C	
b. END FY											(
7. INVENTORY DA	ATA (\$000)					,	-					
a. TOTAL ACRE	AGE (acre)										0.00	
b. INVENTORY	TOTAL AS OF YYY	MMDD									0.00	
c. AUTHORIZAT	ION NOT YET IN IN	VENT	ORY								0.00	
d. AUTHORIZAT	ION REQUESTED	IN THIS	S PROGRAM								48,000.00	
e. AUTHORIZAT	ION INCLUDED IN	FOLLO	OWING PROG	SRAM							0.00	
f. PLANNED IN N	NEXT THREE PRO	GRAM	YEARS								0.00	
g. REMAINING D	DEFICIENCY										0.00	
h. GRAND TOT	AL										48,000.00	
8. PROJECTS REQ	UESTED IN THIS	S PRC	GRAM				ı					
(1) 0005	(0) 554		TEGORY		(0) 00	005		OST 100)		. DESIGN ST		
(1) CODE 13120	(2) PRO				(3) SC 11,50		_	000	(1) START Mar 2019		<u>2) COMPLETE</u> Oct 2020	
9. FUTURE PROJEC	ets .											
10. MISSION OR M The mission Missile Def and friends Center proj	n of the Mi fense Syste s from miss ject is rec	lssi em (1 sile quire	MDS) to attacks ed to si	defen s in a upport	d the U ll phas the Wa	Inited Start Ses of file of the services of th	tates, light. r missi	its der The Fo on and	oloyed ort Gree enhance	forces, ely Comm e homela	allies, unicationd	
defense fro support exp				Improv	ed comm	nunicatio	ons cap	abiliti 	ies are	require	d to	
11. OUTSTANDING	POLLUTION AN	ND SA	FETY DEFI	CIENCIES								
A. Air Pollution B. Water Pollutio C. Occupational	n Safety and Healtl	h			(\$000) 0 0 0							

1. COMPONENT

MDA

FY 2021 MILITARY CONSTRUCTION PROJECT DATA

2. DATE

Feb 2020

3. INSTALLATION AND LOCATION

Fort Greely, Alaska

4. PROJECT TITLE

Communications Center

 5. PROGRAM ELEMENT
 6. CATEGORY CODE
 7. PROJECT NUMBER
 8. PROJECT COST (\$000)

 0603882C
 13120
 MDA 680
 48,000

9. COST ESTIMATES

9. COST ESTIMATES								
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)				
PRIMARY FACILITIES Communications Center (13120) Special Construction	SF LS	11,500	2,207	31,589 (25,380) (6,209)				
SUPPORTING FACILITIES Electrical/Comms Services Civil/Mechanical Services Site Preparations Site Improvements	LS LS LS LS	- - - -	- - - -	11,061 (8,321) (920) (1,535) (285)				
SUBTOTAL CONTINGENCY (5.0%) TOTAL CONTRACT COST SIOH (6.5%) Design During Construction (0.5%) TOTAL REQUEST TOTAL REQUEST ROUNDED				42,649 2,132 44,781 2,911 224 47,916 48,000				
INSTALLED EQPT-OTHER APPROPRIATIONS				(54,166)				

10. DESCRIPTION OF PROPOSED CONSTRUCTION:

Construct a Communications Center in support of the Ballistic Missile Defense System (BMDS) at Fort Greely, AK (FGA) to house mission communication equipment.

Primary Facility:

Communications Center with construction matching surrounding existing facilities (cast-in-place concrete walls). The building will use a single sloped or double pitched roof as part of a cold roof design. The facility will be a single story structure with attic that permits access to inspect High Altitude Electromagnetic Pulse (HEMP) shield from above. Interior framing will include seismic supports for installed equipment. Lightning protection and equipment grounding/bonding systems are included. Foundation includes features to meet site-specific ground motion, seismic and any blast protection requirements. Anti-Terrorism Force Protection features will be incorporated in accordance with applicable Unified Facilities Criteria (UFC). Facility to comply with UFC 1-200-01 DoD Building Code.

Facility will incorporate special construction for HEMP, Electromagnetic Interference (EMI), and Toxic Free Area protection.

1. COMPONENT MDA	FY	2021 MILITARY CONS	TRUCTION PROJECT DATA	2. DATE Feb 2020				
3. INSTALLATION AND	. INSTALLATION AND LOCATION 4. PROJECT TITLE							
Fort Greely,	Alaska		Communications Cente	Communications Center				
5. PROGRAM ELEMEN	IT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST (\$000)				
0603882	2C	13120	MDA 680	48,000				

10. DESCRIPTION OF PROPOSED CONSTRUCTION: (continued)

Supporting Facilities:

Electrical and Communications services will include HEMP protected electrical distribution and communications (existing and new) systems. Utilidor extension will be provided to connect to the existing infrastructure.

Civil and Mechanical Services will include water, sewer, walkways, fire protection & alarm systems and sewer / septic system. Appropriate HEMP and EMI waveguides will be used for all mechanical penetrations through shield boundaries.

Site Preparations include mobilization, clearing, grubbing, excavation and grading.

Site Improvements include connection to existing roads, fencing and new pavements.

11. REQUIREMENT: 25,353 SF ADQT: 13,853 SF SUBSTD: 0 SF

<u>PROJECT:</u> Construct a Communications Center and supporting infrastructure to house mission communication equipment required for connectivity between BMDS assets.

REQUIREMENT: This project is required to support the Warfighter mission and enhance homeland defense from emerging threats. As adversaries pursue credible and advanced capabilities, the United States must improve and adapt its missile defense capabilities to outpace the threats.

CURRENT SITUATION: This capability does not currently exist at FGA to support BMDS mission requirements. The Warfighter executes its mission using existing facilities distributed geographically across the BMDS. Operational Ground Based Interceptors (GBIs) are hosted at FGA and Vandenberg Air Force Base, CA, with additional equipment distributed worldwide.

IMPACT IF NOT PROVIDED: The Warfighter lacks additional space for mission communication equipment from which to execute the BMDS mission.

ADDITIONAL INFORMATION:

The project was evaluated for compliance with Executive Orders 11988 Flood Plain Management and 11990 Protection of Wetlands and the Flood Plain Management Guidelines of U.S. Water Resources Council. The Project is not sited on the 100-year flood plain and is sited to preserve and enhance the natural and beneficial values of wetlands; and minimize destruction, loss or degradation of wetlands.

Anti-Terrorism Force Protection will be incorporated in accordance with applicable Unified Facilities Criteria (UFC).

Project to be executed in accordance with the NMD Deployment Final EIS dated July 2000.

Complies with UFC 1-200-02 High Performance and Sustainable Building Requirements to achieve high performance and sustainable buildings complying with the Energy Policy Act of 2005, and the Energy Independence and Security Act of 2007.

1. COMPONENT MDA	FY	FY 2021 MILITARY CONSTRUCTION PROJECT DATA 2. DATE Feb 202						
4. INSTALLATION AND	LOCATION		4. PROJECT TITLE					
Fort Greely, Alaska			Communications Center					
5. PROGRAM ELEMENT		6. CATEGORY CODE	7. PROJECT NUMBER 8. F		. PROJECT COST (\$000)			
0603882	2C	13120	MDA 680		48,000			

12. SUPPLEMENTAL DATA:

A. Estimated Execution Data

(c) Construction Completion

(1) Acquisition Strategy: Design-Bid-Build

(2) Design Data

(a) Design or Request for Proposal (RFP) Started: Mar 2019 (b) Percent Complete As Of January 2020 65% Oct 2020 (c) Design or RFP Complete: (d) Total Design Cost (\$000): 4,800 (e) Energy Study and/or Life Cycle Analysis performed No (f) Standard or definitive design used? No (3) Construction Data: (a) Contract Award Feb 2021 (b) Construction Start Apr 2021

B. Equipment associated with this project which will be provided from other appropriations:

		FY	
Equipment	Procuring	Appropriated	Cost
Nomenclature	Appropriation	or Requested	\$(000)
Construction Free Zone (CFZ)	RDT&E	FY21	1,921
Equipment Rack Isolation Framing	RDT&E	FY21	240
Site Activation / IPO	RDT&E	FY22-23	2,248
GFC/GCN Equipment	RDT&E	FY22-23	47 , 856
Security Equipment/IESS	RDT&E	FY22	533
Mission Fiber Optic Cable	RDT&E	FY23	739
Furniture, Furnishings & Equipment(FFE)	RDT&E	FY23	629
		Total RDT&E:	54 , 166

Total: 54,166

Jun 2023

1. COMPONENT 2. DATE FY 2021 MILITARY CONSTRUCTION PROJECT DATA MDA Feb 2020 3. INSTALLATION AND LOCATION 4. PROJECT TITLE Various Worldwide Locations Unspecified Minor Construction **5. PROGRAM ELEMENT** 6. CATEGORY CODE 7. PROJECT NUMBER 8. PROJECT COST (\$000) N/A N/A 4,922 N/A9. COST ESTIMATES **QUANTITY UNIT COST ITEM** COST (\$000) Unspecified Minor Construction LS 4,922

10. DESCRIPTION OF PROPOSED CONSTRUCTION: Provide a lump sum amount for unspecified construction projects, not otherwise authorized by law, including normal construction, alteration or conversion of permanent or temporary facilities, in accordance with 10 USC Section 2805 as amended by the FY 2018 National Defense Authorization Act.

11. REQUIREMENT: As required

CONTINGENCY PERCENT (0.0%) ESTMATED CONTRACT COST

TOTAL REQUEST (ROUNDED)

SUPERVISION, INSPECTION & OVERHEAD (0.0%)

INSTALLED EQPT-OTHER APPROPRIATIONS

REQUIREMENT: New and expanded facilities supporting MDA missions with a cost up to \$6,000,000 adjusted for location (not to exceed \$10,000,000) within the U.S. and territories, and up to \$6,000,000 elsewhere. These funds provide MDA the capability to react in FY 2021 to any priority emergent requirements for construction, alteration, or modification of facilities resulting from unforeseen situations affecting mission performance or safety of life or property. Included would be projects to support mission critical research and development requirements of the Ballistic Missile Defense System.

All required NEPA and/or EO 12114 analyses will be completed prior to the start of construction for each unspecified construction project.

SUBTOTAL

TOTAL REQUEST

4,922

4,922

4,922

4,922

(0)

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

Activity: P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD07 / THAAD

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): B

,

Program Elements for Code B Items: 0603881C, 0604876C

Other Related Program Elements: 0604876C, 0603881C

Line Item MDAP/MAIS Code: 362

ZIIIO ROM MENTANINA GOGOT COZ	ind toll history minio doub. 002											
	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	OCO	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	385	110	39	41	-	41	26	25	29	29	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396	341.042	328.354	374.424	425.125	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396	341.042	328.354	374.424	425.125	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396	341.042	328.354	374.424	425.125	Continuing	Continuing
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	e corresponding	budget request	s are documente	ed elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	10.238	8.410	8.464	9.840	-	9.840	9.849	10.143	10.144	12.068	Continuing	Continuing
Gross/Weapon System Unit Cost (\$ in Millions)	13.710	9.325	10.441	12.083	-	12.083	13.117	13.134	12.911	14.659	Continuing	Continuing

Description:

Terminal High Altitude Area Defense (THAAD) is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). THAAD enhances the TDS by deepening, complementing, and extending the BMDS battlespace and capability to engage ballistic targets in the late mid-course and terminal phases of their trajectory. THAAD Army Navy / Transportable Radar Surveillance - Model 2 (AN/ TPY-2) is a surveillance and targeting sensor providing data to the THAAD system to execute intercept missions. The THAAD system, in conjunction with the fielded Phased Array Tracking Radar to Intercept on Target (PATRIOT) system, provides the TDS for the Missile Defense Agency (MDA) objective of enhancing the BMDS capability. Five major components (Interceptors, Launchers, AN/TPY-2 Radar, THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSG), and Peculiar Support Equipment including Missile Round Pallet Transportable) comprise the THAAD system.

LI MD07 - THAAD Missile Defense Agency Page 1 of 19

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD07 / THAAD

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): B

Program Elements for Code B Items: 0603881C. 0604876C

Other Related Program Elements: 0604876C, 0603881C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	THAAD	P-5a, P-21	В		385 / 5,278.493	110 / 1,025.804	39 / 407.203	41 / 495.396	- / -	41 / 495.396
P-40	Total Gross/Weapon System Cost				385 / 5,278.493	110 / 1,025.804	39 / 407.203	41 / 495.396	- 1 -	41 / 495.396

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

The increase from FY 2020 to FY 2021 budget provides for an increase in the THAAD Interceptor procurement quantity from 39 in FY 2020 to 41 in FY 2021, required THAAD Battery Ground Component enhancement modifications to meet the growing cyber threat and additional interceptor obsolescence parts.

The FY 2021 budget request includes 41 THAAD Interceptors, the THAAD Stockpile Reliability Program, Production and Training Support, THAAD Skills Trainer software updates, obsolescence mitigation efforts and the procurement of required THAAD Battery Ground Component modifications to meet the growing cyber threat.

In FY 2021 MDA will continue a "synergy" lot buy approach to THAAD Interceptor purchases. This approach entails awarding a contract that includes an option for the following fiscal year funding. By utilizing this approach, MDA will achieve savings in material costs in multiple fiscal years. This will result in a higher Interceptor quantity buy at a lower average unit price than if buys were not combined. Depending on outcome of the synergy buy, THAAD plans to buy to budget such that potentially more interceptors or their enabling hardware items as required could be procured.

Two (2) of the seven (7) THAAD Batteries delivered to date were funded with Research Development Test and Evaluation (RDT&E) in Program Element (PE) 0603881C, thus not included in the costs above.

"Procurement Quantity" and "Flyaway Unit Cost" above represent interceptors only, but the "Net Procurement" cost above includes the costs of all hardware. Prior FYs funding included procurement of ground components, which affected the "Gross Weapon System Unit Cost".

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P-1 Line #31

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

| P-1 Line Item Number / Title:
| MD07 / THAAD | THAAD |
| D Code (A=Service Ready, B=Not Service Ready): B |
| MDAP/MAIS Code:

The Godd (A-Service Ready) . D		1412	AI MIAIO OOGC.			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	385	110	39	41	-	41
Gross/Weapon System Cost (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	5,278.493	1,025.804	407.203	495.396	-	495.396
(The following Resource Summary rows are for in	nformational purposes only. The cor	responding budget requests	are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	13.710	9.325	10.441	12.083	-	12.083

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	F	Prior Years	3		FY 2019			FY 2020		FY	′ 2021 Bas	e	FY	2021 OC	0	F	/ 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)									
Hardware Cost					'		'			'	'		'			'	'	
Recurring Cost	_																	
Interceptor ^(†)	10.238	385	3,941.809	8.388	110	922.729	8.464	39	330.093	9.840	41	403.453	-	-	-	9.840	41	403.453
Launcher ^(†)	8.110	36	291.977	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Support Equipment	25.943	9	233.491	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TFCC Tactical Station Group ^(†)	10.522	8	84.179	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Recurring Cost	-	-	4,551.456	-	-	922.729	-	-	330.093	-	-	403.453	-	-	-	-	-	403.453
Subtotal: Hardware Cost	-	-	4,551.456	-	-	922.729	-	-	330.093	-	-	403.453	-	-	-	-	-	403.453
Support Cost								·										
INDOPACOM JEON	4.140	1	4.140	37.800	1	37.800	-	-	-	-	-	-	-	-	-	-	-	-
Obsolescence and Modifications	31.178	6	187.069	42.656	1	42.656	25.151	1	25.151	65.774	1	65.774	-	-	-	65.774	1	65.774
Production Support & Testing	54.756	7	383.291	22.619	1	22.619	44.549	1	44.549	18.612	1	18.612	-	-	-	18.612	1	18.612
Training	21.791	7	152.537	-	-	-	7.410	1	7.410	7.557	1	7.557	-	-	-	7.557	1	7.557
Subtotal: Support Cost	-	-	727.037	-	-	103.075	-	-	77.110	-	-	91.943	-	-	-	-	-	91.943
Gross/Weapon System Cost	13.710	385	5,278.493	9.325	110	1,025.804	10.441	39	407.203	12.083	41	495.396	-	-	-	12.083	41	495.396

Remarks:

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Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agen	су	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD07 / THAAD	Item Number / Title [DODIC]: THAAD
ID Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:	
"Procurement Quantity" above represents interceptors only, but the "Net Pr the "Gross Weapon System Unit Cost". Support Equipment captures misce Support Center (BSC) that support the THAAD Batteries and varies from year	llaneous items such as THAAD Missile Round Pallet-Transport	
The increase in the Interceptor line above from FY 2020 to FY 2021 provide	es for an increase in the THAAD interceptor procurement quar	ntity from 39 in FY 2020 to 41 in FY 2021.
The decrease in the Production Support & Testing from FY 2020 to FY 202 disassembly line.	1 reflects the completion of procuring test equipment and proc	duction fixtures for the new Stockpile Reliability Test Interceptor assembly/
The increase in the Obsolescence and Modifications from FY 2020 to FY 2020 threat and the procurement of additional interceptor obsolescence parts.	021 provides for the procurement of required THAAD Battery 0	Ground Component enhancement modifications to meet the growing cybe
Obsolescence encompasses mitigation activities that protect the system de schedule. Examples of mitigation activities include component replacemen production lots.		
^(†) indicates the presence of a P-5a		

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Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD07 / THAAD

THAAD

			"									
Cost Elements	0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue
Interceptor - Lot 1 ^(†)		2010	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Mar 2011	Jul 2012	26	14.480	Y		Oct 2009
Interceptor - Lot 2 ^(†)		2011	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Mar 2011	Jul 2013	22	12.100	N		Oct 2009
Interceptor - Lot 4 ^(†)		2012	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Aug 2012	Jun 2015	46	11.022	N		Aug 2011
Interceptor - Lot 5 ^(†)		2013	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Sep 2013	Jul 2017	34	11.022	N		Aug 2011
Interceptor - Lot 6 ^(†)		2014	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2013	Mar 2018	27	11.022	N		Jun 2013
Interceptor - Lot 7 ^(†)		2015	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2015	Aug 2018	38	10.100	N		Mar 2014
Interceptor - Lot 8 ^(†)		2016	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2015	Feb 2019	36	10.100	N		Apr 2015
Interceptor - Lot 9 ^(†)		2017	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Mar 2017	Jan 2020	47	9.185	N		May 2016
Interceptor - Lot 10 ^(†)		2018	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2017	Jun 2020	109	9.169	N		Dec 2016
Launcher - Lot 1 ^(†)		2010	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	May 2011	Apr 2013	6	9.170	Y		Oct 2009
Launcher - Lot 3 ^(†)		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	May 2014	6	9.130	Υ		Aug 2011
Launcher - Lot 2 ^(†)		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	May 2011	Oct 2013	6	9.130	Υ		Oct 2009
Launcher - Lot 4 ^(†)		2012	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	Nov 2014	6	7.490	Y		Aug 2011
Launcher - Lot 6 ^(†)		2014	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Aug 2014	Mar 2016	12	9.050	Y		Jun 2013
TFCC Tactical Station Group - Lot $2^{(\dagger)}$		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Mar 2011	May 2013	4	10.100	Y		Oct 2009
TFCC Tactical Station Group - Lot $3^{(\dagger)}$		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	Aug 2014	2	10.100	Y		Aug 2011
TFCC Tactical Station Group - Lot $4^{(\dagger)}$		2012	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	Oct 2014	2	9.260	Y		Aug 2011

^(†) indicates the presence of a P-21

Remarks:

Lot 3 Interceptors were removed due to a Congressional Mark in FY 2011. Lot numbers relate to groupings in fiscal years and no Launcher or Tactical Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) were scheduled for procurement in FY 2013, therefore Lot 5 is an interceptor only Lot. Delivery of Battery 3 completed in FY 2014. Delivery of Battery 5 completed in FY 2015. Delivery of Battery 6 completed in FY 2016. Delivery of Battery 7 completed in FY 2017. Concurrent with the Lot 4, 5, and 6 (FY 2012-FY 2014) U.S. procurements, MDA THAAD is executing a Foreign Military Sales (FMS) Case for two (2) Batteries and 192 Interceptors. The magnitude of the USG and FMS combined buy reduced the unit price for those Lots, and an overlap in period of performance with FMS interceptors also benefited the unit price for Lots 7 and 8 (FY 2015 and FY 2016).

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Exhibit F																									2020				
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1 2010	MDA	26	0	26						Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Interceptor - L	ot 2																										<u>'</u>		
2 2011	MDA	22	0	22						Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
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3 2012	MDA	46	0	46																							Α -	1	4
Interceptor - L	ot 5																												
4 2013	MDA	34	0	34																									3
Interceptor - L	ot 6																												
5 2014	MDA	27	0	27																									2
Interceptor - L																													
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6 2016		36	0	36																									3
Interceptor - L		,																											
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6 2018		109	0	109																									10
Launcher - Lo															1			1				1							
7 2010		6	0	6								Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Launcher - Lo																													_
8 2011		6	0	6																						Α -	-	-	
Launcher - Lo																						1							_
9 2011		6	0	6								Α -	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	
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Interceptor - Lo	ot 5										•																		
4 2013	MDA	34	0	34												A -	-	-	-	-	-	-	-	-	-	-	-	-	3
Interceptor - Lo	ot 6																												
5 2014	MDA	27	0	27															Α -	-	-	-	-	-	-	-	-	-	2
Interceptor - Lo	ot 7																												
6 2015	MDA	38	0	38																									3
Interceptor - Lo																													
6 2016	MDA	36	0	36																									3
Interceptor - Lo	ot 9																												
6 2017	MDA	47	0	47																									4
Interceptor - Lo	ot 10																												
6 2018	MDA	109	0	109																									10
Launcher - Lot	1																												
7 2010	MDA	6	0	6	-	-	-	-	-	-	1	2	-	-	3														
Launcher - Lot	3																												
8 2011	MDA	6	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	
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3 2012		46	0	46	-	-	-	-	-	-	-	-	3	-	-	-	-	2	7	-	-	-	-	-	12	-	-	-	2
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4 2013		34	0	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
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6 2015		38	0	38															Α -	-	-	-	-	_	-	-	-	-	3
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6 2016		36	0	36															Α -	-	-	-	-	-	-	-	-	-	3
Interceptor - L	_																												
6 2017		47	0	47																									4
Interceptor - L		109	0	109																									10
Launcher - Lo		109	0	109																									10
7 2010		6	6	0																									
Launcher - Lo		0	0																										
8 2011		6	5	1	1																								
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9 2011		6	6	0																									
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11 2014	_	12	0	12	-	-	-	-	- 1	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	1	1	2	1	
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12 2011		4	4	0																									
TFCC Tactica		up - Lot 3																											
13 2011	MDA	2	2	0																									
TFCC Tactica	al Station Grou	up - Lot 4																											
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P-1 Line #31

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1 2010	MDA	26	26	0																									
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2 2011	MDA	22	22	0																									
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3 2012	MDA	46	24	22	-	-	-	-	-	-	2	3	9	8															
Interceptor - L	ot 5																												
4 2013	MDA	34	0	34	-	-	-	-	-	-	-	-	-	4	8	7	1	-	4	-	7	3							
Interceptor - L	ot 6																												
5 2014	MDA	27	0	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	12	6	1				
Interceptor - L	ot 7																												
6 2015	MDA	38	0	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	6	2
Interceptor - L	ot 8																												
6 2016	MDA	36	0	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Interceptor - L	ot 9																												
6 2017	MDA	47	0	47						Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
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6 2018	MDA	109	0	109															Α -	-	-	-	-	-	-	-	-	-	10
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7 2010	MDA	6	6	0																									
Launcher - Lo	t 3																												
8 2011	MDA	6	6	0																									
Launcher - Lo	t 2																												
9 2011	MDA	6	6	0																									
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10 2012	MDA	6	6	0																									
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TFCC Tactica	Station Grou	ıp - Lot 3																											
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P-1 Line #31

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1 2010	MDA	26	26	0																									
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3 2012	MDA	46	46	0																									
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6 2015	MDA	38	16	22	-	4	10) -	8																				
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6 2017	MDA	47	0	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	8	8	8	7				
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6 2018	MDA	109	0	109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	8	8	
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7 2010	MDA	6	6	0																									
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P-1 Line #31

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Interceptor - Lo	ot 1											·	·	<u>'</u>						·		·					,		
1 2010	MDA	26	26	0																									
Interceptor - Lo	ot 2																												
2 2011	MDA	22	22	0																									
Interceptor - Lo	ot 4																												
3 2012	MDA	46	46	0																									
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4 2013		34	34	0																									
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5 2014	MDA	27	27	0																									
nterceptor - Lo	ot 7																												
6 2015	MDA	38	38	0																									
Interceptor - Lo																													
6 2016		36	36	0																									
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6 2017		47	47	0																									
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6 2018		109	25	84	8	8	8	8	8	8	8	8	8	8	4														
Launcher - Lot																													
7 2010		6	6	0																									
Launcher - Lot																													
8 2011		6	6	0																									
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P-1 Line #31

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Exhibit P-21, Production Schedule: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD07 / THAAD

THAAD

	Produc	tion Rates (Each /	Month)				Procurement Le	adtime (Months)			
MFR	110000				Ini	tial		(Reo	rder	
Ref Manufacturer # Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1 Lockheed Martin - Troy, AL	1	4	8	6	6	16	22	6	4	27	31
2 Lockheed Martin - Troy, AL	1	4	8	6	6	28	34	6	4	27	31
3 Lockheed Martin - Troy, AL	1	4	8	6	11	36	47	6	11	36	47
4 Lockheed Martin - Troy, AL	1	4	8	6	12	37	49	6	12	37	49
5 Lockheed Martin - Troy, AL	1	4	8	6	3	43	46	6	3	43	46
6 Lockheed Martin - Troy, AL	1	4	8	6	12	31	43	6	12	31	43
7 Lockheed Martin - Camden, AR	1	1	3	6	8	23	31	6	4	21	25
8 Lockheed Martin - Camden, AR	1	1	2	6	10	22	32	6	4	21	25
9 Lockheed Martin - Camden, AR	1	1	2	6	8	29	37	6	4	21	25
10 Lockheed Martin - Camden, AR	1	1	2	6	10	28	38	6	3	21	24
11 Lockheed Martin - Camden, AR	1	1	2	6	6	22	28	6	4	21	25
12 Lockheed Martin - Camden, AR	1	2	2	6	6	26	32	6	4	24	28
13 Lockheed Martin - Camden, AR	1	1	1	6	10	25	35	6	4	24	28
14 Lockheed Martin - Camden, AR	1	1	1	6	10	27	37	6	3	24	27

Remarks:

- Max Production rate is 8 at normal capacity.
- FMS deliveries of approximately 4 per month from December 2015 to October 2019 are not included.
- In August 2016, interceptor deliveries were paused in order to resolve a cable connector sub-assembly issue. During this time however, production of other interceptor sub-assemblies continued. Interceptor production resumed in November 2016, and associated deliveries resumed in April 2017. Lockheed Martin worked extended work days and additional shifts in order to surge deliveries through September 2018 in order to complete interceptor deliveries in accordance with current contract requirements.
- Manufacturing lead times can vary due to factors such as managing multiple lot buys concurrently to achieve price discounts, increasing the lead time for the second awarded lot buy.
- A Lot 4 Interceptor mission computer static random access memory failure, root cause analysis, corrective action, and incorporation of leap second software update resulted in a seven (7) month production delay from November 2014 to June 2015.
- "A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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P-1 Line #31 Volume 2b - 18

Exhibit P-21, Production Schedule: PB 2021 Missile Defer	ise Agency	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD07 / THAAD	Item Number / Title [DODIC]: THAAD

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#31 Volume 2b - 19



Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

P-1 Line Item Number / Title:

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD08 / Ground Based Midcourse

Equipment, Missile Defense Agency ID Code (A=Service Ready, B=Not Service Ready): B

Program Elements for Code B Items: 0603882C

Other Related Program Elements: 0603882C

Date: February 2020

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	10	13	69	-	-	-	-	24	5	2	-	123
Gross/Weapon System Cost (\$ in Millions)	227.000	493.464	400.471	-	-	-	-	10.225	2.130	36.400	-	1,169.690
Less PY Advance Procurement (\$ in Millions)	47.000	88.000	115.000	-	-	-	-	-	-	-	-	250.000
Net Procurement (P-1) (\$ in Millions)	180.000	405.464	285.471	-	-	-	-	10.225	2.130	36.400	-	919.690
Plus CY Advance Procurement (\$ in Millions)	135.000	115.000	0.000	-	-	-	-	-	-	-	-	250.000
Total Obligation Authority (\$ in Millions)	315.000	520.464	285.471	-	-	-	-	10.225	2.130	36.400	-	1,169.690
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Ti	ne corresponding	g budget request	s are documente	ed elsewhere.)	•		<u>'</u>	
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	22.700	37.959	5.804	-	-	-	-	0.426	0.426	18.200	-	9.510

Description:

The Ground-based Midcourse Defense (GMD) element of the Missile Defense System (MDS) provides combatant commands (CCMDs) with a continuously available (24 hours a day, 365 days a year) capability to defend the Homeland against limited Intercontinental Ballistic Missile (ICBM) attacks. The GMD capability consists of Ground Based Interceptors (GBI), GMD Fire Control system (GFC), GMD Communications Network (GCN), In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) and ground Launch Support Systems (LSS). Each GBI delivers a single kill vehicle to defeat threat warheads in space during the midcourse phase of the ballistic trajectory. The GFC consists of fire control nodes in Fort Greely, Alaska (FGA) and Missile Defense Integration and Operations Center (MDIOC) Colorado Springs. Colorado.

The termination of the Redesigned Kill Vehicle (RKV) development has delayed the procurement of the next 20 GBIs until the Next-Generation Interceptor is developed.

FY 2019 does not include the rescission of \$312 million due to RKV termination: \$115 million Advanced Procurement and \$197 million Procurement

FY 2020 procures up to three (3) C2 boost vehicles to maintain the industrial base, improve reliability, and extend the service life of up to three (3) Capability Enhancement I GBIs.

FY 2020 provides for 66 LSS kits.

FY 2023 provides for 24 installations of LSS retrofits.

FY 2024 provides for 5 installations of LSS retrofits.

FY 2025 procures IDT retrofits for the two Ft. Greely Alaska IDTs to include implementing the Phased Array antenna.

P-1 Line #32

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD08 / Ground Based Midcourse

ID Code (A=Service Ready, B=Not Service Ready): B

Program Elements for Code B Items: 0603882C

Other Related Program Elements: 0603882C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Ground Based Midcourse		В		0 / 0.000	- / 0.000	69 / 285.471	- / -	- / -	- / -
P-5	Ground Based Interceptors (GBI)	P-5a, P-21	В		0 / 0.000	1 / 253.000	- / 115.000	- / -	- / -	- / -
P-5	Silo Interface Vaults/Silos	P-5a, P-21	В		10 / 227.000	12 / 240.464	- / 0.000	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				10 / 227.000	13 / 493.464	69 / 400.471	- 1 -	- 1 -	- 1 -

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

N/A

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD08 / Ground Based Midcourse

Ground Based Midcourse

ID Code (A=Service Ready, B=Not Service Ready) : B		ME	AP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	0	-	69	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	285.471	-	-	-
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	285.471	-	-	-
Plus CY Advance Procurement (\$ in Millions)	0.000	115.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	115.000	285.471	-	-	-
(The following Resource Summary rows are for information	onal purposes only. The corr	responding budget requests	s are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	0.000	0.000	4.137	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	F	Prior Years	S		FY 2019			FY 2020		F۱	/ 2021 Bas	se	F١	/ 2021 OC	0	F	/ 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)															
Hardware Cost			'				'	'					'					
Non Recurring Cost																		
Boost Vehicles	-	-	-	-	-	-	50.000	3	150.000	-	-	-	-	-	-	-	-	-
Launch Support Systems	-	-	-	-	-	-	2.045	66	135.000	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	285.000	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	285.000	-	-	-	-	-	-	-	-	-
Support Cost																		
Obsolescence	-	-	-	-	-	-	0.471	1	0.471	-	-	-	-	-	-	-	-	-
Subtotal: Support Cost	-	-	-	-	-	-	-	-	0.471	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	0.000	0	0.000	0.000	-	0.000	4.137	69	285.471	-	-	-	-	-	-	-	-	-

Remarks:

N/A

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

P-1 Line Item Number / Title:

MD08 / Ground Based Midcourse

Date: February 2020

Item Number / Title [DODIC]:

Ground Based Interceptors (GBI)

ID Code (A=Service Ready, B=Not Service Ready): B		ME	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	0	1	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	0.000	253.000	115.000	-	-	-
Less PY Advance Procurement (\$ in Millions)	0.000	56.000	115.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	197.000	0.000	-	-	-
Plus CY Advance Procurement (\$ in Millions)	56.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	56.000	197.000	0.000	-	-	-
(The following Resource Summary rows are for information	onal purposes only. The corr	responding budget request	s are documented elsewher	e.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	0.000	253.000	0.000	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

140to: Gabtotalo di Totalo I	ZXIIIDII		- JO SAGOL C	. ca oxaoti	, 445 10 100													,
	F	Prior Year	s		FY 2019			FY 2020		F	1 2021 Ba	se	F	1 2021 OC	0	F'	Y 2021 Tot	.al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Recurring Cost																		
Ground Based Interceptors ^(†)	-	-	-	253.000	1	253.000	-	-	115.000	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	-	-	-	253.000	-	-	115.000	-	-	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	-	-	-	253.000	-	-	115.000	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	0.000	0	0.000	253.000	1	253.000	0.000	-	115.000	-	-	-	-	-	-	-	-	-

Remarks:

Long-Lead Hardware

^(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2021	Missile Defense Agency		Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD08 / Ground Based Midcourse		Item Number / Title [DODIC]: Ground Based Interceptors (GBI)
0	Method/Type	Date	Specs Date

Cost Elements	0 0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
Ground Based Interceptors - Hardware ^(†)		2019	Boeing / Huntsville	C / CPIF	Huntsville	Oct 2018	Jan 2019	1	0.000	N		Jan 2018

^(†) indicates the presence of a P-21

										UN	ICLA	1991	LIED)													
Exhibit P-21, Produ	iction Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	e: Fel	bruary	/ 2020)			
Appropriation / Bud 0300D / 01 / 17	dget Acti	vity /	Budg	get S	ub Ac	tivity	:		Line 008 / 0															[DOI		 31)	
Cost Elemen (Units in Eac								Fiscal Y	/ear 2019											Fiscal Y	ear 2020)					В
	ACCEPT				_					(Calendar	Year 201	19								Cale	ndar Year	r 2020				L
O F C R PR SERVICE Q		BAL DUE AS OF 1 OCT	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U	J J	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	N U	J U L	A U G	S E P	A N C E
Ground Based Interceptors - Har	dware																										
1 2019 MDA	1 0	1	Α -	-	-	1																					
			O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	N N	n n	A U G	S E P	

Exhibit P-21, Production Schedule: PB 2021 Missile Defense	e Agency	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD08 / Ground Based Midcourse	Item Number / Title [DODIC]: Ground Based Interceptors (GBI)

		Produc	tion Rates (Each /	Month)				Procurement Lea	adtime (Months)			
MFR						Ini	tial			Reo	rder	
Ref #	Manufacturer Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Boeing - Huntsville	1	1	2	6	0	38	38	6	0	38	38

[&]quot;A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency Date: February 2020 Appropriation / Budget Activity / Budget Sub Activity: P-1 Line Item Number / Title: Item Number / Title [DODIC]: 0300D / 01 / 17 MD08 / Ground Based Midcourse Silo Interface Vaults/Silos

ID Code (A=Service Ready, B=Not Service Ready) : B		N	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	10	1:	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	227.000	240.46	0.000	-	-	-
Less PY Advance Procurement (\$ in Millions)	47.000	32.00	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	180.000	208.46	0.000	-	-	-
Plus CY Advance Procurement (\$ in Millions)	79.000	0.00	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	259.000	208.46	0.000	-	-	-
(The following Resource Summary rows are for information	onal purposes only. The cor	responding budget reques	sts are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	22.700	20.03	0.000	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding

Note: Subtotals or Totals	n this Exhibit	P-5 may no	t be exact o	r sum exacti	y due to rou	naing.												
	P	rior Years	•		FY 2019			FY 2020		FY	2021 Bas	se	FY	/ 2021 OC	0	F'	Y 2021 To	tal
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Hardware Cost					,													
Non Recurring Cost																		
Silos ^(†)	22.700	10	227.000	20.039	12	240.464	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	227.000	-	-	240.464	-	-	-	-	=	-	-	-	-	-	-	-
Subtotal: Hardware Cost	-	-	227.000	-	-	240.464	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost	22.700	10	227.000	20.039	12	240.464	0.000	-	0.000	-	-	-	-	-	-	-	-	-

Remarks:

N/A

Missile Defense Agency

^(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2021 N	lissile Defense Agency	Date: February 2020
1 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1		Item Number / Title [DODIC]:
0300D / 01 / 17	MD08 / Ground Based Midcourse	Silo Interface Vaults/Silos

Cost Elements	0 0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
Silos - Hardware ^(†)		2018	Boeing / AL/AK/AZ/CA/CO/VA	SS / CPIF	Huntsville, AL	Jan 2018	Jul 2020	10	22.700	Υ	Sep 2018	Jan 2018
Silos - Hardware ^(†)		2019	Boeing / AL/AK/AZ/CA/CO/VA	SS / CPIF	Huntsville, AL	Jan 2018	Mar 2021	12	21.050	Υ	Sep 2018	Jan 2018

^(†) indicates the presence of a P-21

E	chi	bit F	P-21, Pro	oduct	ion Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	e: Feb	ruary	2020)			
			i ation / 01 / 17	Budg	et Acti	vity /	Budg	get Sı	ıb Ac	tivity	:			Item Groun											Num Interf						
				lements in Each)						,		Fiscal Y	ear 2018											Fiscal Y	ear 2019						В
					ACCEPT				_					(alendar	Year 201	18								Caler	ıdar Yeaı	r 2019				L
0 0	R	FY	SERVICE	PROC QTY	PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	A N C E
Sil	os - I	Hardwa	ire																												
	1	2018	MDA	10	0	10				Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
	1	2019	MDA	12	. 0	12				Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
						•	0 C	N O	D E	J A	F E	M A	A P	M A	J J	J J	A U	S E	0 C	N O V	D E	J A	F E	M A	A P	M A	J	J J	A U	S E	
							Г	V	С	N	В	R	R	Y	N	L	G	P	Г	٧	С	N	В	R	R	Y	N	L	G	_ Р	J

Ex	thi	bit F	P-21, Pr	oduct	ion Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	: Feb	ruary	2020)			
			iation / 01 / 17	Budg	et Acti	vity /	Budç	get Sı	ıb Ac	tivity	:			Item Groun														[DOE Silos			
				lements in Each)								Fiscal Y	ear 2020)		,				,				Fiscal Ye	ar 2021						В
					ACCEPT										alendar	Year 202	20								Caler	ıdar Yeaı	r 2021				L
0 0	R	FY	SERVICE	PROC QTY	PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U	J U L	A U G	S E P	O C T	N O V	D E C	J A N	F E B	M A R	A P R	M A Y	J U N	J U L	A U G	S E P	A N C
Sile	os -	Hardwa	are			-																									
	1	2018	MDA	10	0	10	-	-	-	-	-	-	-	-	-	2	-	1	-	1	-	2	2	2							0
	1	2019	MDA	12	. 0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	10
						,	0	N O	D E	J A	F E	M A	A P	M A	J	J	A U	S	0	N O	D E	J A	F E	M A	A P	M A	J	J U	A U	S E	
							Т	V	С	N	В	R	R	Y	N	L	G	Р	T	V	С	N	В	R	R	Y	N	L	G]

Exhibit P-21, Production Schedule: PB 2021 Mis Appropriation / Budget Activity / Budget Sub Activity / 0300D / 01 / 17 Cost Elements (Units in Each) ACCEPT PRIOR BAL	ctivity: P-1	1 Line Item Nu r 2008 / Ground Ba				Item Numb Silo Interfac	-	-	
(Units in Each) ACCEPT PRIOR BAL	Fiscal Y	Year 2022							
M PRIOR BAL						Fiscal Year 2023			E
		Calenda	ar Year 2022			Calenda	r Year 2023		L
O F DUE O N D C R PROC OCT AS OF C O E C O T V C C O O	J F M A E A N B R	A M J P A U R Y N	J A S U U E L G P	O N D C O E T V C	J F A E N B	A P	M J A U Y N	J A U U L G	S N E C
Silos - Hardware				· · · · · · · · · · · · · · · · · · ·	1				
1 2018 MDA 10 10 0								_	
1 2019 MDA 12 2 10 - 2 -	2 2 2	2	- 2						
O N D C O E T V C	J F M A E A N B R	A M J P A U R Y N	J A S U U E L G P	O N D C O E T V C	J F A E N B	A P	M J A U Y N	J A U U L G	S E P

Exhibit P-21, Production Schedule: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD08 / Ground Based Midcourse

Silo Interface Vaults/Silos

		Produc	tion Rates (Each /	Month)				Procurement Le	adtime (Months)			
MF	R					lni	tial			Red	rder	
Re #	f Manufacturer Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
	1 Boeing - AL/AK/AZ/CA/CO/ VA	1	1	6	6	0	20	20	6	0	20	20

[&]quot;A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD08 / Ground Based Midcourse

Program Elements for Code B Items: 0603882C

Other Related Program Elements: 0603882C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Gross/Weapon System Cost (\$ in Millions)	135.000	115.000	0.000	-	-	-	-	-	-	-	-	250.000
Net Procurement (P-1) (\$ in Millions)	135.000	115.000	0.000	-	-	-	-	-	-	-	-	250.000
Total Obligation Authority (\$ in Millions)	135.000	115.000	0.000	-	-	-	-	-	-	-	-	250.000

Description

N/A

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

MD08 / Ground Based Midcourse

P-1 Line Item Number / Title:

Program Elements for Code B Items: 0603882C

Other Related Program Elements: 0603882C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-10	Ground Based Midcourse			0 / 0.000	- / 115.000	69 / 0.000	- / -	- / -	- / -
P-10	Ground Based Interceptors (GBI)			0 / 56.000	1 / 0.000	- / 0.000	- / -	- / -	- / -
P-10	Silo Interface Vaults/Silos			10 / 79.000	12 / 0.000	- / 0.000	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost			10 / 135.000	13 / 115.000	69 / 0.000	- 1 -	- 1 -	- 1 -

^{*}Title represents the P-10 Title for Advance Procurement.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

N/A

Exhibit P-10, Advance Procureme Defense Agency	ent Requiren	nents Analysi	s (page 1	- Budget Funding Just	ificatio	n): PB 2021 Missile	Date: February 20	20	
Appropriation / Budget Activity / 0300D / 01 / 17	Budget Sub	Activity:		Item Number / Title: Fround Based Midcourse	9		P-5 Number / Title Ground Based Mic		
First System (2021) Award Date: January 2020	First Syste January 20	em (2021) Compl 20	etion Date:			Interval Between Syst 1 Months	ems:		
Ground Based Midcourse		Production L		Prior Years (Each)		FY 2019 (Each)	FY 2020 (Each)	FY 2021 (Each)	
Quantity			1	0		-	69		-
Cost Elements		When Req	•	Prior Years (\$ M)		FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	
CFE									
RKV Rescission			0	-		115.000	-		0.000
Total: CFE				0.000		115.000	0.000		0.000
Total Advance Procurement/Obligation A	uthority			0.000		115.000	0.000		-

Exhibit P-10, Advance Procurement Requirements Analys Defense Agency	sis (page 2 - B	Budget Funding .	Justification):	PB 2021 Missile	Date: Feb	ruary 2020	
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17		em Number / Title und Based Midco			P-5 Numb Ground Ba	er / Title: ased Midcourse	
				FY 20	21		
Cost Elements	QPA (Each)	Production Leadtime (Months)	Unit Cost	Contract Forecast Date	2021 Qty (Each)	For FY	Total Cost Request (\$ M)
CFE							
RKV Rescission		1					0.000
Total: CFE				·			0.000
Total Advance Procurement/Obligation Authority							-

Description:

Advanced Procurement

Exhibit P-10, Advance Procurement Defense Agency	ent Requirer	nents Analysi	s (page 1 -	· Budget Funding Justi	ificatio	on): PB 2021 Missile	Date: February 20	20
Appropriation / Budget Activity / 0300D / 01 / 17	Budget Sub	Activity:		Item Number / Title: Fround Based Midcourse			P-5 Number / Title Ground Based Inte	·-
First System (2021) Award Date: January 2018	First Syst April 2021	em (2021) Comple	etion Date:			Interval Between Syst 3 Months	ems:	
Ground Based Interceptors (C	BI)	Production L (Months		Prior Years (Each)		FY 2019 (Each)	FY 2020 (Each)	FY 2021 (Each)
Quantity			38	0		1	-	-
Cost Elements		When Req		Prior Years (\$ M)		FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)
Other								
Hardware FY18			0	56.000		-	-	0.00
Total: Other				56.000		0.000	0.000	0.00
Total Advance Procurement/Obligation A	uthority			56.000		0.000	0.000	-

Exhibit P-10, Advance Procurement Requirements Analy Defense Agency	sis (page 2 - B	Budget Funding .	Justification):	: PB 2021 Missile	Date: Feb	ruary 2020	
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17		em Number / Titl und Based Midco					rs (GBI)
				FY 2	021	For FY (\$ M)	
Cost Elements	QPA (Each)	Production Leadtime (Months)	Unit Cost	Contract Forecast Date	2021 Qty (Each)	For FY	Request
Other							
Hardware FY18		1					0.000
Total: Other							0.000

Description:

Long lead materials for Ground Based Interceptors

Total Advance Procurement/Obligation Authority

Exhibit P-10, Advance Procureme Defense Agency	ent Requiren	nents Analysi	s (page 1	- Budget Funding Justi	ificatio	n): PB 2021 Missile	Date: February 20	20	
Appropriation / Budget Activity / 0300D / 01 / 17	Budget Sub	Activity:		Item Number / Title: Fround Based Midcourse)		P-5 Number / Title Silo Interface Vaul		
First System (2021) Award Date: January 2018	First Syste September	em (2021) Compl 2019	etion Date:			Interval Between Syst 12 Months	tems:		
Silo Interface Vaults/Silos		Production L (Months		Prior Years (Each)		FY 2019 (Each)	FY 2020 (Each)	FY 2021 (Each)	
Quantity			20	10		12	-		-
Cost Elements		When Req	•	Prior Years (\$ M)		FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	
Other									
Hardware FY18			0	79.000	-	-	-		0.000
Total: Other				79.000		0.000	0.000		0.000
Total Advance Procurement/Obligation A	uthority			79.000		0.000	0.000		-

Defense Agency	sis (page 2 - Bi	udget Funding 、	Justification):	PB 2021 Missile	2021 Qty (Each) For FY Total Cos Reques: (\$M)		
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17		m Number / Title and Based Midco					
				FY 20	21	•	
Cost Elements	QPA (Each)	Production Leadtime (Months)	Unit Cost	Contract Forecast Date		For FY	Total Cost Request (\$ M)
Other				· · · · · · · · · · · · · · · · · · ·			
Hardware FY18	1						0.000
Total: Other							0.000
Total Advance Procurement/Obligation Authority							-

Description:Long lead materials for Silos

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD09 / AEGIS BMD

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): B

Program Elements for Code B Items: 0604881C. 0603892C

Other Related Program Elements: 0603892C

Line Item MDAP/MAIS Code: 362

Ellic Itelli MBAI /MAIO GGGC: 002												
	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	296	44	30	34	-	34	35	41	34	33	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	4,798.584	706.366	336.374	402.219	-	402.219	407.827	467.028	440.949	438.624	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	46.024	-	46.024	59.765	53.600	-	-	-	159.389
Net Procurement (P-1) (\$ in Millions)	4,798.584	706.366	336.374	356.195	-	356.195	348.062	413.428	440.949	438.624	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	96.995	44.901	-	44.901	17.493	-	-	-	-	159.389
Total Obligation Authority (\$ in Millions)	4,798.584	706.366	433.369	401.096	-	401.096	365.555	413.428	440.949	438.624	Continuing	Continuing
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	e corresponding	budget requests	are documente	d elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	44.144	13.498	12.786	11.997	-	11.997	12.515	13.450	-	-	Continuing	Continuing
Gross/Weapon System Unit Cost (\$ in Millions)	16.211	16.054	11.212	11.830	-	11.830	11.652	11.391	12.969	13.292	Continuing	Continuing

Description:

In accordance with the Consolidated Appropriations Act 2020, SM-3 Block IIA was transferred to MD14 from MD09 in FY 2020 and beyond. FY 2018 and FY 2019 costs are contained in MD09.

Net Procurement and Gross Weapon System costs includes all hardware and support costs and are detailed in separate P5s. Prior Year procurement 71 SM-3 Block IAs are not included.

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an operationally effective and supportable BMD capability to defend the nation, deployed forces, and allies. Aegis BMD aims to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. 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), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and SM-3 configuration enable Aegis BMD to provide an effective, supportable, and defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

The SM-3 Block IB improves Aegis BMD's ability to expand the BMD battlespace, engage longer range, more sophisticated ballistic missiles that may deploy countermeasures and launch in larger raid sizes. The SM-3 Block IB Kinetic Warhead's (KW) two color infra-red (IR) seeker and advanced signal processor provides a real-time discrimination and characterization capability while improving sensitivity for longer range targets and performance against more sophisticated threats. Additionally, the new Throttleable Divert and Attitude Control System (TDACS) KW divert engine has been upgraded over the SM-3 Block IA to provide a more flexible divert in order to maneuver the KW to intercept.

The SM-3 Block IIA provides greater capability over SM-3 Block IB, including increased velocity and range provided by a 21-inch diameter rocket motor propulsion stack, more than doubled seeker sensitivity, and more than tripled divert capability incorporated in an advanced KW. New component technologies include, but are not limited to: lightweight nosecone, advanced KW, 21-inch second stage rocket motor, and 21-inch third stage rocket motor. Working in concert with the SM-3 Block IB, the SM-3 Block IIA, will increase the BMDS defended area and increase the probability of kill against a larger threat set. The SM-3 Block IIA is also a critical part of the Aegis Ashore Missile Defense System Complex - Romania and Poland, and is also vital to defense efforts for Aegis afloat in the European and Indo-Pacific Commands. This will provide a more robust protection of Europe and the Indo-Pacific. The SM-3 Block IIA also provides defense against IRBMs and other threats.

LI MD09 - AEGIS BMD Missile Defense Agency **UNCLASSIFIED**

P-1 Line #34 Volume 2b - 43

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency

MD09 / AEGIS BMD

ID Code (A=Service Ready, B=Not Service Ready): B

Program Elements for Code B Items: 0604881C, 0603892C

Other Related Program Elements: 0603892C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Aegis BMD SM-3 Block IB	P-5a, P-21	В		276 / 4,236.337	34 / 417.555	30 / 336.374	34 / 402.219	- / -	34 / 402.219
P-5	Aegis BMD SM-3 Block IIA		В		20 / 562.247	10 / 288.811	- / 0.000	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				296 / 4,798.584	44 / 706.366	30 / 336.374	34 / 402.219	- 1 -	34 / 402.219

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

N/A

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

Aegis BMD SM-3 Block IB

MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	276	34	30	34	-	34
Gross/Weapon System Cost (\$ in Millions)	4,236.337	417.555	336.374	402.219	-	402.219
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	46.024	-	46.024
Net Procurement (P-1) (\$ in Millions)	4,236.337	417.555	336.374	356.195	-	356.195
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	96.995	44.901	-	44.901
Total Obligation Authority (\$ in Millions)	4,236.337	417.555	433.369	401.096	-	401.096
(The following Resource Summary rows are for informati	onal purposes only. The cor	responding budget requests	s are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	15.349	12.281	11.212	11.830	-	11.830

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

ID Code (A=Service Ready, B=Not Service Ready): B

	P	rior Years	3		FY 2019			FY 2020		F۱	/ 2021 Bas	e	F١	/ 2021 OC	0	FY	/ 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Flyaway Cost	'				'		·	'		'			'		'	'	'	
Recurring Cost																		
SM-3 Block IA Procurement ^(†)	10.800	71	766.765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SM-3 Block IB Procurement ^(†)	11.235	276	3,100.810	10.762	34	365.905	9.900	30	297.000	10.626	34	361.299	-	-	-	10.626	34	361.299
Subtotal: Recurring Cost	-	-	3,867.575	-	-	365.905	-	-	297.000	-	-	361.299	-	-	-	-	-	361.299
Subtotal: Flyaway Cost	-	-	3,867.575	-	-	365.905	-	-	297.000	-	-	361.299	-	-	-	-	-	361.299
Hardware Cost																		
Recurring Cost																		
Canisters Procurement SM-3 Block IA/IB (1)	0.236	289	68.067	0.272	35	9.518	0.253	30	7.576	0.252	34	8.583	-	-	-	0.252	34	8.583
Subtotal: Recurring Cost	-	-	68.067	-	-	9.518	-	-	7.576	-	-	8.583	-	-	-	-	-	8.583
Subtotal: Hardware Cost	-	-	68.067	-	-	9.518	-	-	7.576	-	-	8.583	-	-	-	-	-	8.583
Support Cost	,																	
Ballistic Barriers for Transportation SM-3 Block IB (2)	0.311	28	8.704	0.282	8	2.259	-	-	-	-	-	-	-	-	-	-	-	-
Cyber Security (3)	-	-	-	-	-	-	1.500	1	1.500	1.500	1	1.500	-	-	-	1.500	1	1.500
Diminishing Manufacturing Sources Mitigation (4)	13.854	1	13.854	3.461	1	3.461	3.660	1	3.660	3.733	1	3.733	-	-	-	3.733	1	3.733
SM-3 Block IB Investment Spares (5)	4.821	2	9.641	14.826	1	14.826	8.688	1	8.688	15.042	1	15.042	-	-	-	15.042	1	15.042

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P-1 Line #34

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

Item Number / Title [DODIC]:

0300D / 01 / 17

MD09 / AEGIS BMD

Aegis BMD SM-3 Block IB

ID Code (A=Service Ready, B=Not Service Ready) : B

MDAP/MAIS Code:

	P	rior Years	3		FY 2019			FY 2020		FY	/ 2021 Bas	se	F١	/ 2021 OC	0	FY	2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
SM-3 Block IB Obsolescence (6)	25.473	2	50.946	1.328	1	1.328	1.367	1	1.367	1.394	1	1.394	-	-	-	1.394	1	1.394
SM-3 Block IB Production Engineering (7)	29.325	7	205.277	6.598	1	6.598	4.080	1	4.080	4.162	1	4.162	-	-	-	4.162	1	4.162
SM-3 Block IB Service Life Evaluation Program (8)	4.865	2	9.729	2.000	1	2.000	2.000	1	2.000	2.000	1	2.000	-	-	-	2.000	1	2.000
SM-3 Block IB Systems Engineering And Integration (9)	2.544	1	2.544	11.660	1	11.660	10.503	1	10.503	4.506	1	4.506	-	-	-	4.506	1	4.506
Subtotal: Support Cost	-	-	300.695	-	-	42.132	-	-	31.798	-	-	32.337	-	-	-	-	-	32.337
Gross/Weapon System Cost	15.349	276	4,236.337	12.281	34	417.555	11.212	30	336.374	11.830	34	402.219	-	-	-	11.830	34	402.219

Remarks:

- (1) Canisters are required for each SM-3 procured.
- (2) SM-3 Transportation of Ballistic Barriers are required by Joint Service Insensitive Munitions Technical Panel (JSIMTP) and Naval Ordnance Safety and Security Activity (NOSSA) to transport missiles.
- (3) Cyber Security Support Certification & Accreditation planning and testing in accordance with the Operational Designated Accrediting Authority (ODAA) Process. Conduct certification and accreditation of classified systems and networks under The National Industrial Security Program Operating Manual (NISPOM). Ensure protection of trusted system networks and unclassified contractor networks containing DoD Information.
- (4) Diminishing Manufacturing Sources Mitigation (DMSM) allows Aegis Ballistic Missile Defense to mitigate the loss, or impending loss, of manufacturers of items or suppliers of items or of raw materials caused by several factors including new or evolving science, detection limits, toxicity values, and regulations related to chemicals and materials resulting in significant impact on the supply chain and industrial base. These issues have the potential to impact future combat systems and safety.
- (5) SM-3 Block IB Investment Spares are procured to coincide with the delivery of the missile and are required to support AURs during 4 year maintenance period.
- (6) Obsolescence monitoring and management is the program's most effective and efficient way to minimize materiel readiness risks, realize future savings during production and sustainment, and improve overall life-cycle management. Identifies risk associated with the 800 vendors/suppliers discontinuing production of a component or raw material and then properly mitigating impacts to production. If not identified early, such activities will impact production and Fleet deliveries.
- (7) Production Engineering supports SM-3 Guided Missile Round (GMR) production activities and issue resolution during manufacturing, assembly, testing, and missile integration. Funding provides production change validation, preparation, and configuration management, government prepared production acceptance procedures, production planning, Integrated Logistics Support (ILS) planning, coordination of government furnished information (GFI) and government furnished equipment (GFE), contract deliverable monitoring and prime contractor monitoring of cost/schedule performance. Also provides in-service engineering agent (ISEA) and technical direction agent (TDA) support.
- (8) SM-3 Block IB Service Life Evaluation Program includes testing and analysis to demonstrate the safety and suitability of the SM-3 for an extended service life goal of 16 years.

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Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agen	су	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 300D / 01 / 17	P-1 Line Item Number / Title: MD09 / AEGIS BMD	Item Number / Title [DODIC]: Aegis BMD SM-3 Block IB
Code (A=Service Ready, B=Not Service Ready) : B	MDAP/MAIS Code:	,
9) Systems Engineering and Integration - Addresses production technical management and control boards, engineering assessments of manufacturi documentation and test data prior to missile acceptance by the government	ng process improvement changes, engineering assessments of	ncludes improvement and efficiency activities such as configuration sub-vendor production issues, and engineering and quality review of
^{†)} indicates the presence of a P-5a		

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P-1 Line #34

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Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense AgencyDate: February 2020Appropriation / Budget Activity / Budget Sub Activity:P-1 Line Item Number / Title:
MD09 / AEGIS BMDItem Number / Title [DODIC]:
Aegis BMD SM-3 Block IB

Cost Elements	0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
SM-3 Block IA Procurement ^(†)		2009	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Feb 2008	Mar 2010	11	8.405	Y		Mar 2007
SM-3 Block IA Procurement ^(†)		2010	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Apr 2008	Aug 2010	24	8.119	Y		Mar 2007
SM-3 Block IA Procurement ^(†)		2011	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Aug 2012	Sep 2013	22	9.525	Y		Nov 2010
SM-3 Block IA Procurement ^(†)		2012	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Aug 2012	Jul 2014	14	9.867	Y		Aug 2011
SM-3 Block IB Procurement ^(†)		2012	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	May 2012	Dec 2013	14	13.400	Y		Aug 2011
SM-3 Block IB Procurement ^(†)		2013	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Jun 2013	Jun 2014	33	12.130	Y		Aug 2012
SM-3 Block IB Procurement ^(†)		2014	Raytheon / Tucson, AZ	SS / CPIF	Dahlgren, VA	Apr 2014	Jan 2016	52	10.236	Y		Aug 2013
SM-3 Block IB Procurement ^(†)		2015	Raytheon / Tucson, AZ	SS / FPIF	Dahlgren, VA	Mar 2015	Nov 2016	52	11.411	Y		Aug 2014
SM-3 Block IB Procurement ^(†)		2016	Raytheon / Tucson, AZ	SS / FPIF	Dahlgren, VA	Mar 2016	Oct 2018	46	11.538	Y		Aug 2015
SM-3 Block IB Procurement ^(†)		2017	Raytheon / Tucson, AZ	SS / FP	Dahlgren, VA	Mar 2017	Oct 2019	35	10.896	Y		Aug 2016
SM-3 Block IB Procurement ^(†)		2018	Raytheon / Tucson, AZ	SS / FPIF	Dahlgren VA	Apr 2019	Jan 2021	44	11.843	Y		Aug 2017

^(†) indicates the presence of a P-21

Ext	nibit	t P-21	, Pro	ducti	on Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	se Ag	ency											Date	: Feb	ruary	2020)			
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Exhibit P-21, Production Schedule: PB 2021 Missile Defense Agency Appropriation / Budget Activity / Budget Sub Activity: O300 D / 0 1 / 17 Cost Elements (Units in Each) Fig. 1 O2															IED	SSIF	CLA	UN													
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P-1 Line #34

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P-1 Line #34

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P-1 Line #34

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Exhibit P-21, Production Schedule: PB 2021 Missile Defense AgencyDate: February 2020Appropriation / Budget Activity / Budget Sub Activity:P-1 Line Item Number / Title:
MD09 / AEGIS BMDItem Number / Title [DODIC]:
Aegis BMD SM-3 Block IB

		Produc	tion Rates (Each /	Month)				Procurement Le	adtime (Months)				
MFR						lni	tial			Reo	rder		
Ref	Manufacturer				ALT	ALT	Manufacturing	Total	ALT	ALT	Manufacturing	Total	
#	Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	Prior to Oct 1	After Oct 1	PLT	After Oct 1	Prior to Oct 1	After Oct 1	PLT	After Oct 1	
1	Raytheon - Tucson, AZ				4	0	30	30	4	0	30	30	
2	Raytheon - Tucson, AZ	1	4	5	0	0	0	0	0	0	0	0	

[&]quot;A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

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Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency Date: February 2020 Appropriation / Budget Activity / Budget Sub Activity: Item Number / Title [DODIC]: P-1 Line Item Number / Title: 0300D / 01 / 17 MD09 / AEGIS BMD Aegis BMD SM-3 Block IIA MDAP/MAIS Code: ID Code (A=Service Ready, B=Not Service Ready) : B **Resource Summary FY 2021 Base** FY 2021 Total **Prior Years** FY 2019 FY 2020 **FY 2021 OCO** 20 Procurement Quantity (Units in Each) 10 562.247 Gross/Weapon System Cost (\$ in Millions) 288.811 0.000 Less PY Advance Procurement (\$ in Millions) 0.000 0.000 0.000 Net Procurement (P-1) (\$ in Millions) 562.247 288.811 0.000 _ Plus CY Advance Procurement (\$ in Millions) 0.000 0.000 0.000 _ _ Total Obligation Authority (\$ in Millions) 562.247 288.811 0.000 (The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.) Initial Spares (\$ in Millions) _ Gross/Weapon System Unit Cost (\$ in Millions) 28.112 28.881 0.000 _ Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding. **Prior Years** FY 2019 FY 2020 **FY 2021 Base FY 2021 OCO** FY 2021 Total Total Total Total Total Total Total **Unit Cost Unit Cost Unit Cost** Qty Cost **Unit Cost** Qty **Unit Cost** Qty **Unit Cost** Qty Qty Qty Cost Cost Cost Cost Cost **Cost Elements** (\$ M) (Each) (\$ M) (\$ M) (Each) (Each) (\$ M) (Each) (Each) (\$ M) (Each) (\$ M) Flyaway Cost Recurring Cost SM-3 Block IIA 26.849 20 536.974 27.356 10 273.559 Procurement Subtotal: Recurring Cost 273.559 536.974 _ Subtotal: Flvawav Cost 273.559 536.974 -Hardware Cost Recurring Cost Canisters Procurement SM-3 1.203 21 25.273 1.263 11 13.898 Block IIA (1) Subtotal: Recurring Cost 25.273 13.898 ----Subtotal: Hardware Cost 25.273 13.898 Support Cost SM-3 Block IIA 1.354 1.354 Production Engineering (6) Subtotal: Support Cost 1.354 -Gross/Weapon System 28.112 20 562.247 28.881 10 288.811 0.000 0.000 Cost Remarks: N/A

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P-1 Line #34

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

MD09 / AEGIS BMD

P-1 Line Item Number / Title:

Program Elements for Code B Items: 0604881C, 0603892C

Other Related Program Elements: 0603892C

Line Item MDAP/MAIS Code: 362

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	96.995	44.901	-	44.901	17.493	-	-	-	-	159.389
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	96.995	44.901	-	44.901	17.493	-	-	-	-	159.389
Total Obligation Authority (\$ in Millions)	0.000	0.000	96.995	44.901	-	44.901	17.493	-	-	-	-	159.389

Description:

The Missile Defense Agency intends to award a five year Multi-Year Procurement (MYP) contract for 174 Standard Missile-3 Block IBs in FY 2019 through FY 2023 (final delivery FY 2026). This multiyear contract strategy uses Economic Order Quantity Advance Procurement (EOQ AP) funding to provide the U.S. Government maximum savings in price and delivery schedule. No EOQ AP was appropriated in FY 2019 with \$96.995M requested in FY 2020. This MYP requests \$44.900M EOQ AP funding in FY 2021 which results in savings for bulk purchases of materials and components to reduce material costs and for investments in productivity enhancements to reduce labor costs. EOQ AP funding will be applied to the production of 76 FY 2022-FY 2023 All Up Rounds (AUR). EOQ AP funding will enable Raytheon Missile Systems to bulk order materials with long lead times, and authorize equipment suppliers and subcontractors to do the same with sufficient lead time to support the planned delivery schedule within the context of the multiyear funding, prices, and cancellation ceilings.

Many components have minimum buy quantities which may not be met under single year procurements, which result in increased unit costs. EOQ AP quantities will allow the prime contractor and subcontractors at all tiers to exceed minimum order quantities and capture cost avoidance on these components. Long-term Agreements will provide price discounts to guarantee business. Given EOQ AP, suppliers will have increased business and stability. Suppliers will implement innovative processes and capital investments necessary to reduce costs which result in missile unit cost savings. As a result of these process innovations and capital investments, obsolescence risks and costs are also expected to be minimized.

Procuring at a guaranteed rate of minimum production will also yield cost avoidances. Allowing the contractor to manage facilities and subcontractors to a guaranteed production rate will reduce costs by allowing the Prime and subcontractors to engage in activities including, but not limited to, reducing the number of production set-ups.

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P-1 Line #35 **Volume 2b - 59**

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

MD09 / AEGIS BMD

P-1 Line Item Number / Title:

Program Elements for Code B Items: 0604881C, 0603892C

Other Related Program Elements: 0603892C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-10	Aegis BMD SM-3 Block IB			276 / 0.000	34 / 0.000	30 / 96.995	34 / 44.901	- / -	34 / 44.901
P-40	Total Gross/Weapon System Cost			296 / 0.000	44 / 0.000	30 / 96.995	34 / 44.901	- 1 -	34 / 44.901

^{*}Title represents the P-10 Title for Advance Procurement.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

Economic Order Quantity Advanced Procurement (EOQ AP) procures long lead items in bulk for FY21 through FY23 lots in order to reduce the cost of subcontractor effort, material, and components as compared to single future fiscal year lot buys. The bulk advance buys enable greater production efficiencies and substantial cost savings over separate single year lot buys.

FY 2021 Advance Procurement (\$44.900M) funding will procure the following major items for the FY22 through FY23 lots:

- 1. Kinetic Warhead Guidance Unit (29 month lead time) with estimated savings of 18% across Future Year Defense Plan (FYDP).
- 2. Third Stage Rocket Motors (24 month lead time) with estimated savings of 13% across FYDP.
- 3. Throttling Divert Attitude Control System (25 month lead time) with estimated savings of 13% across FYDP.
- 4. MK-72 Booster (25 month lead time) with estimated savings of 12% across FYDP.
- 5. Guidance Section (Gravity Switch, Thermal Batteries) (23 month lead time) with estimated savings of 3% across FYDP.
- 6. Sub-components and raw materials to facilitate production efficiencies including Integrated Dewar Assembly Substrates, Fiber Material, Beryllium Material, Electronic Components, Printed Wire Boards, Housings, Antennas and Shell Material.

LI MD09 - AEGIS BMD Missile Defense Agency **UNCLASSIFIED**

Exhibit P-10, Advance Procurement Defense Agency	nt Requirer	nents Analysis	s (page 1 -	Budget Funding Just	ificat	ion): PB 2021 Missil	e Date: February 20	20	
Appropriation / Budget Activity / E 0300D / 01 / 17	udget Sub	Activity:		Item Number / Title: EGIS BMD			P-5 Number / Title Aegis BMD SM-3 E		
First System (2021) Award Date: January 2018	First Syste October 20	em (2021) Comple 20	tion Date:			Interval Between Sys 1 Months	stems:		
Aegis BMD SM-3 Block IB		Production Lo		Prior Years (Each)		FY 2019 (Each)	FY 2020 (Each)	FY 2021 (Each)	
Quantity			30	276		34	30		34
Cost Elements		When Requ		Prior Years (\$ M)		FY 2019 (\$ M)	FY 2020 (\$ M)	FY 2021 (\$ M)	
EOQ									
Aegis Advanced Procurement			0	-		-	96.995		44.901
Total: EOQ				0.000		0.000	96.995		44.901
Total Advance Procurement/Obligation Au	hority			0.000		0.000	96.995		44.901

Exhibit P-10, Advance Procurement Requirements Analy Defense Agency	sis (page 2 - B	Budget Funding .	Justification):	PB 2021 Missile	Date: Febr	ruary 2020	
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Ite MD09 / AE0	em Number / Titl GIS BMD	e:		P-5 Numb Aegis BMD	er / Title: D SM-3 Block IB	
				FY 20	21	-	
Cost Elements	QPA (Each)	Production Leadtime (Months)	Unit Cost	Contract Forecast Date	2021 Qty (Each)	For FY	Total Cost Request (\$ M)
EOQ							
Aegis Advanced Procurement		0					44.901
Total: EOQ							44.901
Total Advance Procurement/Obligation Authority							44.901

Description:

The Advance Procurement (AP) funding provides economic order quantity (EOQ) to reduce the cost of subcontractor effort, material, and components enabling greater production efficiencies and substantial cost savings.

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD11 / BMDS Sensors

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0603881C, 0603884C

Other Related Program Elements: 0603881C, 0603884C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	5	-	-	-	-	-	-	-	-	-	-	5
Gross/Weapon System Cost (\$ in Millions)	1,189.537	13.585	10.046	-	-	-	5.593	22.145	17.065	17.009	-	1,274.980
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,189.537	13.585	10.046	-	-	-	5.593	22.145	17.065	17.009	-	1,274.980
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1,189.537	13.585	10.046	-	-	-	5.593	22.145	17.065	17.009	-	1,274.980
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Ti	ne corresponding	g budget request	s are documente	ed elsewhere.)	!			
Initial Spares (\$ in Millions)	10.901	-	-	-	-	-	-	-	-	-	-	10.901
Flyaway Unit Cost (\$ in Millions)	172.502	-	-	-	-	-	-	-	-	-	Continuing	Continuing
Gross/Weapon System Unit Cost (\$ in Millions)	237.907	0.000	0.000	-	-	-	-	-	-	-	-	254.996

Description:

The Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) radar is an integral component of the Missile Defense System (MDS) layered network of sensors. It is easily transported and can be configured to operate as either a Terminal High Altitude Area Defense (THAAD) Fire Unit Radar (terminal mode) or Forward-Based Radar. The forward-based AN/TPY-2 provides detection and tracking during the boost phase. This significantly reduces the uncertainty in target discrimination and reaction time, increasing the probability of a successful BMDS engagement. In forward-based mode, the AN/TPY-2 also provides acquisition and track data via the BMDS Command, Control, Battle Management and Communications (C2BMC) and Link 16 to the Aegis missile defense system for cueing. The AN/TPY-2 used in terminal mode is an integral component of the THAAD Battery. The THAAD battery radar is capable of tracking multiple threats and multiple interceptors during engagements in the terminal phase. It provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for fire control.

Prior year procurement funding acquired five AN/TPY-2 Radars required to complete the THAAD Battery acquisitions. "Procurement Quantity" and "Flyaway Unit Cost" represent AN/TPY-2 radar systems ((i.e. one Antenna Equipment Unit (AEU), one Cooling Equipment Unit (CEU), one Electronic Equipment Unit (EEU), and two Prime Power Units (PPU)) only, but the "Net Procurement" cost plus the Initial Spares amount includes the costs of all hardware.

The AN/TPY-2 EEU Modification Kits and Radar Field Upgrade (RAFU) Kits provided updated processing capabilities and added a cybersecurity server in the EEUs in both Terminal and Forward-based modes. The AEU transformers include design improvements to extend the life of this mission critical component.

The secure server procurement updates the existing servers and enhances cyber protection for the fleet.

The Change Notice procurement will procure CEU modernization kits and bring the fleets CEUs into a common, more reliable configuration.

The Digital Receiver/Exciter (REX) redesign kit procurement will upgrade from the current analog REX technology to a modern digital capability increasing reliability and spares availability to the fleet.

The COBRA DANE procurement addressed parts obsolescence concerns. Modern, supportable designs eliminated unsupportable parts. Starting in FY20, the United States Air Force (USAF) is responsible for procurement of obsolete components.

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P-1 Line #36

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD11 / BMDS Sensors

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0603881C, 0603884C

Other Related Program Elements: 0603881C, 0603884C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	BMDS AN/TPY-2 Radars	P-5a, P-21	Α		5 / 1,189.537	- / 13.585	- / 10.046	- / -	- / -	- / -
P-40	Total Gross/Weapon System Cost				5 / 1,189.537	- / 13.585	- / 10.046	- 1 -	- 1 -	- 1 -

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

FY 2021 through FY 2025 base procurement provides:

- Secure servers to upgrade the existing servers and enhance cyber protection for the fleet.
- Change Notice kits to procure CEU modernization kits and bring the fleet's CEUs into a common, more reliable configuration.
- Digital Receiver/Exciter (REX) redesign kits to upgrade the current analog REX technology to a modern digital capability increasing reliability and availability to the fleet.

The decrease from FY20 to FY21 reflects completion of the procurement of AEU Transformers, EEU Mod kits, and RAFU kits.

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P-1 Line #36

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD11 / BMDS Sensors

BMDS AN/TPY-2 Radars

ID Code (A=Service Ready, B=Not Service Ready): A		МІ	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	5	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1,189.537	13.585	10.046	-	-	-
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,189.537	13.585	10.046	-	-	-
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	1,189.537	13.585	10.046	-	-	-
(The following Resource Summary rows are for informati	onal purposes only. The cor	responding budget request	s are documented elsewher	re.)		?
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	237.907	0.000	0.000	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	F	Prior Years	3		FY 2019			FY 2020		F۱	/ 2021 Ba	se	F	/ 2021 OC	0	F	/ 2021 Tot	tal
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
lardware Cost				·								'	·					
Recurring Cost	_																	_
AN/TPY-2 Secure Servers ^(†)	-	-	-	1.862	2	3.724	-	-	-	-	-	-	-	-	-	-	-	
Antenna Equipment Unit (AEU) ^(†)	130.482	5	652.411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Antenna Equipment Unit (AEU) Transformer ^(†)	1.267	6	7.602	0.727	2	1.453	0.869	1	0.869	-	-	-	-	-	-	-	-	
COBRA DANE Transmitter Group Replacement ^(†)	11.000	1	11.000	8.408	1	8.408	-	-	-	-	-	-	-	-	-	-	-	
Cooling Equipment Unit (CEU) ^(†)	6.996	5	34.982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Spares ^(†)	9.742	3	29.227	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Electronic Equipment Unit (EEU) ^(†)	20.914	5	104.572	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Electronic Equipment Unit (EEU) Modification Kit ^(†)	4.850	5	24.248	-	-	-	2.979	2	5.957	-	-	-	-	-	-	-	-	
Float Antenna Equipment Unit (AEU) ^(†)	62.019	1	62.019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense	ense Agency
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Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17

P-1 Line Item Number / Title:

Item Number / Title [DODIC]:

73000701717

MD11 / BMDS Sensors

BMDS AN/TPY-2 Radars

ID Code (A=Service Ready, B=Not Service Ready): A

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

MDAP/MAIS Code:

	P	rior Years	;		FY 2019			FY 2020		F۱	1 2021 Ba	se	FY	/ 2021 OC	0	FY	' 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Float Cooling Equipment Unit (CEU) ^(†)	12.929	2	25.857	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Float Electronic Equipment Unit (EEU) ^(†)	21.491	2	42.982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Forward-Based Mode Prime Power Units (PPU) ^(†)	10.985	4	43.940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Prime Power Unit (PPUs - 2 each radar system) ^(†)	14.109	5	70.545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Radar Field Upgrade (RAFU) Kit ^(†)	1.450	1	1.450	-	-	-	1.610	2	3.220	-	-	-	-	-	-	-	-	
Transmit/Receive Integrated Microwave Module (TRIMMs) ^(†)	59.840	1	59.840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Recurring Cost	-	-	1,170.675	-	-	13.585	-	-	10.046	-	-	-	-	-	-	-	-	
Non Recurring Cost									,									
Contractor Certification ^(†)	2.862	1	2.862	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Non Recurring Cost	-	-	2.862	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Hardware Cost	-	-	1,173.537	-	-	13.585	-	-	10.046	-	-	-	-	-	-	-	-	
Support Cost													,					
Program Support*	16.000	1	16.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Subtotal: Support Cost	-	-	16.000	-	-	-	-	-	-	-	-	-	-		-	-	-	
Gross/Weapon System Cost	237.907	5	1,189.537	0.000	-	13.585	0.000	-	10.046	-	-	-	-	-	-	-	-	

Remarks:

AN/TPY-2 Radar consists of one Antenna Equipment Unit (AEU), one Cooling Equipment Unit (CEU), one Electronic Equipment Unit (EEU) and two Prime Power Units (PPUs).

(†) indicates the presence of a P-5a

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P-1 Line #36

Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity: P-1 Line Item Number / Title:

0300D / 01 / 17

MD11 / BMDS Sensors

Item Number / Title [DODIC]:

BMDS AN/TPY-2 Radars

Date: February 2020

3000701717			IVI	D11 / BIMD2 Set	isors			BIVID	S AIN/IPY	-2 Ra	aars	
Cost Elements	0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issu
AN/TPY-2 Secure Servers - Lot ^(†)		2019	Raytheon / Woburn, MA	C/BA	MDA, Huntsville, AL	Feb 2019	Aug 2020	, ,	1,862,000.00	0 N		Jun 2018
Antenna Equipment Unit (AEU) ^(†)		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	144.290	Υ		
Antenna Equipment Unit (AEU) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	144.090	Υ		
Antenna Equipment Unit (AEU) - 1 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	126.400	Υ		
Antenna Equipment Unit (AEU) - $2^{(\dagger)}$		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	126.400	Υ		
Antenna Equipment Unit (AEU) Transformer ^(†)		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Sep 2015	3	1.775	Υ		
Antenna Equipment Unit (AEU) Transformer ^(†)		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Sep 2016	1	0.410	Υ		
Antenna Equipment Unit (AEU) Transformer ^(†)		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Sep 2017	1	0.919	Y		
Antenna Equipment Unit (AEU) Transformer ^(†)		2018	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2017	Sep 2018	1	0.947	Y		
Antenna Equipment Unit (AEU) Transformer ^(†)		2019	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2018	Sep 2019	2	0.978	Υ		
Antenna Equipment Unit (AEU) Transformer ^(†)		2020	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2019	Sep 2020	1	0.869	N		
COBRA DANE Transmitter Group Replacement ^(†)		2018	Raytheon / Washington, D.C.	C / IDIQ	MDA, Huntsville, AL	Apr 2018	Apr 2019	1	11.000	Υ		
COBRA DANE Transmitter Group Replacement ^(†)		2019	Raytheon / Washington, D.C.	C / IDIQ	MDA, Huntsville, AL	Jun 2019	Jun 2020	1	8.000	Υ		
Cooling Equipment Unit (CEU) ^(†)		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	7.800	Υ		
Cooling Equipment Unit (CEU) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	7.668	Υ		
Cooling Equipment Unit (CEU) - 1 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	6.802	Υ		
Cooling Equipment Unit (CEU) - $2^{(\dagger)}$		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	6.802	Υ		
Critical Spares ^(†)		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	May 2014	May 2015	1	14.361	Y		
Critical Spares ^(†)		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Dec 2015	1	11.391	Υ		
Critical Spares ^(†)		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Dec 2016	1	3.475	Y		
Electronic Equipment Unit (EEU) ^(†)		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	23.400	Υ		

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P-1 Line #36

Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D / 01 / 17

MD11 / BMDS Sensors

Item Number / Title [DODIC]:

BMDS AN/TPY-2 Radars

Date: February 2020

Cost Elements	0 C 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
Electronic Equipment Unit (EEU) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	23.000	Y		
Electronic Equipment Unit (EEU) - 1 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	20.220	Y		
Electronic Equipment Unit (EEU) - 2 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	20.220	Y		
Electronic Equipment Unit (EEU) Modification Kit ^(†)		2015	Raytheon / Woburn, MA	SS / FFP	М	Dec 2014	Jun 2015	3	2.795	Y		
Electronic Equipment Unit (EEU) Modification Kit ^(†)		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Mar 2016	Sep 2016	1	3.183	Y		
Electronic Equipment Unit (EEU) Modification Kit ^(†)		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Jun 2017	1	3.134	Y		
Electronic Equipment Unit (EEU) Modification Kit ^(†)		2020	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2019	Jun 2020	2	2.979	Y		
Float Antenna Equipment Unit (AEU) ^(†)		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Jun 2018	1	62.019	Y		
Float Cooling Equipment Unit (CEU) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	1	7.140	Y		
Float Cooling Equipment Unit (CEU) ^(†)		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Sep 2014	Dec 2015	1	18.721	Y		
Float Electronic Equipment Unit (EEU) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	1	20.260	Y		
Float Electronic Equipment Unit (EEU) ^(†)		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Sep 2014	Sep 2016	1	22.718	Y		
Forward-Based Mode Prime Power Units $(PPU)^{(\dagger)}$		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Dec 2014	4	10.985	Y		
Prime Power Unit (PPUs - 2 each radar system) ^(†)		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	15.600	Y		
Prime Power Unit (PPUs - 2 each radar system) ^(†)		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	15.336	Y		
Prime Power Unit (PPUs - 2 each radar system) - 1 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	13.895	Y		
Prime Power Unit (PPUs - 2 each radar system) - 2 ^(†)		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	13.895	Y		
Radar Field Upgrade (RAFU) Kit ^(†)		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Jun 2017	1	1.450	Y		
Radar Field Upgrade (RAFU) Kit		2020	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2019	Jun 2020	2	1.610	Y		

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P-1 Line #36

Exhibit P-5a, Procurement History and Planning: PB 2021	Missile Defense Agency	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD11 / BMDS Sensors	Item Number / Title [DODIC]: BMDS AN/TPY-2 Radars

Cost Elements	0 C 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issue Date
Transmit/Receive Integrated Microwave Module (TRIMMs) ^(†)		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Jun 2016	1	59.840	Y		
Contractor Certification ^(†)		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Dec 2015	1	2.862	Y		

^(†) indicates the presence of a P-21

Remarks: N/A

Appropriation / Budget 0300D / 01 / 17 Cost Elements (Units in Each)	Activit	ty / E	Budge	At Q11	h 1 a	4::4																_					
(Units in Each)			ŭ	et Su	D AC	tivity			Line 11 / B				Title	:						Item BMD		iber / I/TPY			DIC]:		
								Fiscal Y	ear 2010											Fiscal Ye	ear 2011						B
	CCEPT			_						(Calendar	Year 20	10								Caler	dar Yea	r 2011				Ĺ
D F PROC	TO 1 C	BAL DUE S OF	0	N O	D E C	J A	F E	M A	A P	M A	J J	J J	A U	S E P	0	N O V	D E	J A	F E	M A	A P	M A Y	J	J	A U	S E	A N C
FY SERVICE QTY	2009 1	ост	Т	V	- C	N	В	R	R	Y	N	L	G	P	Т	V	С	N	В	R	R	Y	N	L	G	Р	Е
1 2019 MDA 2	0	2																									
Antenna Equipment Unit (AEU)												,															
2 2010 MDA 1	0	1	_								Α -	-	Τ.		- 1	-	-	-	- 1	-	_	_	-	_	_		
2 2012 MDA 2	0	2																									
Antenna Equipment Unit (AEU) - 1		-																									
2 2013 MDA 1	0	1																									
Antenna Equipment Unit (AEU) - 2		- 1																									
2 2013 MDA 1	0	1																									
Antenna Equipment Unit (AEU) Transfor	mer																										
3 2015 MDA 3	0	3																									
3 2016 MDA 1	0	1																									_
3 2017 MDA 1	0	1																									
3 2018 MDA 1	0	1																									
3 2019 MDA 2	0	2																									
3 2020 MDA 1	0	1																									
COBRA DANE Transmitter Group Repla	cement																										
4 2018 MDA 1	0	1																									
4 2019 MDA 1	0	1																									
Cooling Equipment Unit (CEU)	·																										
5 2010 MDA 1	0	1									Α -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5 2012 MDA 2	0	2																									
Cooling Equipment Unit (CEU) - 1																											
5 2013 MDA 1	0	1																									
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P-1 Line #36

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P-1 Line #36 **Volume 2b - 71**

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Exhibit F	P-21, Pr	oducti	on Sc	hedul	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	: Fel	oruary	2020)			
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Exhibit F																		_						oruary					
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Exhibit I	P-21, Pr	oducti	on Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	e: Feb	ruary	2020)			
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Exhibit F	P-21, Pr	oducti	on Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date	e: Fel	oruary	2020)			
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P-1 Line #36

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Exhibit P-21, Production Schedule: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD11 / BMDS Sensors

BMDS AN/TPY-2 Radars

			-								
	Produc	tion Rates (Each /	Month)				Procurement Le	adtime (Months)			
					Ini	tial			Rec	order	
Manufacturer Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
Raytheon - Woburn, MA				9	0	6	6	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	3	30	33	0	0	0	0
Raytheon - Woburn, MA	1	4	4	2	3	9	12	2	3	9	12
Raytheon - Washington, D.C.	1	1	1	3	2	12	14	3	2	12	14
Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	2	12	14	4	2	12	14
Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
Raytheon - Woburn, MA	1	2	4	2	3	6	9	2	3	6	9
Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	2	15	17	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	2	24	26	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	2	24	26	0	0	0	0
Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
Raytheon - Woburn, MA	1	2	4	2	3	6	9	2	3	6	9
Raytheon - Woburn, MA	1	1	4	4	2	18	20	4	2	18	20
Raytheon - Woburn, MA	1	1	1	3	2	12	14	3	2	12	14
		Manufacturer Name - Location Raytheon - Woburn, MA	Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 Raytheon - Woburn, MA 1 1 Raytheon - Woburn, MA 1 4 Raytheon - Woburn, MA 1 1 Raytheon - Woburn, MA 1 2 Raytheon - Woburn, MA 1 1 Raytheon - Woburn, MA 1 1 <td>Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 Raytheon - Woburn, MA 1 1 4 Raytheon - Woburn, MA 1 4 4 Raytheon - Woburn, MA 1 1 1 Raytheon - Woburn, MA 1 1 4 Raytheon - Woburn, MA</td> <td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 ALT Prior to Oct 1 Raytheon - Woburn, MA 9<td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Raytheon - Woburn, MA 9 0 Raytheon - Woburn, MA 1 1 4 2 3 Raytheon - Woburn, MA 1 1 1 3 2 Raytheon - Washington, D.C. 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2</td><td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Raytheon - Woburn, MA 9 0 6 Raytheon - Woburn, MA 1 1 4 4 3 30 Raytheon - Woburn, MA 1 1 1 3 2 12 Raytheon - Washington, D.C. 1 1 1 3 2 12 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4</td><td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Total After Oct 1 Raytheon - Woburn, MA 1 1 4 4 3 3 3 3 Raytheon - Woburn, MA 1 4 4 2 3 9 112 Raytheon - Woburn, MA 1 1 4 4 2 3 9 12 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 12 14 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 3 32 32 14 14 4 4 2 30 33 32 3 32 33 33 33 33 32 3 32 34 4 4 4 4 2 30 33 32 3 34 4 4</td><td>Manufacturer Name - 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Woburn, MA 1 1 4 Raytheon - Woburn, MA	Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 ALT Prior to Oct 1 Raytheon - Woburn, MA 9 <td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Raytheon - Woburn, MA 9 0 Raytheon - Woburn, MA 1 1 4 2 3 Raytheon - Woburn, MA 1 1 1 3 2 Raytheon - Washington, D.C. 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2</td> <td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Raytheon - Woburn, MA 9 0 6 Raytheon - Woburn, MA 1 1 4 4 3 30 Raytheon - Woburn, MA 1 1 1 3 2 12 Raytheon - Washington, D.C. 1 1 1 3 2 12 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4</td> <td>Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Total After Oct 1 Raytheon - Woburn, MA 1 1 4 4 3 3 3 3 Raytheon - Woburn, MA 1 4 4 2 3 9 112 Raytheon - Woburn, MA 1 1 4 4 2 3 9 12 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 12 14 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 3 32 32 14 14 4 4 2 30 33 32 3 32 33 33 33 33 32 3 32 34 4 4 4 4 2 30 33 32 3 34 4 4</td> <td>Manufacturer Name - Location MSR For 2021 Inable 18-5 For 2021 MAX For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT ALT ALT ALT ART Manufacturing After Oct 1 Manufacturing PLT Total After Oct 1 ACT Prior to Oct 1 Raytheon - Woburn, MA 1 1 4 9 0 6 6 0 Raytheon - Woburn, MA 1 1 4 2 3 9 112 2 Raytheon - Woburn, MA 1 1 1 3 2 12 14 3 3 3 0 3 0 2 2 2 12 14 3 3 0 3 3 0 0 3 0 0 3 0 0 3 0 0 1 1 2 2 3 0 1 1 3 4 1 1 3 1 1 1 4 4 1 2 1 1 1 4 1 1</td> <td>Manufacturer Name - Location MSR For 2021 La-5 For 2021 MAX For 2021 MAX For 2021 ALT prior to Oct 1 ALT ALT Alt Marker Oct 1 Manufacturing PLT Author Cat In Total Alt Meter Oct 1 PALT prior to Oct 1 ALT Alt Prior to Oct 1 Alt Prior to Oct 1 Alt Prior to Oct 1 Alt PLT Alt PLT Meter Oct 1 Alt Prior to Oct 1 Alt Pl Alt Pl Alt Prior to Oct 1 Alt Pr</td> <td>Manufacturer Name LocationMary For 2021Name Sero 2021</td>	Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Raytheon - Woburn, MA 9 0 Raytheon - Woburn, MA 1 1 4 2 3 Raytheon - Woburn, MA 1 1 1 3 2 Raytheon - Washington, D.C. 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2 Raytheon - Woburn, MA 1 1 1 4 4 2	Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Raytheon - Woburn, MA 9 0 6 Raytheon - Woburn, MA 1 1 4 4 3 30 Raytheon - Woburn, MA 1 1 1 3 2 12 Raytheon - Washington, D.C. 1 1 1 3 2 12 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4 4 2 30 Raytheon - Woburn, MA 1 1 4	Manufacturer Name - Location MSR For 2021 1-8-5 For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT After Oct 1 Manufacturing PLT Total After Oct 1 Raytheon - Woburn, MA 1 1 4 4 3 3 3 3 Raytheon - Woburn, MA 1 4 4 2 3 9 112 Raytheon - Woburn, MA 1 1 4 4 2 3 9 12 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 12 14 Raytheon - Woburn, MA 1 1 4 4 2 30 33 32 3 32 32 14 14 4 4 2 30 33 32 3 32 33 33 33 33 32 3 32 34 4 4 4 4 2 30 33 32 3 34 4 4	Manufacturer Name - Location MSR For 2021 Inable 18-5 For 2021 MAX For 2021 MAX For 2021 MAX For 2021 ALT Prior to Oct 1 ALT ALT ALT ALT ART Manufacturing After Oct 1 Manufacturing PLT Total After Oct 1 ACT Prior to Oct 1 Raytheon - Woburn, MA 1 1 4 9 0 6 6 0 Raytheon - Woburn, MA 1 1 4 2 3 9 112 2 Raytheon - Woburn, MA 1 1 1 3 2 12 14 3 3 3 0 3 0 2 2 2 12 14 3 3 0 3 3 0 0 3 0 0 3 0 0 3 0 0 1 1 2 2 3 0 1 1 3 4 1 1 3 1 1 1 4 4 1 2 1 1 1 4 1 1	Manufacturer Name - Location MSR For 2021 La-5 For 2021 MAX For 2021 MAX For 2021 ALT prior to Oct 1 ALT ALT Alt Marker Oct 1 Manufacturing PLT Author Cat In Total Alt Meter Oct 1 PALT prior to Oct 1 ALT Alt Prior to Oct 1 Alt Prior to Oct 1 Alt Prior to Oct 1 Alt PLT Alt PLT Meter Oct 1 Alt Prior to Oct 1 Alt Pl Alt Pl Alt Prior to Oct 1 Alt Pr	Manufacturer Name LocationMary For 2021Name Sero 2021

[&]quot;A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

LI MD11 - BMDS Sensors Missile Defense Agency UNCLASSIFIED
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P-1 Line #36

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD14 / SM-3 Block IIA

Equipment, Missile Defense Agency ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0604881C. 0603892C

Other Related Program Elements: 0603892C, 0604878C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	0	-	7	6	-	6	3	3	51	50	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322	131.869	127.027	1,180.110	1,108.168	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322	131.869	127.027	1,180.110	1,108.168	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322	131.869	127.027	1,180.110	1,108.168	Continuing	Continuing
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	e corresponding	budget request	s are documente	d elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	0.000	0.000	34.000	36.387	-	36.387	43.956	42.342	23.139	22.163	Continuing	Continuing

Description:

In accordance with the Consolidated Appropriations Act 2020, SM-3 Block IIA was transferred to MD14 from MD09 in FY 2020 and beyond. FY 2018 and FY 2019 costs are contained in MD09.

Net Procurement and Gross Weapon System costs includes all hardware and support costs including canisters, production engineering, obsolescence and system engineering and integration and are detailed in separate P5s.

The Aegis Ballistic Missile Defense (BMD) mission is to deliver an operationally effective and supportable BMD capability to defend the nation, deployed forces, and allies. Aegis BMD aims to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. 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), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and SM-3 configuration enable Aegis BMD to provide an effective, supportable, and defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

The SM-3 Block IB improves Aegis BMD's ability to expand the BMD battlespace, engage longer range, more sophisticated ballistic missiles that may deploy countermeasures and launch in larger raid sizes. The SM-3 Block IB Kinetic Warhead's (KW) two color infra-red (IR) seeker and advanced signal processor provides a real-time discrimination and characterization capability while improving sensitivity for longer range targets and performance against more sophisticated threats. Additionally, the new Throttleable Divert and Attitude Control System (TDACS) KW divert engine has been upgraded over the SM-3 Block IA to provide a more flexible divert in order to maneuver the KW to intercept.

The SM-3 Block IIA provides greater capability over SM-3 Block IB, including increased velocity and range provided by a 21-inch diameter rocket motor propulsion stack, more than doubled seeker sensitivity, and more than tripled divert capability incorporated in an advanced KW. New component technologies include, but are not limited to: lightweight nosecone, advanced KW, 21-inch second stage rocket motor, and 21inch third stage rocket motor. Working in concert with the SM-3 Block IB, the SM-3 Block IIA, will increase the BMDS defended area and increase the probability of kill against a larger threat set. The SM-3 Block IIA is also a critical part of the Aegis Ashore Missile Defense System Complex - Romania and Poland, and is also vital to defense efforts for Aegis afloat in the European and Indo-Pacific Commands. This will provide a more robust protection of Europe and the Indo-Pacific. The SM-3 Block IIA also provides defense against IRBMs and other threats.

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Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD14 / SM-3 Block IIA

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0604881C, 0603892C

Other Related Program Elements: 0603892C, 0604878C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Seabased BMD SM-3 Blk IIA		Α		0 / 0.000	- / 0.000	7 / 238.000	6 / 218.322	- / -	6 / 218.322
P-40	Total Gross/Weapon System Cost				0 / 0.000	- / 0.000	7 / 238.000	6 / 218.322	- 1 -	6 / 218.322

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

N/A

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

Item Number / Title [DODIC]:

MD14 / SM-3 Block IIA

Seabased BMD SM-3 Blk IIA

ID Code (A=Service Ready, B=Not Service Ready) : A		M	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	0	-	7	6	-	6
Gross/Weapon System Cost (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	0.000	0.000	238.000	218.322	-	218.322
(The following Resource Summary rows are for information	onal purposes only. The cor	responding budget request	s are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	0.000	0.000	34.000	36.387	-	36.387

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	P	rior Years	;		FY 2019			FY 2020		FY	' 2021 Bas	se	FY	′ 2021 OC	:0	FY	2021 Tot	.al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)									
Flyaway Cost																		
Recurring Cost																		
SBMD SM-3 Block IIA	-	-	-	-	-	-	27.348	7	191.436	26.227	6	157.360	-	-	-	26.227	6	157.3
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	191.436	-	-	157.360	-	-	-	-	-	157.
Subtotal: Flyaway Cost	-	-	-	-	-	-	-	-	191.436	-	-	157.360	-	-	-	-	-	157.3
Hardware Cost															,	•		
Recurring Cost																		
Canisters Procurement SM-3 Block IIA (1)	-	-	-	-	-	-	1.054	8	8.433	1.054	7	7.378	-	-	-	1.054	7	7.3
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	8.433	-	-	7.378	-	-	-	-	-	7.3
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	8.433	-	-	7.378	-	-	-	-	-	7.3
Support Cost																		
SM-3 BLK IIA Investment Spares (2)	-	-	-	-	-	-	9.630	1	9.630	21.762	1	21.762	-	-	-	21.762	1	21.7
SM-3 BLK IIA Service Life Evaluation Programs (3)	-	-	-	-	-	-	20.645	1	20.645	20.146	1	20.146	-	-	-	20.146	1	20.1
SM-3 Block IIA Obsolescence (5)	-	-	-	-	-	-	4.860	1	4.860	5.001	1	5.001	-	-	-	5.001	1	5.0
SM-3 Block IIA Production Engineering (6)	-	-	-	-	-	-	2.996	1	2.996	6.675	1	6.675	-	-	-	6.675	1	6.6
Subtotal: Support Cost	-	-		-	-	-	-	-	38.131	-	-	53.584	-	-	-	-	-	53.5

LI MD14 - SM-3 Block IIA Missile Defense Agency UNCLASSIFIED
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Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

Item Number / Title [DODIC]:

0300D / 01 / 17

MD14 / SM-3 Block IIA

Seabased BMD SM-3 Blk IIA

ID Code (A=Service Ready, B=Not Service Ready): A

MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

		Prior Years			FY 2019			FY 2020		EV	′ 2021 Bas		E	Y 2021 OC	0	E	Y 2021 Tot	ol.
	<u>'</u>	- Hor rears	>		F1 2019			F1 2020		г	2021 Das	e e	Г	1 2021 00	·U	Г	1 2021 101	aı
			Total			Total			Total			Total			Total			Total
	Unit Cost	Qty	Cost	Unit Cost	Qty	Cost	Unit Cost	Qty	Cost	Unit Cost	Qty	Cost	Unit Cost	Qty	Cost	Unit Cost	Qty	Cost
Cost Elements	(\$ M)	(Each)	(\$ M)	(\$ M)	(Each)	(\$ M)	(\$ M)	(Each)	(\$ M)	(\$ M)	(Each)	(\$ M)	(\$ M)	(Each)	(\$ M)	(\$ M)	(Each)	(\$ M)
Gross/Weapon System Cost	0.000	0	0.000	0.000	-	0.000	34.000	7	238.000	36.387	6	218.322	-	-	-	36.387	6	218.322

Remarks:

N/A

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD26 / Arrow 3 Upper Tier System

ID Code (A=Service Ready, B=Not Service Ready): A Program Elements for Code B Items: N/A

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	3	1	1	1	-	1	1	1	1	1	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000	62.000	90.000	90.000	90.000	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000	62.000	90.000	90.000	90.000	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000	62.000	90.000	90.000	90.000	Continuing	Continuing
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	ne corresponding	g budget request:	s are documente	d elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	85.000	80.000	55.000	77.000	-	77.000	62.000	90.000	90.000	90.000	Continuing	Continuing

Description:

For procurement of Arrow Weapon System (AWS) components. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with funding.

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD26 / Arrow 3 Upper Tier System

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Israeli Program Procurement		Α		3 / 255.000	1 / 80.000	1 / 55.000	1 / 77.000	- / -	1 / 77.000
P-40	Total Gross/Weapon System Cost				3 / 255.000	1 / 80.000	1 / 55.000	1 / 77.000	- 1 -	1 / 77.000

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

For procurement of AWS components.

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

P-1 Line Item Number / Title:

MD26 / Arrow 3 Upper Tier System

Israeli Program Procurement

MDAD/MAIO Ossiss

ID Code (A=Service Ready, B=Not Service Ready): A		ML	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	3	1	1	1	-	1
Gross/Weapon System Cost (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	255.000	80.000	55.000	77.000	-	77.000
(The following Resource Summary rows are for informat	ional purposes only. The cor	responding budget requests	s are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	85.000	80.000	55.000	77.000	-	77.000

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

note: Subtotals or Lotals in this Exhibit P-5 may not be exact or sum exactly due to rounding.																		
Prior Years			FY 2019			FY 2020			FY 2021 Base			FY 2021 OCO			FY 2021 Total			
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)
Hardware Cost	Hardware Cost																	
Recurring Cost																		
Israeli Programs	85.000	3	255.000	80.000	1	80.000	55.000	1	55.000	77.000	1	77.000	-	-	-	77.000	1	77.000
Subtotal: Recurring Cost	-	-	255.000	-	-	80.000	-	-	55.000	-	-	77.000	-	-	-	-	-	77.000
Subtotal: Hardware Cost	-	-	255.000	-	-	80.000	-	-	55.000	-	-	77.000	-	-	-	-	-	77.000
Gross/Weapon System Cost	85.000	3	255.000	80.000	1	80.000	55.000	1	55.000	77.000	1	77.000	-	-	-	77.000	1	77.000

Remarks:

ID O - -I -

For procurement of AWS components. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with funding.



Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title:

MD34 / Short Range Ballistic Missile Defense (SRBMD)(David's Sling Weapon

System (DSWS))

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: $\ensuremath{\text{N/A}}$

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	3	1	1	1	-	1	1	1	1	1	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000	30.000	30.000	30.000	30.000	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000	30.000	30.000	30.000	30.000	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000	30.000	30.000	30.000	30.000	Continuing	Continuing
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	140.000	50.000	50.000	50.000	-	50.000	30.000	30.000	30.000	30.000	Continuing	Continuing

Description:

Previously named David's Sling. FY 2018 name change to Short Range Ballistic Missile Defense (SRBMD).

-Provides funding to the Government of Israel to procure DSWS/SRBMD components. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with funding.

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency

P-1 Line Item Number / Title:

MD34 / Short Range Ballistic Missile Defense (SRBMD)(David's Sling Weapon

System (DSWS))

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule		Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total		
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	1 / David's Sling Weapon System [1]		Α		3 / 420.000	1 / 50.000	1 / 50.000	1 / 50.000	- / -	1 / 50.000
P-40	Total Gross/Weapon System Cost		3 / 420.000	1 / 50.000	1 / 50.000	1 / 50.000	- 1 -	1 / 50.000		

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

Provides funding to the Government of Israel to procure DSWS/SRBMD components.

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

Item Number / Title [DODIC]:

0300D / 01 / 17

MD34 / Short Range Ballistic Missile Defense (SRBMD)

1 / David's Sling Weapon System [1]

(David's Sling Weapon System (DSWS))

ID Code (A=Service Ready, B=Not Service Ready): A

MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	3	1	1	1	-	1
Gross/Weapon System Cost (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	420.000	50.000	50.000	50.000	-	50.000
(The following Resource Summary rows are for information	tional purposes only. The cor	responding budget requests	are documented elsewher	e.)		
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	140.000	50.000	50.000	50.000	_	50.000

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding

Prior Years FY 2019 FY 2020 FY 2021 Base FY 2021 OCO FY 2021 Total Description of the exact of sum exactly due to founding.																		
	F	Prior Years	3		FY 2019			FY 2020		FY	/ 2021 Ba	se	F	/ 2021 OC	:0	F	1 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)		Unit Cost	Qty (Each)	1	Unit Cost	Qty (Each)		Unit Cost	Qty (Each)		Unit Cost	Qty (Each)		Unit Cost	Qty (Each)	
Hardware Cost																		
Recurring Cost																		
David's Sling Weapon System	140.000	3	420.000	50.000	1	50.000	50.000	1	50.000	50.000	1	50.000	-	-	-	50.000	1	50.000
Subtotal: Recurring Cost	-	-	420.000	-	-	50.000	-	-	50.000	-	-	50.000	-	-	-	-	- 1	50.000
Subtotal: Hardware Cost	-	-	420.000	-	-	50.000	-	-	50.000	-	-	50.000	-	-	-	-	-	50.000
Gross/Weapon System Cost	140.000	3	420.000	50.000	1	50.000	50.000	1	50.000	50.000	1	50.000	-	-	-	50.000	1	50.000

Remarks:

DSWS/SRBMD component procurement. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with Funding.



Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

I A 41 14

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD73 / Aegis Ashore Phase III

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0604881C, 0604880C, 0603892C

Other Related Program Elements: 0604880C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	1	-	-	-	-	-	1	-	-	-	-	2
Gross/Weapon System Cost (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114	26.248	3.891	2.400	0.980	-	613.112
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114	26.248	3.891	2.400	0.980	-	613.112
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114	26.248	3.891	2.400	0.980	-	613.112
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	ne corresponding	budget request	s are documente	d elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	499.820	0.000	0.000	-	-	-	26.248	-	-	-	-	306.556

Description:

Note: The increase from FY 2020 to FY 2021 accounts for costs to meet European Phased Adaptive Approach (EPAA) Phase III, which includes configuration and test validations. Increased funding request attributable to Poland Military Construction delays which pushed EPAA Phase III Technical Capability Declaration (TCD) from FY 2021 to FY 2022.

On 17 December 2009, the President announced an overarching policy to provide regional missile defense to U.S. deployed forces, allies and partners in Europe called the European Phased Adaptive Approach (EPAA). Within this policy, a European PAA specifically addresses a timeline to deploy a mix of afloat and land-based Missile Defense (MD) capabilities. Aegis Ashore represents one of these land-based capabilities.

Aegis Ashore provides the Aegis Missile Defense capability against short and medium range ballistic missiles in an ashore configuration. It will be similar to the Aegis At-Sea BMD capability inherent in the new Arleigh Burke-class Aegis destroyers (DDG-113 and following ships) to facilitate training and logistical support by the lead service, Navy. Aegis Ashore re-hosts the required BMD components of a Navy Destroyer in an ashore configuration to include a Deckhouse structure and Weapon System comprised of an AN/SPY-1D(V) radar, Vertical Launch System (VLS), computing infrastructure, Command, Control, Communications, Computers and Intelligence (C4I) systems, and operator consoles. Aegis Ashore can adapt to the threat and can be deployed to other regions as needed to provide persistent coverage for the Geographic Combatant Commanders. Phase III of EPAA (FY 2022) deploys a land based Aegis Ashore in Poland, and introduces an upgraded Standard Missile, the SM-3 Block IIA. This missile brings improved coverage against medium and intermediate range ballistic threats, and extends coverage to the majority of the European continent.

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

Equipment, Missile Defense Agency

P-1 Line Item Number / Title: MD73 / Aegis Ashore Phase III

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: 0604881C. 0604880C. 0603892C

Other Related Program Elements: 0604880C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title* Subexhibit			MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Aegis Ashore Poland, Equipment and Deckhouse		Α		1 / 499.820	- / 15.000	- / 25.659	- / 39.114	- / -	- / 39.114
P-40	Total Gross/Weapon System Cost			1 / 499.820	- / 15.000	- / 25.659	- / 39.114	- 1 -	- / 39.114	

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

The Aegis Ashore to be installed in Poland contains a Deckhouse structure and Weapon System comprised of a AN/SPY-1D(V) radar, Vertical Launch System (VLS), computing infrastructure, Command, Control, Communications, Computers and Intelligence (C4I) systems, and operator consoles with very diverse procurement lead times from multiple contracts. The funding profile addresses the multiple actions required to field the Aegis Ashore end item in Poland in FY 2022, keep the individual components up to date with the Navy's destroyer modernization plan and install modifications as required to enhance coexistence with Broadband Wireless Access systems in the European theater. MDA uses Research Development, Test, and Evaluation (RDT&E) (Program Element (PE)-0604880C) to modernize, develop and test Aegis Ashore capability improvements at the Aegis Ashore Missile Defense Test Complex (AAMDTC) in Hawaii for implementation at operational sites. Procurement funding provides the following:

FY 2016 Fabrication of the Deckhouse structure and assembly of Aegis Ashore Deckhouse structure in Poland.

FY 2017 Install Aegis Ashore Weapon System in the Aegis Ashore Deckhouse structure in Poland.

FY 2018 Continue installation of the Aegis Ashore Weapon System in the Aegis Ashore Deckhouse structure in Poland.

FY 2019 Continue installation of the combat system and combat structure adaptation, integration and installation

FY 2020 Continue installation of the combat system and combat structure adaptation, integration and installation

FY 2021 Continue installation of the combat system and combat structure adaptation, integration and installation

FY 2022 Complete weapon system commissioning prior to Chief of Naval Operations acceptance and EUCOM acceptance

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17

P-1 Line Item Number / Title: MD73 / Aegis Ashore Phase III

Item Number / Title [DODIC]:
Aegis Ashore Poland, Equipment and

Deckhouse

ID Code (A=Service Ready, B=Not Service Ready): A

MDAP/MAIS Code:

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total							
Procurement Quantity (Units in Each)	1	-	-	-	-	-							
Gross/Weapon System Cost (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114							
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-							
Net Procurement (P-1) (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114							
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-							
Total Obligation Authority (\$ in Millions)	499.820	15.000	25.659	39.114	-	39.114							
(The following Resource Summary rows are for inform	(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares (\$ in Millions)	-	-	-	-	-	-							

 Gross/Weapon System Unit Cost (\$ in Millions)
 499.820
 0.000
 0.000

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

	P	rior Years	\$		FY 2019			FY 2020		F	/ 2021 Ba	se	F۱	/ 2021 OC	0	F	/ 2021 Tot	tal
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)									
Flyaway Cost																		
Recurring Cost																		
Aegis Ashore Poland, Equipment and Deckhouse	499.820	1	499.820	-	-	15.000	-	-	25.659	-	-	39.114	-	-	-	-	-	39.114
Subtotal: Recurring Cost	-	-	499.820	-	-	15.000	-	-	25.659	-	-	39.114	-	-	-	-	-	39.114
Subtotal: Flyaway Cost	-	-	499.820	-	-	15.000	-	-	25.659	-	-	39.114	-	-	-	-	-	39.114
Gross/Weapon System Cost	499.820	1	499.820	0.000	-	15.000	0.000	-	25.659	-	-	39.114	-	-	-	-	-	39.114

Remarks:

N/A



Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD83 / Iron Dome

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	7	1	1	1	-	1	1	1	1	1	Continuing	Continuing
Gross/Weapon System Cost (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000	108.000	80.000	80.000	80.000	Continuing	Continuing
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000	108.000	80.000	80.000	80.000	Continuing	Continuing
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000	108.000	80.000	80.000	80.000	Continuing	Continuing
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	e corresponding	g budget request	s are documente	ed elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	200.519	70.000	95.000	73.000	-	73.000	108.000	80.000	80.000	80.000	Continuing	Continuing

Description:

Provides funding to the Government of Israel to procure Iron Dome components. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with funding.

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD83 / Iron Dome

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603913C

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Iron Dome		Α		7 / 1,403.630	1 / 70.000	1 / 95.000	1 / 73.000	- / -	1 / 73.000
P-40	Total Gross/Weapon System Cost			7 / 1,403.630	1 / 70.000	1 / 95.000	1 / 73.000	- 1 -	1 / 73.000	

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

Procurement of additional Iron Dome components.

LI MD83 - Iron Dome Missile Defense Agency UNCLASSIFIED Page 2 of 3

P-1 Line #41

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

P-1 Line Item Number / Title:

MD83 / Iron Dome

MD89/MAIO Code:

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ID Code (A=Service Ready, B=Not Service Ready): A		ME	DAP/MAIS Code:			
Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	7	1	1	1	-	1
Gross/Weapon System Cost (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	1,403.630	70.000	95.000	73.000	-	73.000
(The following Resource Summary rows are for information	ational purposes only. The cor	responding budget request	s are documented elsewher	re.)		1
Initial Spares (\$ in Millions)	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	200.519	70.000	95.000	73.000	-	73.000

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Note: Subtotals or Totals I	(6.19) (6.19) (6.19) (6.19) (6.19) (6.19) (6.19) (6.19) (6.19)																	
	F	Prior Years	S		FY 2019			FY 2020		FY	/ 2021 Ba	se	F	′ 2021 OC	0	FY	/ 2021 Tot	al
Cost Elements			Cost			Cost			Cost			Cost			Cost			Cost
Hardware Cost																		
Recurring Cost																		
Iron Dome	200.519	7	1,403.630	70.000	1	70.000	95.000	1	95.000	73.000	1	73.000	-	-	-	73.000	1	73.000
Subtotal: Recurring Cost	-	-	1,403.630	-	-	70.000	-	-	95.000	-	-	73.000	-	-	-	-	-	73.000
Subtotal: Hardware Cost	-	-	1,403.630	-	-	70.000	-	-	95.000	-	-	73.000	-	-	-	-	-	73.000
Gross/Weapon System Cost	200.519	7	1,403.630	70.000	1	70.000	95.000	1	95.000	73.000	1	73.000	-	-	-	73.000	1	73.000

Remarks:

Procurement of additional Iron Dome components. Quantities are classified. The unit quantity of one is used as a proxy in each fiscal year with funding.



Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency

MD90 / Aegis BMD Hardware and Software

P-1 Line Item Number / Title:

ID Code (A=Service Ready, B=Not Service Ready): A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603892C

Line Item MDAP/MAIS Code: 362

	Prior			FY 2021	FY 2021	FY 2021					То	
Resource Summary	Years	FY 2019	FY 2020	Base	oco	Total	FY 2022	FY 2023	FY 2024	FY 2025	Complete	Total
Procurement Quantity (Units in Each)	55	26	36	49	-	49	45	48	49	48	-	356
Gross/Weapon System Cost (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241	109.245	103.208	125.968	124.464	-	1,128.761
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241	109.245	103.208	125.968	124.464	-	1,128.761
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-	-	-	-	-	-	-
Total Obligation Authority (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241	109.245	103.208	125.968	124.464	-	1,128.761
(The following	Resource Sumi	mary rows are fo	r informational p	urposes only. Th	e corresponding	n budget request	s are documente	d elsewhere.)				
Initial Spares (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost (\$ in Millions)	0.000	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost (\$ in Millions)	6.281	3.507	3.472	2.127	-	2.127	2.428	2.150	2.571	2.593	-	3.171

Description:

Note:

FY 2021 Base procurement budget reguest provides the procurement, installation, fielding and deployment of integrated Aegis Ballistic Missile Defense (BMD) combat system to operational ships and sites for homeland and regional defense. The Aegis BMD mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. 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 (SRBMs), Medium-Range Ballistic Missiles (MRBMs), and Intermediate-Range Ballistic Missiles (IRBMs) in the midcourse phase of flight, and shorter range missiles in the terminal phase of flight. Aegis BMD also provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS in support of early detection of BMD threats to the homeland. Upgrades to both the Aegis BMD Weapon System and the Standard Missile-3 (SM-3) configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more sophisticated threats and an enduring Aegis Ashore defensive capability.

P-1 Line #42

Exhibit P-40, Budget Line Item Justification: PB 2021 Missile Defense Agency

P-1 Line Item Number / Title:

Appropriation / Budget Activity / Budget Sub Activity:

0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major

MD90 / Aegis BMD Hardware and Software

Equipment, Missile Defense Agency

ID Code (A=Service Ready, B=Not Service Ready); A

Program Elements for Code B Items: N/A

Other Related Program Elements: 0603892C

Date: February 2020

Line Item MDAP/MAIS Code: 362

	Exhibits Schedule				Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost (Each) / (\$ M)					
P-5	Aegis BMD Shipsets	P-5a, P-21	Α		55 / 345.468	26 / 91.181	36 / 124.986	49 / 104.241	- / -	49 / 104.241
P-40	Total Gross/Weapon System Cost				55 / 345.468	26 / 91.181	36 / 124.986	49 / 104.241	- 1 -	49 / 104.241

^{*}Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

FY 2021 Base procurement dollars in the amount of \$104.241 million supports the continued procurement and deployment of Aegis BMD capabilities to operational ships and sites. A shipset consists of the procurement of cabinets, cabling, equipment, and other material required to support a single shipboard installation of the appropriate BMD baseline.

Upgrading the 3.6 and 4.0 shipsets to 4.x adds capability and capacity in support of the European Phased Adaptive Approach EPAA Phase II requirements.

Upgrading the 4.x to BL 5.4.0 (BMD 4.1.2) delivers a single Aegis Weapon System maximizing a merger of BMD 4.1 and B/L 5.3 computer programs within the current BMD 4 system architecture. Additional capabilities delivered include Anti-Air Warfare (AAW) improvements, SM-6 Dual I Extended Range AAW/Anti-Surface Warfare (ASUW), interoperability improvements, and updated BMD threat adaptation data.

Upgrading 4.x to BL 5.4.1 (BMD 4.2) is a joint effort with the U.S. Navy that refurbishes existing ship AN/SPY-1 radar arrays with the installation of antenna Low Noise Amplifiers (LNAs). Updates planned for 21 Flight I/II Destroyers (DDG) with increased capability and growth to maintain relevance through End of Service Life. Capabilities delivered include discrimination improvements, increased threat set, integration of SM-3 Block IB Modernization, and other warfighter improvements. BMD 4.2 plans to procure an Array Set in FY 2020 to support rotatable pool for radar refurbishment. Navy Certification of BL 5.4.1 (BMD 4.2) is planned to occur in FY 2023.

Upgrading the 5.x shipsets adds capability and capacity in support of achieving the European Phased Adaptive Approach EPAA Phase III requirements. Hardware and software updates to 5.x shipsets provides warfighter improvements implemented through Combat System upgrades to meet emerging threats.

The procurement and fielding of new BMD components impacted by Diminishing Manufacturing Sources (DMS) will allow for the continued production of 5.x and BL 5.4.0 (BMD 4.1.2) in support of EPAA Phase II and III requirements.

UNCLASSIFIED
Page 2 of 14

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Appropriation / Budget Activity / Budget Sub Activity:

0300D / 01 / 17

Date: February 2020

P-1 Line Item Number / Title:

MD90 / Aegis BMD Hardware and Software

Aegis BMD Shipsets

MDAP/MAIS Code:

3.472

2.127

2.127

Volume 2b - 105

Resource Summary	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Procurement Quantity (Units in Each)	55	26	36	49	-	49
Gross/Weapon System Cost (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241
Less PY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241
Plus CY Advance Procurement (\$ in Millions)	0.000	0.000	0.000	-	-	-
Total Obligation Authority (\$ in Millions)	345.468	91.181	124.986	104.241	-	104.241
(The following Resource Summary rows are for information	onal purposes only. The cor	responding budget request	s are documented elsewher	re.)		
Initial Spares (\$ in Millions)	-	-	=	-	-	-

3.507

6.281

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

ID Code (A=Service Ready, B=Not Service Ready): A

Gross/Weapon System Unit Cost (\$ in Millions)

	P	rior Years	3		FY 2019			FY 2020		F	/ 2021 Bas	se	F١	/ 2021 OC	0	FY	1 2021 Tot	al
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Total Cost (\$ M)	Unit Cost	Qty (Each)	Tota Cost (\$ M)
ardware Cost	'	'		'				'								· · · · · · · · · · · · · · · · · · ·		
Recurring Cost																		
Aegis BL 5.4.0 (BMD 4.1.2) Installs ^(†)	-	-	-	0.650	3	1.951	0.633	5	3.163	0.647	5	3.235	-	-	-	0.647	5	3.
Aegis BL 5.4.0 (BMD 4.1.2) Procurement ^(†)	-	-	-	0.167	10	1.665	0.324	8	2.592	-	-	-	-	-	-	-	-	
Aegis BL 5.4.1 (BMD 4.2) Hardware Procurement ^(†)	-	-	-	-	-	-	51.996	1	51.996	3.719	3	11.158	-	-	-	3.719	3	11.
Aegis BL 9.C1 (5.0 CU) Installs	1.400	1	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)	1.073	11	11.808	0.762	3	2.286	1.163	2	2.326	1.615	2	3.230	-	-	-	1.615	2	3
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement ^(†)	2.194	17	37.297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aegis BL 9.C2 (BMD 5.1) Inline Installs ^(†)	1.756	4	7.022	0.636	2	1.272	2.190	3	6.570	2.134	4	8.534	-	-	-	2.134	4	8
Aegis BL 9.C2 (BMD 5.1) Inline Procurements ^(†)	4.122	6	24.733	3.738	2	7.476	3.871	3	11.613	6.862	3	20.587	-	-	-	6.862	3	20
Aegis BMD 3.6 to 4.X Hardware Procurements ^(†)	13.519	10	135.193	15.010	1	15.010	-	-	-	-	-	-	-	-	-	-	-	

Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agency

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding. Dries Veere

EV 0040

91.181

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity:

P-1 Line Item Number / Title:

EV 0000

Item Number / Title [DODIC]:

EV 0004 T-4-1

95.630

0300D / 01 / 17

Procurement(†) Subtotal: Recurring Cost MD90 / Aegis BMD Hardware and Software

Aegis BMD Shipsets

EV 0004 000

ID Code (A=Service Ready, B=Not Service Ready): A

MDAP/MAIS Code:

EV 0004 D - - -

	P	rior years	•		FY 2019			FY 2020		FY	2021 Bas	se	l L	Y 2021 OC	O		Y 2021 lot	.aı
Cost Elements	Unit Cost	Qty (Each)	Total Cost (\$ M)															
Aegis BMD 3.6 to 4.X Installs ^(†)	17.831	7	124.815	18.299	3	54.898	24.482	1	24.482	25.119	1	25.119	-	-	-	25.119	1	25.119
Aegis BMD DMS Procurement	-	-	-	-	-	-	-	-	-	0.326	12	3.909	-	-	-	0.326	12	3.909
Aegis BMD TI-12H Upgrade Installs ^(†)	-	-	-	-	-	-	-	-	-	2.211	4	8.844	-	-	-	2.211	4	8.844
Aegis BMD TI-12H Upgrade	-	-	_	3.312	2	6.623	3.420	5	17.099	3.671	3	11.014	-	-	-	3.671	3	11.014

Subtotal: Hardware Cost	-	-	342.268	-	-	91.181	-	-	119.841	-	-	95.630	-	-	-	-	-	95.630
Software Cost																		
Recurring Cost																		
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs ^(†)		-	-	-	-	-	0.643	8	5.145	0.718	12	8.611	-	-	-	0.718	12	8.611
Aegis BMD 4.0 to 4.X Software Installs	0.533	6	3.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	3.200	-	-	-	-	-	5.145	-	-	8.611	-	-	-	-	-	8.611
Subtotal: Software Cost	-	-	3.200	-	-	-	-	-	5.145	-	-	8.611	-	-	-	-	-	8.611
Gross/Weapon System	6.281	55	345.468	3.507	26	91.181	3.472	36	124.986	2.127	49	104.241	-	-	-	2.127	49	104.241

119.841

Remarks:

All Shipset procurements and installs are in alignment with Navy Ship Fielding Plan as of 21 MAY 2019.

342.268

Aegis BL 5.4.0 (BMD 4.1.2) delivers a single Aegis Weapon System, maximizing a merger of Aegis BMD 4.1 with U.S. Navy (USN) Aegis Baseline 5.3.11 computer programs along with capturing selected BL 7 and BL 9 capabilities within the current BMD 4 system architecture. Planned update for 21 FLT I/II DDG's and 2 Cruisers (CG).

Aegis BL 5.4.1 (BMD 4.2) AN/SPY-1 upgrade is a joint effort with the U.S. Navy that provides refurbishment of existing ship AN/SPY-1 radar arrays with the addition of Low Noise Amplifiers (LNAs). Planned update for 21 FLT I/II DDG's with increased capability and growth to maintain relevance through End of Service Life. Weapon System Updates include MIL-SPEC UYK-43, COTS BMD Signal Processor, and COTS adjunct processor updates.

The Aegis BL 9.C2 (BMD 5.1) Backfit upgrade installs consists of an Aegis Weapon System, Command/Control/Communication, Kill Assessment (KAS) and Vertical Launching System hardware and associated computer program necessary to upgrade an in-service Aegis BL 9.C1 (BMD 5.0CU) capable ship to BL 9.C2 (BMD 5.1). These unit costs are averaged in the years where there is a mix of ship configurations and will result in unit cost fluctuations year to year.

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	UNCLASSIFIED	
Exhibit P-5, Cost Analysis: PB 2021 Missile Defense Agen	су	Date: February 2020
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17	P-1 Line Item Number / Title: MD90 / Aegis BMD Hardware and Software	Item Number / Title [DODIC]: Aegis BMD Shipsets
ID Code (A=Service Ready, B=Not Service Ready): A	MDAP/MAIS Code:	,
The Aegis BL 9.C2 (BMD 5.1) Inline procurement/installation upgrades nor dependent on specific ship configuration. These unit costs are averaged in		
The BMD 3.6 to 4.x install includes a hardware and software upgrade suite	that adds capability and capacity in support of all future baseline upgra	de deliveries.
The Aegis BMD Production DMS Procurements allows for the continued prinstallation of this hardware on in-service BMD $5.x$ and BL 5.4 (BMD 4.1) sl		npacted by production hardware obsolescence, and the
The Aegis BL 9.C2 (BMD 5.1) TI-12H Upgrade Procurement consists of ha compatible weapon system configuration.	rdware and associated computer program necessary to upgrade existin	ng in-service Aegis BL 9.C2 (BMD 5.1) TI-12 ships to a TI-16
The Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs deliver increme emergent threats.	ntal Common Source Library (CSL) capability upgrades to the BMD 5.1	ships and sites providing increased performance against
(†) indicates the presence of a P-5a		

Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense Agency

Defense Agency Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17

P-1 Line Item Number / Title:

MD90 / Aegis BMD Hardware and Software

Item Number / Title [DODIC]:
Aegis BMD Shipsets

	О		<u> </u>	Method/Type			Date			Specs	Date	
Cost Elements	CO	FY	Contractor and Location	or Funding Vehicle	Location of PCO	Award Date	of First Delivery	Qty (Each)	Unit Cost	Avail Now?	Revision Available	RFP Issue
Aegis BL 5.4.0 (BMD 4.1.2) Installs		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Jun 2020	Sep 2020	3	0.650	N		Jun 2019
Aegis BL 5.4.0 (BMD 4.1.2) Installs ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington DC	Jun 2020	Sep 2020	5	0.160	Υ		Jun 2019
Aegis BL 5.4.0 (BMD 4.1.2) Procurement ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Apr 2019	Mar 2020	10	0.167	Υ		Jan 2018
Aegis BL 5.4.0 (BMD 4.1.2) Procurement ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Apr 2020	Sep 2020	8	0.200	Υ		Jan 2019
Aegis BL 5.4.1 (BMD 4.2) Hardware Procurement ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Dec 2019	Dec 2020	1	51.996	Υ		Mar 2019
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Jun 2017	Oct 2018	3	1.134	Υ		Aug 2016
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)		2018	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Nov 2017	Jun 2018	8	0.710	Υ		Feb 2017
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Jun 2019	Apr 2020	3	0.762	Υ		Jun 2018
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Feb 2020	Jun 2020	2	1.485	Υ		Jun 2019
Aegis BL 9.C2 (BMD 5.1) BackFit Installs ^(†)		2021	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Jun 2020	Dec 2020	2	1.615	Υ		Dec 2019
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement		2016	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Nov 2015	Jan 2016	11	2.194	N		Sep 2015
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2017	Aug 2018	6	2.533	Υ		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Installs ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2017	Aug 2018	1	3.310	Υ		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Installs ^(†)		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Jan 2018	Jan 2019	3	0.450	Υ		Jul 2017
Aegis BL 9.C2 (BMD 5.1) Inline Installs ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Jan 2019	Jan 2020	2	0.636	Υ		Jul 2018
Aegis BL 9.C2 (BMD 5.1) Inline Installs ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Jan 2020	Jan 2021	3	0.460	Υ		Jul 2019
Aegis BL 9.C2 (BMD 5.1) Inline Procurements		2016	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	May 2016	Nov 2017	2	4.122	N		Jul 2015
Aegis BL 9.C2 (BMD 5.1) Inline Procurements ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	May 2017	Nov 2018	1	3.913	Υ		Jul 2016

Exhibit P-5a, Procurement History and Planning: PB 2021 Missile Defense Agency

Date: February 2020

Item Number / Title [DODIC]:

Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17

P-1 Line Item Number / Title:

MD90 / Aegis BMD Hardware and Software

Aegis BMD Shipsets

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Cost Elements	0 0 0	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost	Specs Avail Now?	Date Revision Available	RFP Issu Date
Aegis BL 9.C2 (BMD 5.1) Inline Procurements ^(†)		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2018	Apr 2019	3	3.735	Y		Jul 2017
Aegis BL 9.C2 (BMD 5.1) Inline Procurements ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2019	Aug 2020	2	3.738	Y		Jun 2018
Aegis BL 9.C2 (BMD 5.1) Inline Procurements ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2020	Aug 2021	3	3.871	Y		Jun 2019
Aegis BMD 3.6 to 4.X Hardware Procurements		2016	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2016	Aug 2017	6	13.519	N		Jul 2015
Aegis BMD 3.6 to 4.X Hardware Procurements ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2017	Aug 2018	1	12.100	Y		Jul 2016
Aegis BMD 3.6 to 4.X Hardware Procurements ^(†)		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2018	Aug 2019	3	12.100	Y		Jul 2017
Aegis BMD 3.6 to 4.X Hardware Procurements ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2019	Aug 2020	1	15.010	Y		Jun 2018
Aegis BMD 3.6 to 4.X Installs		2016	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Washington, D.C.	Jan 2016	May 2017	1	17.831	N		May 201
Aegis BMD 3.6 to 4.X Installs ^(†)		2017	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Washington, D.C.	Jan 2017	Jun 2018	1	9.100	Υ		May 201
Aegis BMD 3.6 to 4.X Installs ^(†)		2018	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Washington, D.C.	Feb 2018	Feb 2019	5	7.100	Υ		Aug 201
Aegis BMD 3.6 to 4.X Installs ^(†)		2019	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Washington, D.C.	Nov 2017	Sep 2019	3	18.299	Y		Nov 201
Aegis BMD 3.6 to 4.X Installs ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Washington, D.C.	Nov 2019	Jul 2021	1	7.500	Y		Nov 201
Aegis BMD TI-12H Upgrade Installs ^(†)		2021	Lockheed Martin / Moorestown, N.J.	SS / FFP	Washington, D.C.	Oct 2020	Nov 2020	4	2.145	Y		Feb 2020
Aegis BMD TI-12H Upgrade Procurement		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Dec 2019	Aug 2020	2	3.311	N		Jul 2019
Aegis BMD TI-12H Upgrade Procurement ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2020	Oct 2020	5	3.419	Y		Jun 2019
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs ^(†)		2020	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Apr 2020	Sep 2020	8	0.160	Y		Apr 2019
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs ^(†)		2021	Lockheed Martin / Moorestown, N.J.	SS / FFP	Washington, D.C.	Nov 2020	Aug 2021	12	0.718	Y		Feb 2020

^(†) indicates the presence of a P-21

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Aegis	BL 5.4	.0 (BMD 4.1.2) Installs																											
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2	2019	MDA	10	0	10																									
3	2020	MDA	8	0	8																									
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Date: Febru	February 2020
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Fiscal Year 2017	2017
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L E A P	

Exhibit P-21																	_					e: Fel						
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	Cost Element (Units in Each								Fiscal Y	ear 2018											Fiscal	/ear 2019						ВА
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Aegis BL 5.4.1 (BMI	0 4.2) Hardwar	e Procurem	ent																									
4 2020 MDA		1	0 1																									
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5 2017 MDA		3	0 3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1			
5 2018 MDA		8	0 8		Α -	-	-	-	-	-	-	1	-	-	4	-	-	-	1	-	-	1	-	1		J		
5 2019 MDA		3	0 3						•														,	Α -	-	-	-	
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Ex	hibit F	P-21, Pr	oduct	ion Sc	hedu	le: PE	3 202	1 Mis	sile D	efens	e Age	ency											Date: February 2020								
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Exhibit P-21, Production Schedule: PB 2021 Missile Defense Agency

Date: February 2020

Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17

P-1 Line Item Number / Title:

MD90 / Aegis BMD Hardware and Software

Item Number / Title [DODIC]:
Aegis BMD Shipsets

030	0D / 01 / 1/	MD90 / Aegis BMD Hardware and Software Aegis BMD Shipsets														
		Produc	tion Rates (Each /	Month)	Procurement Leadtime (Months)											
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Ref #	Manufacturer Name - Location	MSR For 2021	1-8-5 For 2021	MAX For 2021	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1				
1	Lockheed Martin - Moorestown, N.J.	1	1	6	0	0	0	0	0	0	0					
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[&]quot;A" in the Delivery Schedule indicates the Contract Award Date.

Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand). If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).