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**Department of Defense  
Fiscal Year (FY) 2019 Budget Estimates**

February 2018



**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 2019 • Procurement

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## Introduction & Explanation of Contents

The Department of Defense Fiscal Year (FY) 2019 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 2019 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 Multi-Year Procurement Exhibit
- MDA Procurement Exhibits

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Defense-Wide  
 FY 2019 President's Budget  
 Exhibit P-1 FY 2019 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

06 Feb 2018

Appropriation -----	FY 2017 (Base + OCO) -----	FY 2018 PB Request with CR Adj Base -----	FY 2018 Total PB Requests* with CR Adj Base -----	FY 2018 PB Request with CR Adj OCO -----
Procurement, Defense-Wide	1,635,399	1,178,364	1,178,364	
Total Defense-Wide	1,635,399	1,178,364	1,178,364	

NOTE: The FY 2017 ATR in Ground Based Midcourse for Advanced Procurement was allocated to Weapons Systems Costs and should be reflected in Advance Procurement.

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Appropriation	FY 2018 Total PB Requests+ with CR Adj OCO	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency
-----	-----	-----	-----	-----
Procurement, Defense-Wide		1,239,140	-1,239,140	
Total Defense-Wide		1,239,140	-1,239,140	

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Defense-Wide  
FY 2019 President's Budget  
Exhibit P-1 FY 2019 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

06 Feb 2018

Appropriation -----	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** -----	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs -----	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency -----
Procurement, Defense-Wide	2,417,504	-1,239,140	1,178,364
Total Defense-Wide	2,417,504	-1,239,140	1,178,364

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Defense-Wide  
FY 2019 President's Budget  
Exhibit P-1 FY 2019 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

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Appropriation -----	FY 2019 Base -----	FY 2019 OCO -----	FY 2019 Total -----
Procurement, Defense-Wide	2,432,004		2,432,004
Total Defense-Wide	2,432,004		2,432,004

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Defense-Wide  
 FY 2019 President's Budget  
 Exhibit P-1 FY 2019 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

06 Feb 2018

Organization: Procurement, Defense-Wide	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO
Missile Defense Agency, MDA	1,635,399	1,178,364	1,178,364	
Total	1,635,399	1,178,364	1,178,364	

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Defense-Wide  
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Organization: Procurement, Defense-Wide	FY 2018 Total PB Requests+ with CR Adj OCO	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency
Missile Defense Agency, MDA		1,239,140	-1,239,140	
Total		1,239,140	-1,239,140	

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Organization: Procurement, Defense-Wide -----	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency** -----	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs -----	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency -----
Missile Defense Agency, MDA	2,417,504	-1,239,140	1,178,364
Total	2,417,504	-1,239,140	1,178,364

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(Dollars in Thousands)

06 Feb 2018

Organization: Procurement, Defense-Wide -----	FY 2019 Base -----	FY 2019 OCO -----	FY 2019 Total -----
Missile Defense Agency, MDA	2,432,004		2,432,004
Total	2,432,004		2,432,004

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Defense-Wide  
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 Exhibit P-1 FY 2019 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

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Appropriation: Procurement, Defense-Wide

Budget Activity	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO
01. Major Equipment	1,635,399	1,178,364	1,178,364	
Total Procurement, Defense-Wide	1,635,399	1,178,364	1,178,364	

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Defense-Wide  
 FY 2019 President's Budget  
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Appropriation: Procurement, Defense-Wide

Budget Activity -----	FY 2018 Total PB Requests+ with CR Adj OCO -----	FY 2018 Emergency Requests** Emergency -----	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs -----	FY 2018 Remaining Req Emergency -----
01. Major Equipment		1,239,140	-1,239,140	
Total Procurement, Defense-Wide		1,239,140	-1,239,140	

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Defense-Wide  
FY 2019 President's Budget  
Exhibit P-1 FY 2019 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

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Appropriation: Procurement, Defense-Wide

Budget Activity	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
01. Major Equipment	2,417,504	-1,239,140	1,178,364
Total Procurement, Defense-Wide	2,417,504	-1,239,140	1,178,364

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Defense-Wide  
FY 2019 President's Budget  
Exhibit P-1 FY 2019 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

06 Feb 2018

Appropriation: Procurement, Defense-Wide

Budget Activity -----	FY 2019 Base -----	FY 2019 OCO -----	FY 2019 Total -----
01. Major Equipment	2,432,004		2,432,004
Total Procurement, Defense-Wide	2,432,004		2,432,004

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Defense-Wide  
 FY 2019 President's Budget  
 Exhibit P-1 FY 2019 President's Budget  
 Total Obligational Authority  
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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2017 (Base + OCO)		FY 2018 PB Request with CR Adj Base		FY 2018 Total PB Requests* with CR Adj Base		FY 2018 PB Request with CR Adj OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Major Equipment											
Major Equipment, Missile Defense Agency											
26	THAAD	B	36	566,504	34	451,592	34	451,592			U
27	Ground Based Midcourse	A		47,000							U
28	Ground Based Midcourse Advance Procurement (CY)										U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2019 for FY 2020) (M)										
29	Aegis BMD	B	35	(513,801)	34	(425,018)	34	(425,018)			U
	Less: Advance Procurement (PY)										U
				513,801		425,018		425,018			
30	Aegis BMD Advance Procurement (CY)					38,738	38,738				U
	C (FY 2018 for FY 2019) (M)					(38,738)	(38,738)				
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2019 for FY 2023) (M)										
31	BMDS AN/TPY-2 Radars	A		5,503		947		947			U
32	Israeli Programs	A		120,000							U
33	Short Range Ballistic Missile Defense (SRBMD)	A		150,000							U
34	Aegis Ashore Phase III	B		57,493		59,739		59,739			U
35	Iron Dome	A		62,000	1	42,000	1	42,000			U
36	Aegis BMD Hardware and Software	A	6	63,098	21	160,330	21	160,330			U

P-119PB: FY 2019 President's Budget (Published Version), as of February 6, 2018 at 12:17:34

NOTE: The FY 2017 ATR in Ground Based Midcourse for Advanced Procurement was allocated to Weapons Systems Costs and should be reflected in Advance Procurement.

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Defense-Wide  
FY 2019 President's Budget  
Exhibit P-1 FY 2019 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 2018 Total PB Requests+ with CR Adj OCO		FY 2018 Emergency Requests**		FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs		FY 2018 Remaining Req Emergency		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Major Equipment											
Major Equipment, Missile Defense Agency											
26	THAAD	B			50	509,140	-50	-509,140			U
27	Ground Based Midcourse	A				180,000		-180,000			U
28	Ground Based Midcourse Advance Procurement (CY)				20	88,000	-20	-88,000			U
	C (FY 2018 for FY 2019) (M)				20	(88,000)	-20	(-88,000)			
	C (FY 2019 for FY 2020) (M)										
29	Aegis BMD	B			16	(451,000)	-16	(-451,000)			U
	Less: Advance Procurement (PY)										U
						451,000		-451,000			
30	Aegis BMD Advance Procurement (CY)										U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2019 for FY 2023) (M)										
31	BMDS AN/TPY-2 Radars	A				11,000		-11,000			U
32	Israeli Programs	A									U
33	Short Range Ballistic Missile Defense (SRBMD)	A									U
34	Aegis Ashore Phase III	B									U
35	Iron Dome	A									U
36	Aegis BMD Hardware and Software	A									U

P-119PB: FY 2019 President's Budget (Published Version), as of February 6, 2018 at 12:17:34

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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2018 Total		FY 2018 Less Enacted		FY 2018 Remaining Req		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Major Equipment									
Major Equipment, Missile Defense Agency									
26	THAAD	B	84	960,732	-50	-509,140	34	451,592	U
27	Ground Based Midcourse	A		180,000		-180,000			U
28	Ground Based Midcourse Advance Procurement (CY)		20	88,000	-20	-88,000			U
	C (FY 2018 for FY 2019) (M)		20	(88,000)	-20	(-88,000)			
	C (FY 2019 for FY 2020) (M)								
29	Aegis BMD	B	50	(876,018)	-16	(-451,000)	34	(425,018)	U
	Less: Advance Procurement (PY)								U
				876,018		-451,000		425,018	
30	Aegis BMD Advance Procurement (CY)			38,738				38,738	U
	C (FY 2018 for FY 2019) (M)			(38,738)				(38,738)	
	C (FY 2019 for FY 2020) (M)								
	C (FY 2019 for FY 2021) (M)								
	C (FY 2019 for FY 2022) (M)								
	C (FY 2019 for FY 2023) (M)								
31	BMDS AN/TPY-2 Radars	A		11,947		-11,000		947	U
32	Israeli Programs	A							U
33	Short Range Ballistic Missile Defense (SRBMD)	A							U
34	Aegis Ashore Phase III	B		59,739				59,739	U
35	Iron Dome	A	1	42,000			1	42,000	U
36	Aegis BMD Hardware and Software	A	21	160,330			21	160,330	U

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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2019 Base		FY 2019 OCO		FY 2019 Total		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	
Budget Activity 01: Major Equipment									
-----									
Major Equipment, Missile Defense Agency									
26	THAAD	B	82	874,068			82	874,068	U
27	Ground Based Midcourse	A	14	409,000			14	409,000	U
28	Ground Based Midcourse Advance Procurement (CY)			115,000				115,000	U
	C (FY 2018 for FY 2019) (M)								
	C (FY 2019 for FY 2020) (M)			(115,000)				(115,000)	
29	Aegis BMD	B	43	(632,226)			43	(632,226)	U
	Less: Advance Procurement (PY)			(-38,738)				(-38,738)	U
				-----				-----	
				593,488				593,488	
30	Aegis BMD Advance Procurement (CY)			115,206				115,206	U
	C (FY 2018 for FY 2019) (M)								
	C (FY 2019 for FY 2020) (M)			(32,875)				(32,875)	
	C (FY 2019 for FY 2021) (M)			(31,557)				(31,557)	
	C (FY 2019 for FY 2022) (M)			(27,713)				(27,713)	
	C (FY 2019 for FY 2023) (M)			(23,061)				(23,061)	
31	BMDS AN/TPY-2 Radars	A		13,185				13,185	U
32	Israeli Programs	A		80,000				80,000	U
33	Short Range Ballistic Missile Defense (SRBMD)	A		50,000				50,000	U
34	Aegis Ashore Phase III	B		15,000				15,000	U
35	Iron Dome	A		70,000				70,000	U
36	Aegis BMD Hardware and Software	A	28	97,057			28	97,057	U

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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2017 (Base + OCO)		FY 2018 PB Request with CR Adj Base		FY 2018 Total PB Requests* with CR Adj Base		FY 2018 PB Request with CR Adj OCO		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
37	Improved Homeland Defense (HLD) Interceptors	A		50,000							U
	Total Major Equipment			1,635,399		1,178,364		1,178,364			
	Total Procurement, Defense-Wide			1,635,399		1,178,364		1,178,364			

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Defense-Wide  
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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests+ with CR Adj OCO		FY 2018 Emergency Requests** Emergency		FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs		FY 2018 Remaining Req Emergency		S e c -
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	
37	Improved Homeland Defense (HLD) Interceptors	A									U
	Total Major Equipment					1,239,140		-1,239,140			
	Total Procurement, Defense-Wide					1,239,140		-1,239,140			

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Defense-Wide  
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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**		FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs		FY 2018 Remaining Req with CR Adj Base + OCO + Emergency		S e c
			Quantity	Cost	Quantity	Cost	Quantity	Cost	
37	Improved Homeland Defense (HLD) Interceptors	A							U
	Total Major Equipment			2,417,504		-1,239,140		1,178,364	
	Total Procurement, Defense-Wide			2,417,504		-1,239,140		1,178,364	

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Defense-Wide  
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Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2019 Base		FY 2019 OCO		FY 2019 Total		S e c -
			Quantity	Cost	Quantity	Cost	Quantity	Cost	
37	Improved Homeland Defense (HLD) Interceptors	A							U
	Total Major Equipment			2,432,004			2,432,004		
	Total Procurement, Defense-Wide			2,432,004			2,432,004		

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35	01	17	MD83	Iron Dome.....	Volume 2b - 79
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Aegis Ashore Phase III	MD73	34	01	17.....	Volume 2b - 75
Aegis BMD Hardware and Software	MD90	36	01	17.....	Volume 2b - 83
BMDS AN/TPY-2 Radars	MD11	31	01	17.....	Volume 2b - 49
Ground Based Midcourse	MD08	27	01	17.....	Volume 2b - 13
Ground Based Midcourse, Advance Procurement	MD08	28	01	17.....	Volume 2b - 23
Improved Homeland Defense (HLD)	MD97	37	01	17.....	Volume 2b - 93
Iron Dome	MD83	35	01	17.....	Volume 2b - 79
Israeli Program	MD26	32	01	17.....	Volume 2b - 67
Short Range Ballistic Missile Defense (SRBMD)	MD34	33	01	17.....	Volume 2b - 71
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**Fiscal Year (FY) 2019 President's Budget  
Missile Defense Agency (MDA)**



**February 2018**

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**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

<u>Appropriation Summary</u>	<u>FY 2017 Actuals</u>	<u>Price Change</u>	<u>Program Change</u>	<u>FY 2018 Estimate</u>	<u>Price Change</u>	<u>Program Change</u>	<u>FY 2019 Estimate</u>
O&M, Defense-Wide	\$459.6	\$8.1	\$36.4	\$504.1	\$9.0	\$-13.3	\$499.8

**Description of Operations Financed:**

All MDA BMD operations and maintenance support are funded through the O&M Defense-wide appropriation. Operations include Aegis BMD that provides a wide range of support activities for deployed Aegis BMD ships and Aegis Ashore facilities including Standard Missile-3 (SM-3) Sustainment, BMD Aegis Weapon System (AWS) Sustainment, and sustainment for Aegis Ashore sites; Ground-Based Midcourse for the maintenance, repair, training, supply support, sustaining engineering, network operations, integrated logistics support, configuration control, scheduling, execution control, system transitioning and performance reporting. Additionally, funding provides Base Operations Support (BOS) for facility sustainment and maintenance at the various GMD sites; Ballistic Missile Defense System (BMDS) AN/TPY-2 Radars for sustainment of 12 Army Navy/Transportable Radar Surveillance and Control-2 radars including forward-based radars and Terminal High Altitude Area Defense configured radars to include supply support, repair, maintenance, modernization, transportation, parts storage, Special Tools and Test Equipment, recurring and delta training, training device maintenance, engineering support, Interactive Electronic Technical Manual (IETM) updates, software user guide updates, software revision certification and depot-level maintenance for the Forward Based Mode (FBM) missile defense unique equipment; and Terminal High Altitude Area Defense (THAAD) which supports MDA's responsibility for the sustainment of the THAAD missile defense unique or developmental items, while the U.S. Army is responsible for the operations and sustainment of the common items.

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**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
	<b><u>Actuals</u></b>	<b><u>Estimate</u></b>	<b><u>Estimate</u></b>
<b>4. Administrative and Servicewide Activities</b>	<b>459,556</b>	<b>504,058</b>	<b>499,817</b>
Aegis BMD Program	66,540	96,346	83,837
BMDS Radars Program	192,873	191,055	176,143
Ground-Based Midcourse Program	131,081	137,896	147,229
THAAD Program	69,062	78,761	92,608
<b>Total Operation and Maintenance, Defense-Wide</b>	<b>459,556</b>	<b>504,058</b>	<b>499,817</b>

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**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
	<b><u>Actuals</u></b>	<b><u>Estimate</u></b>	<b><u>Estimate</u></b>
<b>4. Administrative and Servicewide Activities</b>	<b>459,556</b>	<b>504,058</b>	<b>499,817</b>
Aegis BMD Program	66,540	96,346	83,837
BMDS Radars Program	192,873	191,055	176,143
Ground-Based Midcourse Program	131,081	137,896	147,229
THAAD Program	69,062	78,761	92,608
<b>Total Operation and Maintenance, Defense-Wide</b>	<b>459,556</b>	<b>504,058</b>	<b>499,817</b>

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**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

	<u>FY 2017</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2018</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2019</u>	
	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	
		<u>Percent</u>				<u>Percent</u>				
<u>Travel</u>										
308	Travel of Persons	192	1.70%	3	146	341	1.80%	6	-342	5
<b>399</b>	<b>Total Travel</b>	<b>192</b>		<b>3</b>	<b>146</b>	<b>341</b>		<b>6</b>	<b>-342</b>	<b>5</b>
<u>Supplies &amp; Materials</u>										
401	DLA Energy (Fuel Products)	1,079	11.53%	124	-96	1,107	-0.40%	-4	-1,103	0
<b>499</b>	<b>Total Supplies &amp; Materials</b>	<b>1,079</b>		<b>124</b>	<b>-96</b>	<b>1,107</b>		<b>-4</b>	<b>-1,103</b>	<b>0</b>
<u>Transportation</u>										
771	Commercial Transport	5,542	1.70%	94	-3,693	1,943	1.80%	35	3,920	5,898
<b>799</b>	<b>Total Transportation</b>	<b>5,542</b>		<b>94</b>	<b>-3,693</b>	<b>1,943</b>		<b>35</b>	<b>3,920</b>	<b>5,898</b>
<u>Other Purchases</u>										
912	Rental Payments to GSA (SLUC)	244	1.70%	4	-1	247	1.80%	4	6	257
913	Purchased Utilities (Non-Fund)	3,019	1.70%	51	-106	2,964	1.80%	53	-324	2,693
914	Purchased Communications (Non-Fund)	0	1.70%	0	1,243	1,243	1.80%	22	-673	592
915	Rents (Non-GSA)	238	1.70%	4	2	244	1.80%	4	-248	0
917	Postal Services (U.S.P.S)	0	1.70%	0	5	5	1.80%	0	-5	0
920	Supplies & Materials (Non-Fund)	28,693	1.70%	488	-6,038	23,143	1.80%	417	17,880	41,440
922	Equipment Maintenance By Contract	262,751	1.70%	4,467	-77,555	189,663	1.80%	3,414	131,827	324,904
923	Facilities Sust, Rest, & Mod by Contract	27,578	1.70%	469	110,541	138,588	1.80%	2,495	-108,350	32,733
925	Equipment Purchases (Non-Fund)	1,513	1.70%	26	14,646	16,185	1.80%	291	-12,764	3,712
930	Other Depot Maintenance (Non-Fund)	28,930	1.70%	492	2,969	32,391	1.80%	583	-13,731	19,243
932	Mgt Prof Support Svcs	10,807	1.70%	184	1,169	12,160	1.80%	219	-11,366	1,013
933	Studies, Analysis & Eval	0	1.70%	0	5,243	5,243	1.80%	94	-4,867	470
934	Engineering & Tech Svcs	0	1.70%	0	2,588	2,588	1.80%	47	9,656	12,291

**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
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	<u>FY 2017</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2018</u>	<u>Price</u>	<u>Price</u>	<u>Program</u>	<u>FY 2019</u>
	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>	<u>Growth</u>	<u>Growth</u>	<u>Growth</u>	<u>Program</u>
		<u>Percent</u>				<u>Percent</u>			
937 Locally Purchased Fuel (Non-Fund)	1,510	11.53%	174	-164	1,520	-0.40%	-6	-494	1,020
987 Other Intra-Govt Purch	47,247	1.70%	803	-26,541	21,509	1.80%	387	21,935	43,831
989 Other Services	11,102	1.70%	189	13,686	24,977	1.80%	450	-15,712	9,715
990 IT Contract Support Services	29,111	1.70%	495	-1,609	27,997	1.80%	504	-28,501	0
<b>999 Total Other Purchases</b>	<b>452,743</b>		<b>7,846</b>	<b>40,078</b>	<b>500,667</b>		<b>8,978</b>	<b>-15,731</b>	<b>493,914</b>
<b>Total</b>	<b>459,556</b>		<b>8,067</b>	<b>36,435</b>	<b>504,058</b>		<b>9,015</b>	<b>-13,256</b>	<b>499,817</b>

**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Change</u> <u>FY 2018/2019</u>
Contractor FTEs (Total)	964	986	1,014	28

**Personnel Summary Explanations:**

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

The FY 2018 to FY 2019 growth reflects the increase in sustainment of the GMD operational system to address the implementation and sustainment of DoD cybersecurity mandates, which include the transition to cyber security Risk Management Framework (RMF), continuous monitoring, equipment obsolescence upgrades, and device hardening. Seventeen additional contractor FTEs are required for this Cyber effort. The increase also provides an increase of five FTEs in sustainment and maintenance of THAAD system software.

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**MISSILE DEFENSE AGENCY**  
**Operation and Maintenance, Defense-Wide**  
**Fiscal Year (FY) 2019 President's Budget**

	<u>TOTAL</u>
<b>FY 2018 President's Budget Request (Amended, if applicable)</b>	<b>504,058</b>
1. Congressional Adjustments	
a. Distributed Adjustments	
b. Undistributed Adjustments	
c. Adjustments to Meet Congressional Intent	
d. General Provisions	
<b>FY 2018 Appropriated Amount</b>	<b>504,058</b>
2. War-Related and Disaster Supplemental Appropriations	
3. Fact-of-Life Changes	
<b>FY 2018 Baseline Funding</b>	<b>504,058</b>
4. Reprogrammings (Requiring 1415 Actions)	
<b>Revised FY 2018 Estimate</b>	<b>504,058</b>
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings	
<b>FY 2018 Normalized Current Estimate</b>	<b>504,058</b>
6. Price Change	9,015
7. Functional Transfers	
8. Program Increases	
a. Annualization of New FY 2018 Program	
b. One-Time FY 2019 Increases	
c. Program Growth in FY 2019	
1) THAAD Program	12,441
2) Ground-Based Midcourse Defense Program	6,854
9. Program Decreases	

**MISSILE DEFENSE AGENCY**  
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	<u><b>TOTAL</b></u>
a. Annualization of FY 2018 Program Decreases	
b. One-Time FY 2018 Increases	
c. Program Decreases in FY 2019	
1) BMDS Radars Program	-18,322
2) Aegis BMD SM-3 Program	-8,505
3) Aegis BMD Program	-5,724
<b>FY 2019 Budget Request</b>	<b>499,817</b>

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

	FY 2017	Price	Program	FY 2018	Price	Program	FY 2019
	<u>Actuals</u>	<u>Change</u>	<u>Change</u>	<u>Estimate</u>	<u>Change</u>	<u>Change</u>	<u>Estimate</u>
MDA	459,556	8,067	36,435	504,058	9,015	-13,256	499,817

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

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

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

The BMDS AWS sustainment 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 and technical documentation; review and

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

implementation of updated maintenance concepts; diminishing manufacturing sources (DMS) and obsolete materiel surveillance, identification, and resolution; maintenance actions on BMD ships and sites participating in MDA sponsored test missions.

Provides engineering services for Aegis Ashore Host Nation repairs and rework required post construction activities in support of site transition. Includes Host Nation planning yard activities to track modernization, update 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 (INCO) and system operations verification testing (SOVT) and provides updates to training, warfighter technical publications, and the initial outfitting requirements for maintenance and logistics materiel.

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

**C. Ballistic Missile Defense Systems (BMDS) Radars.** Sustainment of 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

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

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 Missile Defense mission for the Upgraded Early Warning Radar (UEWR)/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 for the THAAD missile defense unique or 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 review, error correction, incremental capability improvements, and hardware/system interface compatibility maintenance.
5. Missile transportation and handling from the missile storage location to the site of the THAAD launchers.

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

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.
9. Special tools and test equipment for the organic depot.
10. RESET program.

**II. Force Structure Summary:**

N/A

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III. Financial Summary (\$ in thousands)

	FY 2018							FY 2019 Estimate
	FY 2017 Actuals	Budget Request	Congressional Action			Current Estimate		
			Amount	Percent	Appropriated			
<b>A. BA Subactivities</b>								
<b>4. Administrative and Servicewide Activities</b>	459,556	504,058	0	0.0	0	504,058	499,817	
Aegis BMD Program	66,540	96,346	0	0.0	0	96,346	83,837	
BMDS Radars Program	192,873	191,055	0	0.0	0	191,055	176,143	
Ground-Based Midcourse Program	131,081	137,896	0	0.0	0	137,896	147,229	
THAAD Program	69,062	78,761	0	0.0	0	78,761	92,608	
<b>Total</b>	<b>459,556</b>	<b>504,058</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>504,058</b>	<b>499,817</b>	

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III. Financial Summary (\$ in thousands)

<b>B. <u>Reconciliation Summary</u></b>	<b>Change</b>	<b>Change</b>
	<b><u>FY 2018/FY 2018</u></b>	<b><u>FY 2018/FY 2019</u></b>
<b>Baseline Funding</b>	<b>504,058</b>	<b>504,058</b>
Congressional Adjustments (Distributed)		
Congressional Adjustments (Undistributed)		
Adjustments to Meet Congressional Intent		
Congressional Adjustments (General Provisions)		
<b>Subtotal Appropriated Amount</b>	<b>504,058</b>	
Fact-of-Life Changes (2018 to 2018 Only)		
<b>Subtotal Baseline Funding</b>	<b>504,058</b>	
Supplemental		
Reprogrammings		
Price Changes		9,015
Functional Transfers		
Program Changes		-13,256
<b>Current Estimate</b>	<b>504,058</b>	<b>499,817</b>
Less: Wartime Supplemental		
<b>Normalized Current Estimate</b>	<b>504,058</b>	

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

<b><u>C. Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
<b>FY 2018 President's Budget Request (Amended, if applicable)</b>		<b>504,058</b>
1. Congressional Adjustments		
a. Distributed Adjustments		
b. Undistributed Adjustments		
c. Adjustments to Meet Congressional Intent		
d. General Provisions		
<b>FY 2018 Appropriated Amount</b>		<b>504,058</b>
2. War-Related and Disaster Supplemental Appropriations		
3. Fact-of-Life Changes		
<b>FY 2018 Baseline Funding</b>		<b>504,058</b>
4. Reprogrammings (Requiring 1415 Actions)		
<b>Revised FY 2018 Estimate</b>		<b>504,058</b>
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings		
<b>FY 2018 Normalized Current Estimate</b>		<b>504,058</b>
6. Price Change		9,015
7. Functional Transfers		
8. Program Increases		19,295
a. Annualization of New FY 2018 Program		
b. One-Time FY 2019 Increases		
c. Program Growth in FY 2019		
1) THAAD Program	12,441	
+\$6,142 Growth reflects the transition of sustainment and maintenance of THAAD system software and THAAD Portable Planner from RDT&E to O&M for the systems transitioned to sustainment.		
+\$3,753 Growth reflects increased OCONUS sustainment requirements to meet the increased THAAD operating		

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

<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
tempo required for the current Army Global Posture Strategy.		
+ \$2,104 Growth reflects the increase in interceptor recertifications (required every 10 years after initial delivery) for interceptors to remain operationally available. The recertification extends the service life of the aging interceptor inventory.		
+ \$442 Growth reflects increased sustainment for THAAD interceptor and peculiar hardware transportation to support program missions. (FY 2018 Baseline: \$78,761 thousand; +0 FTEs)		
2) Ground-Based Midcourse Defense Program	6,854	
+ \$3,603 Growth reflects the increase in GMD operational weapon system sustainment to implement and sustain DoD cybersecurity mandates, including equipment obsolescence upgrades and device hardening.		
+ \$3,251 Growth addresses critical GMD weapon system Facility Sustainment, Restoration, and Modernization (FSRM) projects at GMD sites to include Fort Greely, AK, Vandenberg AFB, CA, Eareckson Air Station, AK, and Fort Drum, NY. (FY 2018 Baseline: \$137,896 thousand; +0 FTEs)		
9. Program Decreases		-32,551
a. Annualization of FY 2018 Program Decreases		
b. One-Time FY 2018 Increases		
c. Program Decreases in FY 2019		

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

<b>C. <u>Reconciliation of Increases and Decreases</u></b>	<b><u>Amount</u></b>	<b><u>Totals</u></b>
1) BMDs Radars Program	-18,322	
-\$8,164 Decrease due to completion of one-time FY 2018 COBRA DANE sustainment costs to redesign and purchase obsolete or unreliable components to extend the service life of the radar.		
-\$10,158 Decrease reflects reduction in TPY-2 spares requirements resulting from reduced component level failure rates and improved reliability. (FY 2018 Baseline: \$191,055 thousand; +0 FTEs)		
2) Aegis BMD SM-3 Program	-8,505	
Decrease reflects fewer required SM-3 missile recertifications due to ship and missile availability, and also FY 2018 completion of non-recurring engineering efforts for the Third Stage Rocket Motor Nozzle replacement. (FY 2018 Baseline: \$59,713 thousand; +0 FTEs)		
3) Aegis BMD Program	-5,724	
Decrease reflects less software maintenance requirements in FY 2019 based on the accelerated certification of Aegis BMD 4.1. (FY 2019 budget supports 100 software corrections biennially vice the FY 2018 request for 200 software corrections annually.) (FY 2018 Baseline: \$32,237 thousand; +0 FTEs)		
<b>FY 2019 Budget Request</b>		<b>499,817</b>

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

	FY 2017 <u>Estimate</u>	FY 2018 <u>Estimate</u>	FY 2019 <u>Estimate</u>
<b>1. Operational Support</b>	<b>459,556</b>	<b>504,058</b>	<b>499,817</b>
Aegis Program	66,540	96,346	83,837
Ground Base Midcourse	131,081	137,896	147,229
BMDS Radars	192,873	191,055	176,143
THAAD Program	69,062	78,761	92,608
<b>Total Operations and Maintenance, Defense Wide</b>	<b>459,556</b>	<b>446,975</b>	<b>499,817</b>

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

A. Aegis BMD. The Aegis BMD element of the BMDS capitalizes upon and evolves from the existing U. S. Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy short-range, medium-range, and intermediate-range ballistic missiles in the midcourse phase of flight and shorter range missile in terminal phase. Aegis BMD also provides a long range surveillance and track (LRS&T) capability to the BMDS. By the end of FY 2019, there will be 42 BMDS capable ships.

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 Defense Brigade (five crews) headquartered at Colorado Springs, Colorado, and its 49th Missile Defense Battalion (five crews) at Fort Greely, Alaska (FGA). In FY 2019, MDA

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

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). In-Flight Interceptor Communications System (IFICS) Data Terminals (IDTs) are currently located at FGA; VAFB; Eareckson Air Station, Alaska (EAS); and Fort Drum, New York.

C. Ballistic Missile Defense Systems (BMDS) Radars Program. MDA sustains 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. The operational tempo is met utilizing military personnel and contractor logistics support (CLS) to operate and maintain the radar.

D. Terminal High Altitude Area Defense (THAAD). Army force structure for THAAD is currently set at seven batteries with six launchers operated by 95 Soldiers. The battery is organized to conduct 120-day deployments (45 days of entry operations and 75 days of 17-hour/day combat operations). During actual deployments, batteries have been operating at a 365-day, 24/7 operational tempo, with increased CLS costs. This increased tempo has been sustained through the increase of appropriate attachments and support.

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<b>V. <u>Personnel Summary</u></b>	<b><u>FY 2017</u></b>	<b><u>FY 2018</u></b>	<b><u>FY 2019</u></b>	<b><u>Change FY 2017/ FY 2018</u></b>	<b><u>Change FY 2018/ FY 2019</u></b>
<u>Contractor FTEs (Total)</u>	<u>964</u>	<u>986</u>	<u>1,014</u>	<u>22</u>	<u>28</u>

The FY 2018 to FY 2019 growth reflects the increase in sustainment of the GMD operational system to address the implementation and sustainment of DoD cybersecurity mandates, which include the transition to cyber security Risk Management Framework (RMF), continuous monitoring, equipment obsolescence upgrades, and device hardening. Seventeen additional contractor FTEs are required for this Cyber effort. The increase also provides an increase of five FTEs in sustainment and maintenance of THAAD system software. The FY 2018 FTE number was erroneously under-reported and did not include +6 FTEs associated with the Aegis BMD Program.

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

<u>OP 32 Line</u>	<u>FY 2017</u> <u>Actuals</u>	<u>Change</u> <u>FY 2017/FY 2018</u>		<u>FY 2018</u> <u>Estimate</u>	<u>Change</u> <u>FY 2018/FY 2019</u>		<u>FY 2019</u> <u>Estimate</u>
		<u>Price</u>	<u>Program</u>		<u>Price</u>	<u>Program</u>	
308 Travel of Persons	192	3	146	341	6	-342	5
<b>399 Total Travel</b>	<b>192</b>	<b>3</b>	<b>146</b>	<b>341</b>	<b>6</b>	<b>-342</b>	<b>5</b>
401 DLA Energy (Fuel Products)	1,079	124	-96	1,107	-4	-1,103	0
<b>499 Total Supplies &amp; Materials</b>	<b>1,079</b>	<b>124</b>	<b>-96</b>	<b>1,107</b>	<b>-4</b>	<b>-1,103</b>	<b>0</b>
771 Commercial Transport	5,542	94	-3,693	1,943	35	3,920	5,898
<b>799 Total Transportation</b>	<b>5,542</b>	<b>94</b>	<b>-3,693</b>	<b>1,943</b>	<b>35</b>	<b>3,920</b>	<b>5,898</b>
912 Rental Payments to GSA (SLUC)	244	4	-1	247	4	6	257
913 Purchased Utilities (Non-Fund)	3,019	51	-106	2,964	53	-324	2,693
914 Purchased Communications (Non-Fund)	0	0	1,243	1,243	22	-673	592
915 Rents (Non-GSA)	238	4	2	244	4	-248	0
917 Postal Services (U.S.P.S)	0	0	5	5	0	-5	0
920 Supplies & Materials (Non-Fund)	28,693	488	-6,038	23,143	417	17,880	41,440
922 Equipment Maintenance By Contract	262,751	4,467	-77,555	189,663	3,414	131,827	324,904
923 Facilities Sust, Rest, & Mod by Contract	27,578	469	110,541	138,588	2,495	-108,350	32,733
925 Equipment Purchases (Non-Fund)	1,513	26	14,646	16,185	291	-12,764	3,712
930 Other Depot Maintenance (Non-Fund)	28,930	492	2,969	32,391	583	-13,731	19,243
932 Mgt Prof Support Svcs	10,807	184	1,169	12,160	219	-11,366	1,013
933 Studies, Analysis & Eval	0	0	5,243	5,243	94	-4,867	470
934 Engineering & Tech Svcs	0	0	2,588	2,588	47	9,656	12,291
937 Locally Purchased Fuel (Non-Fund)	1,510	174	-164	1,520	-6	-494	1,020
987 Other Intra-Govt Purch	47,247	803	-26,541	21,509	387	21,935	43,831
989 Other Services	11,102	189	13,686	24,977	450	-15,712	9,715
990 IT Contract Support Services	29,111	495	-1,609	27,997	504	-28,501	0
<b>999 Total Other Purchases</b>	<b>452,743</b>	<b>7,846</b>	<b>40,078</b>	<b>500,667</b>	<b>8,978</b>	<b>-15,731</b>	<b>493,914</b>
<b>Total</b>	<b>459,556</b>	<b>8,067</b>	<b>36,435</b>	<b>504,058</b>	<b>9,015</b>	<b>-13,256</b>	<b>499,817</b>

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\* OP-32 lines were realigned in FY 2019 to correct classification categories that were inaccurately reported in FY 2018 and more accurately reflect planned expenditures. The following breakout provides further traceability to OP-5 program increases and decreases to their affected OP-32 lines.

-\$111,000 thousand from line 923 Facilities, Sustainment, Restoration, and Modernization by Contract was realigned to line 922 Equipment Maintenance by Contract to correct the FY 2018 coding error.

-\$13,731 thousand from line 930 Depot Maintenance was realigned to line 922 Equipment Maintenance by Contract to properly reflect the correct level of maintenance.

-\$13,237 thousand from line 989 Other Services and -\$14,000 thousand from line 990 IT Services were realigned to line 987 Intra-Govt Purchase to properly capture items in the right OP-32 line.

-\$12,764 thousand from 925 Equipment Purchases was realigned to 920 Supplies to properly capture items in the right OP-32 line.

-\$14,501 thousand from line 990 IT Services was realigned to +9,000 thousand line 922 Equipment Maintenance by Contract and +5,501 thousand to line 920 Supplies to properly capture the work effort in the right OP-32 line.

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**CONTRACT SERVICES FUNDING**  
**(\$ in Millions)**

Line	By PB/OP-32 Inflation Category Code	FY 2017	FY 2018	FY 2018	FY 2019	FY 2019
		Base & OCO	Base	OCO	Base	OCO
		Actual	Request	Request	Request	Request
914	Purchased Communications (Non-Fund)	0	1	0	1	0
	<b>Total 23.1 - Communications, Utilities, and Misc. Charges</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>
932	Mgmt and Professional Support Services	11	12	0	1	0
933	Studies, Analysis, and Evaluation Services				1	
934	Engineering and Technical Services	0	3	0	12	0
	<b>Total 25.1 - Advisory and Assistance Services</b>	<b>11</b>	<b>15</b>	<b>0</b>	<b>14</b>	<b>0</b>
989	Other Contracts	11	25	0	10	0
926	Other Overseas Purchases					
	<b>Total 25.2 - Other Services</b>	<b>11</b>	<b>25</b>	<b>0</b>	<b>10</b>	<b>0</b>
987	Other Intra-Government Purchases	47	25	0	43	0
	<b>Total 25.3 - Other Goods and Services from Federal Sources</b>	<b>47</b>	<b>25</b>	<b>0</b>	<b>43</b>	<b>0</b>
923	Facility Maintenance	28	139	0	33	0
	<b>Total 25.4 - Operation and Maintenance of Facilities</b>	<b>28</b>	<b>139</b>	<b>0</b>	<b>33</b>	<b>0</b>
985	Research and Development Contracts					
	<b>Total 25.5 - Research and Development Contracts</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
922	Equipment Maintenance - Contract	263	190	0	325	0
930	Other Depot Maintenance (Non-Fund)	29	32	0	19	0
990	IT Contract Support Services	29	28	0	0	0
	<b>Total 25.7 - Operation and Maintenance of Equipment</b>	<b>321</b>	<b>250</b>	<b>0</b>	<b>344</b>	<b>0</b>
964	Subsistence Contracts					
	<b>Total 25.8- Subsistence and Support of Persons</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Total</b>	<b>418</b>	<b>455</b>	<b>0</b>	<b>445</b>	<b>0</b>

Source: Program Resources Collection Process as of 2 Jan 2018

Numbers may not add due to rounding

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**Contractor Full-Time Equivalents**

Line	By PB/OP-32 Inflation Category Code	FY 2017	FY 2018	FY 2018	FY 2019	FY 2019
		Base & OCO	Base	OCO	Base	OCO
		<u>Actual</u>	<u>Request</u>	<u>Request</u>	<u>Request</u>	<u>Request</u>
914	Purchased Communications (Non-Fund)	0	4	0	4	0
	<b>Total 23.1 - Communications, Utilities and Misc. Charges</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>
932	Mgmt and Professional Support Services	29	29	0	6	0
933	Studies, Analysis, and Evaluation Services				2	
934	Engineering and Technical Services	0	27		32	
	<b>Total 25.1 - Advisory and Assistance Services</b>	<b>29</b>	<b>56</b>	<b>0</b>	<b>40</b>	<b>0</b>
989	Other Contracts	11	31	0	38	0
926	Other Overseas Purchases					
	<b>Total 25.2 - Other Services</b>	<b>11</b>	<b>31</b>	<b>0</b>	<b>38</b>	<b>0</b>
987	Other Intra-Government Purchases	26	1	0	15	0
	<b>Total 25.3 - Other Goods and Services from Federal Sources</b>	<b>26</b>	<b>1</b>	<b>0</b>	<b>15</b>	<b>0</b>
923	Facility Maintenance	376	371	0	101	0
	<b>Total 25.4 - Operation and Maintenance of Facilities</b>	<b>376</b>	<b>371</b>	<b>0</b>	<b>101</b>	<b>0</b>
985	Research and Development Contracts					
	<b>Total 25.5 - Research and Development Contracts</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
922	Equipment Maintenance - Contract	468	468	0	775	0
930	Other Depot Maintenance (Non-Fund)	22	23		41	
990	IT Contract Support Services	32	32		0	0
	<b>Total 25.7 - Operation and Maintenance of Equipment</b>	<b>522</b>	<b>523</b>	<b>0</b>	<b>816</b>	<b>0</b>
	<b>Total</b>	<b>964</b>	<b>986</b>	<b>0</b>	<b>1,014</b>	<b>0</b>

Source: Program Resources Collection Process as of 2 Jan 2018

Numbers may not add due to rounding

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**CONTRACT SERVICES**

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**Defense-Wide Missile Defense Agency**  
**Operation and Maintenance**  
**Justification Narrative**

**Description of Services Financed:**

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

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

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

The BMDS AWS sustainment 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 and technical documentation; review and implementation of updated maintenance concepts;

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diminishing manufacturing sources (DMS) and obsolete materiel surveillance, identification, and resolution; maintenance actions on BMD ships and sites participating in MDA sponsored test missions.

Provides engineering services for Aegis Ashore Host Nation repairs and rework required post construction activities in support of site transition. Includes Host Nation planning yard activities to track modernization, update 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 (INCO) and system operations verification testing (SOVT) and provides updates to training, warfighter technical publications, and the initial outfitting requirements for maintenance and logistics materiel.

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

C. Ballistic Missile Defense System (BMDS) AN/TPY-2 Radars. Sustainment of 12 Army Navy/Transportable Radar Surveillance and Control-2 (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. Additionally, funding provides sustainment unique to the Missile Defense mission for the Upgraded Early Warning Radar (UEWR)/COBRA DANE Radar, which MDA sustains and operates in conjunction with the U.S. Air Force.

D. Terminal High Altitude Area Defense (THAAD). MDA is responsible for the sustainment of the THAAD missile defense unique or developmental items, while the U. S. Army is responsible for the operations and sustainment of the common items. Funding provides sustainment for all fielded THAAD Batteries, ensures THAAD assets are properly maintained and crews are trained to meet Combatant Commanders needs including:

- 1.) Field and sustainment level supply, maintenance, modernization, hazardous materials/waste disposal, and

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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. 9.) Special Tools and Test Equipment for the organic depot. 10.) RESET program.

**Reporting Limitations:**

N/A

**Summary of Increases/Decreases:**

A. Aegis BMD program decrease reflects fewer required SM-3 missile recertifications due to ship and missile availability, and also FY 2018 completion of non-recurring engineering efforts for the Third Stage Rocket Motor Nozzle replacement and less software maintenance requirements in FY 2019 based on the accelerated certification of Aegis BMD 4.1.

B. Ground-Based Midcourse program growth reflects the increase in sustainment of the GMD operational system to address the implementation and sustainment of DoD cybersecurity mandates, which include the transition to cyber security Risk Management Framework (RMF), continuous monitoring, equipment obsolescence upgrades, and device hardening.

C. Ballistic Missile Defense Systems (BMDS) Radars program decrease is due to completion of COBRA DANE sustainment costs to redesign obsolete or unreliable components to extend

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the service life of COBRA DANE and reduced operations and maintenance spare purchases due to improvements in maintainability.

D. THAAD program growth is due to the transition of sustainment and maintenance of THAAD system software and THAAD Portable Planner to U. S. Army Aviation and Missile Research Development and Engineering Center (AMRDEC) with an increase in staff to cover system level testing.

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<u>Appropriation/Fund</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>
	<u>Actuals</u>	<u>Estimate</u>	<u>Estimate</u>
I. Management & Professional Support Services			
FFRDC Work	281	305	305
Non-FFRDC Work	<u>10,526</u>	<u>11,855</u>	<u>708</u>
Subtotal	10,807	12,160	1,013
II. Studies, Analysis & Evaluations			
FFRDC Work	0	0	0
Non-FFRDC Work	<u>0</u>	<u>5,243</u>	<u>470</u>
Subtotal	0	5,243	470
III. Engineering & Technical Services			
FFRDC Work	0	1,367	6,492
Non-FFRDC Work	<u>0</u>	<u>1,221</u>	<u>5,799</u>
Subtotal	0	2,588	12,291
TOTAL			
<b>FFRDC Work</b>	<b>281</b>	<b>1,672</b>	<b>6,797</b>
<b>Non-FFRDC Work</b>	<b>10,526</b>	<b>18,319</b>	<b>6,977</b>
Reimbursable	0	0	0

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

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

**Explanation of Funding Changes (FY 2018 to FY 2019):**

The FY 2018 to FY2019 changes reflect a temporary increase required for transition activities to ensure uninterrupted weapon system operations during the four month transition phase from the current Ground-based Midcourse Defense (GMD) Weapons Systems O&S contract (Development and Sustainment Contract) to a new competitively awarded O&S contract; an increase in Lockheed Martin sustainment and maintenance of THAAD system software in preparation for the transition to AMRDEC.

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Missile Defense Agency

(Dollars in Thousands)

Appropriation/Fund: RDT&E (0400)		FY 2017	FY 2018	FY 2019
<b>Management &amp; Professional Support Services</b>				
FFRDC Work	932	7,206	7,843	6,837
Non-FFRDC Work	932	<u>217,676</u>	<u>236,922</u>	<u>221,069</u>
Sub-Total		224,882	244,765	227,906
<b>Studies, Analysis &amp; Evaluations</b>				
FFRDC Work	933	3,348	3,200	3,095
Non-FFRDC Work	933	<u>6,436</u>	<u>6,150</u>	<u>6,008</u>
Sub-Total		9,784	9,350	9,103
<b>Engineering &amp; Technical Services</b>				
FFRDC Work	934	115,877	115,845	92,136
Non-FFRDC Work	934	<u>151,862</u>	<u>151,820</u>	<u>122,134</u>
Sub-Total		267,739	267,665	214,270
<b>TOTAL</b>		<b>502,405</b>	<b>521,780</b>	<b>451,279</b>
<b>FFRDC Work</b>		<b>126,431</b>	<b>126,888</b>	<b>102,068</b>
<b>Non-FFRDC Work</b>		<b>375,974</b>	<b>394,892</b>	<b>349,211</b>

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 Operation and Maintenance, Defense-Wide  
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MISSILE DEFENSE AGENCY	<u>Foreign National</u>			
	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>
1. FY 2017 FTEs	0	0	0	0
2. FY 2018 FTEs	0	0	0	0
3. FY 2019 FTEs	0	0	0	0

MDA - Operation and Maintenance (O&M)	<u>Foreign National</u>			
	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>
1. FY 2017 FTEs	0	0	0	0
2. FY 2018 FTEs	0	0	0	0
3. FY 2019 FTEs	0	0	0	0

MDA - Research, Development, Test and Evaluation (RDT&E)	<u>Foreign National</u>			
	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>
1. FY 2017 FTEs	0	0	0	0
2. FY 2018 FTEs	0	0	0	0
3. FY 2019 FTEs	0	0	0	0

MDA - Defense Working Capital Fund (DWCF)	<u>Foreign National</u>			
	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>
1. FY 2017 FTEs	0	0	0	0
2. FY 2018 FTEs	0	0	0	0
3. FY 2019 FTEs	0	0	0	0

4. SUMMARY	<u>Foreign National</u>			
	<u>US Direct Hire</u>	<u>Direct Hire</u>	<u>Indirect Hire</u>	<u>Total</u>

FY 2017

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RDT&E Total	2,309	0	0	2,309
Direct Funded	2,309	0	0	2,309
Reimbursable Funded	0	0	0	0
Total Component	2,309	0	0	2,309
Direct Funded	2,309	0	0	2,309
Reimbursable Funded	0	0	0	0
<b>FY 2018</b>				
RDT&E Total	2,315	0	0	2,315
Direct Funded	2,282	0	0	2,282
Reimbursable Funded	33	0	0	33
Total Component	2,315	0	0	2,315
Direct Funded	2,282	0	0	2,282
Reimbursable Funded	33	0	0	33
<b>FY 2019</b>				
RDT&E Total	2,313	0	0	2,313
Direct Funded	2,280	0	0	2,280
Reimbursable Funded	33	0	0	33
Total Component	2,313	0	0	2,313
Direct Funded	2,280	0	0	2,280
Reimbursable Funded	33	0	0	33

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**5. SUMMARY OF CHANGES**

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

**Change from FY 2017 to FY 2018:**

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

**Change from FY 2018 to FY 2019:**

MDA's total reflect the continuation of the 20% Management HQ Funding and OSD Comptroller Issue No: MP-015 Reduction for Travel Efficiencies through 2019. MDA's phased implementation will continue through FY 2019, consistent with the plan approved by the office of the Deputy Management Officer (DCMO). RMD 700A2 Issue OPS-014 Financial Improvement and Audit Readiness Manpower Reallocation. Action transfers 1 civilian FTE with funding from WHS to MDA to meet audit readiness goals within established timelines.

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**Missile Defense Agency  
 FY 2019 Military Construction, Defense-Wide  
 (\$ in Thousands)**

<u>State/Installation/Project</u>	<u>Auth Request</u>	<u>Approp Request</u>	<u>New/ Current Mission</u>	<u>Page No.</u>
<b>Alaska</b>				
Clear Air Force Station (AFS) Long Range Discrimination Radar System Complex, Phase 2	174,000	174,000	N	101
Fort Greely Missile Field #1 Expansion	8,000	8,000	C	106
<b>Total</b>	<b>182,000</b>	<b>182,000</b>		

<b>1. COMPONENT</b> MDA		<b>FY 2019 MILITARY CONSTRUCTION PROJECT DATA</b>						<b>2. DATE</b> Feb 2018			
<b>3. INSTALLATION AND LOCATION</b> Clear AFS, Alaska				<b>4. COMMAND</b> Missile Defense Agency				<b>5. AREA CONSTR. COST INDEX</b> 2.53			
<b>6. PERSONNEL</b>		PERMANENT			STUDENTS			SUPPORTED			
STRENGTH:		OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	TOTAL
N/A: Tenant of U.S. Air Force											
<b>7. INVENTORY DATA (\$000)</b>											
A. TOTAL ACERAGE							N/A				
B. INVENTORY TOTAL AS OF							N/A				
C. AUTHORIZATION NOT YET IN INVENTORY							155,000				
D. AUTHORIZATION REQUESTED IN THE FY2018							0				
E. AUTHORIZATION REQUESTED IN THE FY2019							174,000				
F. PLANNED IN NEXT THREE PROGRAM YEARS							0				
G. REMAINING DEFICIENCY							0				
H. GRAND TOTAL.							329,000				
<b>8. PROJECTS REQUESTED IN THE FY2019 PROGRAM:</b>											
CATEGORY						COST		DESIGN STATUS			
CODE		PROJECT TITLE		SCOPE		(\$000)		START		COMPLETE	
8111		Long Range Discrimination Radar System Complex, Phase 2		28.0MW		174,000		Jan 15		Oct 18	
<b>9. FUTURE PROJECTS:</b>											
CATEGORY						COST					
CODE		PROJECT TITLE		SCOPE		(\$000)					
<b>10. MISSION OR MAJOR FUNCTIONS:</b> The mission of the Missile Defense Agency (MDA) is to develop and field an integrated, layered Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight. The Long Range Discrimination Radar project is required for deployment of a new midcourse tracking radar that will provide persistent coverage and improve discrimination capabilities against threats to the homeland from the Pacific theater. Phase 2 provides dedicated shielded power generation to improve survivability and reliability, availability, and maintainability (RAM) requirements supporting a midcourse BMDS discrimination capability to defend the United States from ballistic missile attacks and meet the 2020 MDA Enhanced Homeland Defense Capability.											
<b>11. OUTSTANDING POLLUTION AND SAFETY DEFICIENCIES:</b>											
A. Air Pollution:							N/A				
B. Water pollution:							N/A				
C. Occupational safety and health (OSH):							N/A				

<b>1. COMPONENT</b> MDA		<b>FY 2019 MILITARY CONSTRUCTION PROJECT DATA</b>			<b>2. DATE</b> Feb 2018	
<b>3. INSTALLATION AND LOCATION</b> Clear AFS, Alaska			<b>4. PROJECT TITLE</b> Long Range Discrimination Radar System Complex, Phase 2			
<b>5. PROGRAM ELEMENT</b> 0604873C		<b>6. CATEGORY CODE</b> 8111	<b>7. PROJECT NUMBER</b> MDA 659		<b>8. PROJECT COST (\$000)</b> 174,000	
<b>9. COST ESTIMATES</b>						
ITEM		U/M	QUANTITY	UNIT COST	COST \$(000)	
<u>PRIMARY FACILITIES</u>						
Mission Power Plant (811147)		KW	28,000	4,428.71	147,554 (124,004)	
Special Construction		LS			(12,400)	
Fuel Storage (411134)		GA	200,000	32.27	(6,453)	
Maintenance Facility (219944)		SF	10,000	338.40	(3,384)	
Antiterrorism/Force Protection		LS			(969)	
Security Infrastructure/ESS (872841)		LS			(344)	
<u>SUPPORTING FACILITIES</u>						
Electric Service		LS			8,046 (1,739)	
Water, Sewer		LS			(1,109)	
Site Improvements		LS			(4,092)	
Information/Communication Systems		LS			(1,006)	
Temporary Infrastructure Mob/Demob		LS			(100)	
SUBTOTAL					155,600	
CONTINGENCY (5.00%)					7,780	
TOTAL CONTRACT COST					163,380	
SIOH (6.50%)					10,620	
TOTAL REQUEST					174,000	
TOTAL ROUNDED REQUEST					174,000	
INSTALLED EQUIPMENT-OTHER APPROP					(20,734)	
<p><b>10. DESCRIPTION OF PROPOSED CONSTRUCTION:</b> This project constructs a Long Range Discrimination Radar (LRDR) Mission power plant at Clear AFS, Alaska supporting the LRDR System Complex. These facilities will be within the LRDR System Security Level A (SSL-A) secure boundary.</p> <p>Special Construction includes High Altitude Electromagnetic Pulse (HEMP)/Electro-Magnetic Interference (EMI) shielding in accordance with MIL-STD-188-125, integration and testing of power and all LRDR Complex shielded assets. Mission critical facilities will include features to meet site specific ground motion and seismic requirements.</p> <p>Fuel storage includes distribution piping, liquid fuel offloading stand and storage tanks.</p> <p>The maintenance facility will provide general work bench space for maintenance of radar system components and other mission support activities. It will also provide shipping and receiving and warehouse space for general facility material.</p> <p>Anti-terrorism / force protection infrastructure will consist of fencing and gates.</p> <p>Security Infrastructure / electronic security system (ESS) will include fire protection and alarm systems.</p> <p>Supporting facilities include electrical medium voltage distribution from the substation to the mission power plant, lightning protection and equipment grounding, water, and sewer.</p> <p>Site improvements include clearing, grubbing, grading, demolition, paving, walks and storm drainage.</p> <p>Information and Communications systems will include communication transmission lines, cybersecurity, and information management systems.</p> <p>Temporary infrastructure will support site improvements and preparation for construction. Improvements include temporary roads, construction free zone site fence, mobilization and demobilization.</p>						



1. COMPONENT MDA	<b>FY 2019 MILITARY CONSTRUCTION PROJECT DATA</b>	2. DATE Feb 2018
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3. INSTALLATION AND LOCATION  
Clear AFS, Alaska

4. PROJECT TITLE Long Range Discrimination Radar System Complex, Phase 2	5. PROJECT NUMBER MDA 659
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**12. SUPPLEMENTAL DATA:**

- A. Estimated Execution Data
- (1) Acquisition Strategy: Design-Bid-Build
  - (2) Design Data
    - (a) Design or Request for Proposal (RFP) Started: Jan 2015
    - (b) Percent Complete As Of January 2018 65%
    - (c) Design or RFP Complete: Oct 2018
    - (d) Total Design Cost: 15,100,000
    - (e) Energy Study and/or Life Cycle Analysis performed No
    - (f) Standard or definitive design used? No
  - (3) Construction Data:
    - (a) Contract Award Mar 2019
    - (b) Construction Start Jun 2019
    - (c) Construction Completion Dec 2021

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

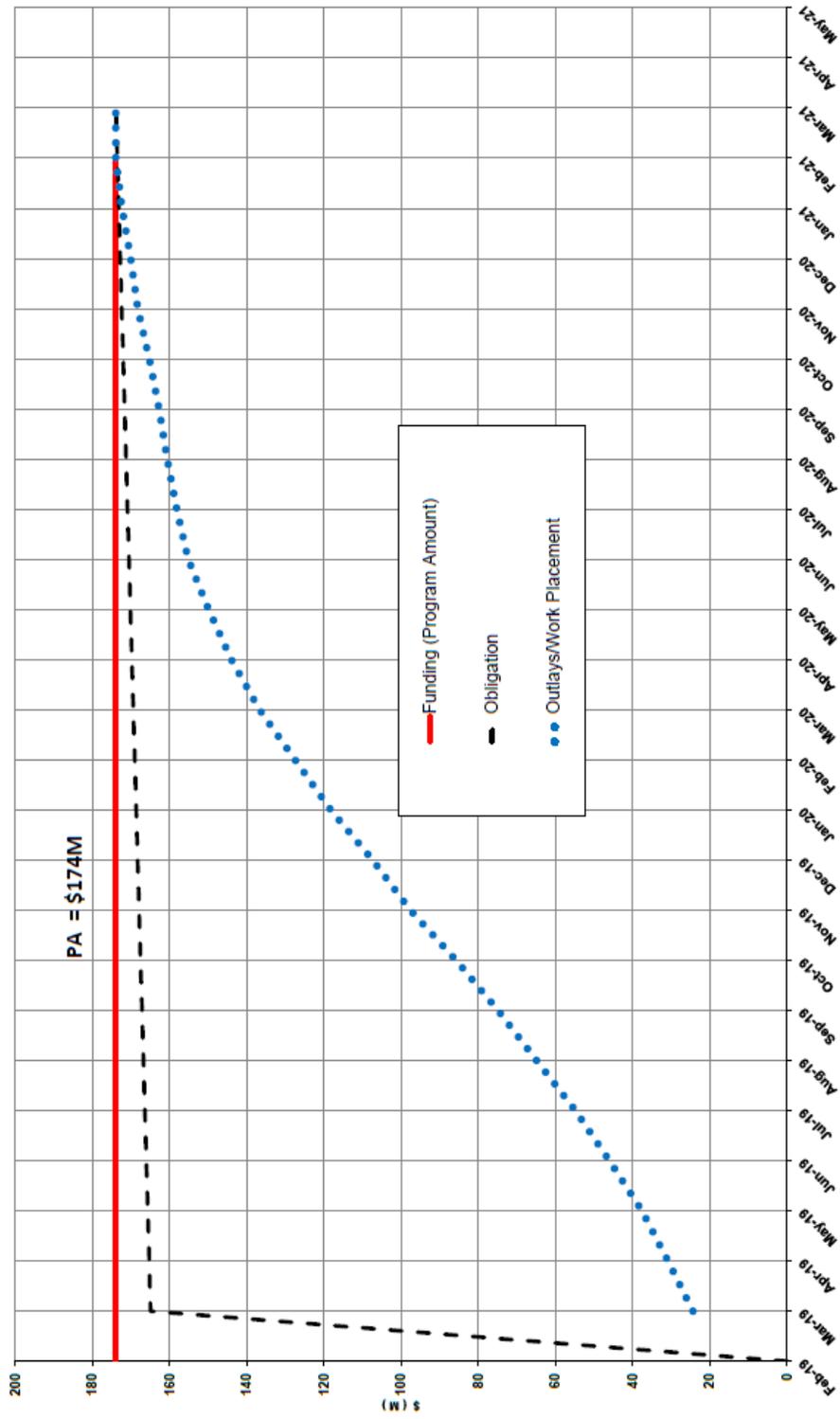
Equipment Nomenclature	Appropriation	FY Appropriated or Requested	Cost \$(000)
Site Activation	RDT&E	FY17-FY21	20,669
Security Equipment	RDT&E	FY17-FY21	<u>65</u>
TOTAL:			20,734

Research, Development, Test & Evaluation (RDT&E) funds are programmed for site activation to provide operations services & support throughout construction, installation and checkout. These services include lodging, dining, and security. Installed equipment includes special flooring, electronic controls to monitor electrical systems and the base infrastructure.



US Army Corps  
of Engineers

### Missile Defense Agency (MDA) Long Range Discrimination Radar System Complex, Alaska (MDA Project #659) - Work In Progress (WIP) Curve , date 5 October 2017



<b>1. COMPONENT</b> MDA		<b>FY 2019 MILITARY CONSTRUCTION PROJECT DATA</b>						<b>2. DATE</b> Feb 2018			
<b>3. INSTALLATION AND LOCATION</b> Fort Greely, Alaska				<b>4. COMMAND</b> Missile Defense Agency			<b>5. AREA CONSTR. COST INDEX</b> 2.51				
<b>6. PERSONNEL</b>		PERMANENT			STUDENTS			SUPPORTED			
STRENGTH: N/A: Tenant of U.S. Army		OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	TOTAL
<b>7. INVENTORY DATA (\$000)</b>											
A. TOTAL ACERAGE							N/A				
B. INVENTORY TOTAL AS OF							N/A				
C. AUTHORIZATION NOT YET IN INVENTORY							9,560				
D. AUTHORIZATION REQUESTED IN THE FY2018							200,000				
E. AUTHORIZATION REQUESTED IN THE FY2019							8,000				
F. PLANNED IN NEXT THREE PROGRAM YEARS							0				
G. REMAINING DEFICIENCY							0				
H. GRAND TOTAL.							217,560				
<b>8. PROJECTS REQUESTED IN THE FY2019 PROGRAM:</b>											
CATEGORY		PROJECT TITLE			SCOPE		COST (\$000)	DESIGN STATUS			
CODE								START		COMPLETE	
8222		Missile Field #1 Expansion			2,430 LF		8,000	Apr 18		Nov 18	
<b>9. FUTURE PROJECTS:</b>											
CATEGORY		PROJECT TITLE				SCOPE		COST (\$000)			
CODE											
<b>10. MISSION OR MAJOR FUNCTIONS:</b> The mission of the Missile Defense Agency (MDA) is to develop and field an integrated, layered Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight. The Missile Field #1 expansion project will provide the BMDS with increased ground-based interceptor (GBI) capabilities, to allow operational capability of 44 GBIs to be continuous during GBI maintenance activities. Planned enhancements and capabilities of the BMDS will ensure spare silos and GBIs are available to meet emerging threats and enhance our Nation's homeland defense.											
<b>11. OUTSTANDING POLLUTION AND SAFETY DEFICIENCIES:</b>											
A. Air Pollution:							N/A				
B. Water pollution:							N/A				
C. Occupational safety and health (OSH):							N/A				

1. COMPONENT MDA	FY 2019 MILITARY CONSTRUCTION PROJECT DATA			2. DATE Feb 2018
3. INSTALLATION AND LOCATION Fort Greely, Alaska		4. PROJECT TITLE Missile Field #1 Expansion		
5. PROGRAM ELEMENT 0603882C	6. CATEGORY CODE 82221	7. PROJECT NUMBER MDA 679	8. PROJECT COST (\$000) 8,000	
<b>9. COST ESTIMATES</b>				
<b>ITEM</b>	<b>U/M</b>	<b>QUANTITY</b>	<b>UNIT COST</b>	<b>COST (\$000)</b>
<b>PRIMARY FACILITIES</b>				
Chilled Water Line Extensions (82221)	LF	2,430	1,164	5,246 (2,828)
Silo Infrastructure Modifications (14951)	EA	2	122,000	(244)
Site Communications, Security Features	LS			(2,174)
<b>SUPPORTING FACILITIES</b>				
Electrical Services	LS			1,930 (1,189)
Chilled Water System Modifications	LS			(479)
Grounding/Temporary Power	LS			(85)
Paving	LS			(109)
Site Demo	LS			(4)
Other (Mob/Demob)	LS			(64)
<b>SUBTOTAL</b>				
CONTINGENCY PERCENT (5.0%)				7,176 359
TOTAL CONTRACT COST				7,535
SIOH (6.5 %)				490
TOTAL REQUEST				8,025
TOTAL REQUEST ROUNDED				8,000
INSTALLED EQPT-OTHER APPROPRIATIONS				(139,000)
<p><b>10. DESCRIPTION OF PROPOSED CONSTRUCTION:</b> Construct Missile Field #1 (MF#1) expansion to include completing an additional 2 ground-based interceptor (GBI) launch facilities, and supporting utilities infrastructure in support of the Ballistic Missile Defense System (BMDS) at Fort Greely, AK.</p> <p>Existing silo infrastructure in MF#1 includes 14 unfinished and isolated silo shafts with liners. This project will construct chilled water line extensions from the existing utilidor (trunk line) piping to two of the unfinished silos.</p> <p>Additional silo infrastructure modifications will excavate, construct slabs, and backfill the openings for two new Silo Interface Vaults (SIVs) for launch equipment required to make the silos operational.</p> <p>This project will install new communication and security conduits for fiber optic cabling and security monitoring from existing manholes to the SIV/Silos.</p> <p>Supporting facilities will include installing electrical utilities from the duct banks to the SIVs.</p> <p>This project will include modifications to the chilled water system pumping capacity and to the demineralized/chilled water piping bundles consisting of carrier pipes within containment pipes in the Mechanical Electrical Building (MEB) to accommodate the two additional SIVs. This project will extend High Altitude Electromagnetic Pulse (HEMP) protected power to the SIV and HEMP modifications to the MEB to facilitate chiller system modifications.</p> <p>Site work will include repairing SIV grounding systems, providing temporary power to the SIV, new paving around the SIVs, and site demolition.</p> <p>Mobilization/Demobilization will consist of establishing a segregated construction laydown area and temporary environmental controls.</p>				

1. COMPONENT MDA	FY 2019 MILITARY CONSTRUCTION PROJECT DATA			2. DATE Feb 2018																								
3. INSTALLATION AND LOCATION Fort Greely, Alaska		4. PROJECT TITLE Missile Field #1 Expansion																										
5. PROGRAM ELEMENT 0603882C	6. CATEGORY CODE 82221	7. PROJECT NUMBER MDA 679	8. PROJECT COST (\$000) 8,000																									
<p>11. REQUIREMENT:                    2,430 LF                    ADQT:    0 LF                    SUBSTD:    None</p> <p><u>PROJECT:</u>    Expand MF #1 to accommodate two additional GBIs, including site work, utilities, power and supporting infrastructure. (Current Mission)</p> <p><u>REQUIREMENT:</u>    This project is required to provide the BMDS with increased GBI capabilities, to allow operational capability of 44 GBIs to be continuous during GBI maintenance activities. As adversaries continue to pursue credible and advanced capabilities, the U.S. must evolve its missile defense capabilities to outpace increasingly complex threats. Operational capability of the 6 existing GBIs at MF #1 will be maintained during upgrade activities. Due to the limited construction season in Alaska and the urgency of the requirement, the Department requests this project in FY 2019.</p> <p><u>CURRENT SITUATION:</u>    The United States has 44 operational GBIs distributed between three missile fields at Fort Greely, Alaska and one missile field at Vandenberg AFB, CA. The existing situation is that no spare silos and GBIs are available to maintain the required 44 operational while GBI and Silo maintenance activities are performed. The completion of the FY 2018 MF #4 project will increase GBI availability to 64.</p> <p><u>IMPACT IF NOT PROVIDED:</u>    Planned enhancements and capabilities of the BMDS to meet emerging threats will not be available for our Nation's homeland defense.</p> <p><u>ADDITIONAL INFORMATION:</u>    This project has been 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 in the 100-year flood plain and will be sited to preserve and enhance the natural and beneficial values of wetlands; and minimize the destruction, loss or degradation of wetlands.</p> <p>This project is being coordinated with the installation physical security plan and required physical security and/or combating terrorism (CBT/T) measures are being included. All required NEPA analyses will be completed prior to the start of construction.</p>																												
<p>12. SUPPLEMENTAL DATA:</p> <p>A. Estimated Execution Data</p> <table border="0"> <tr> <td>(1) Acquisition Strategy:</td> <td>Design-Bid-Build</td> </tr> <tr> <td>(2) Design Data</td> <td></td> </tr> <tr> <td>    (a) Design or request for Proposal (RFP) Started:</td> <td>Apr 2018</td> </tr> <tr> <td>    (b) Percent Complete As Of January 2018</td> <td>0%</td> </tr> <tr> <td>    (c) Design or RFP Complete:</td> <td>Nov 2018</td> </tr> <tr> <td>    (d) Total Design Cost:</td> <td>800,000</td> </tr> <tr> <td>    (e) Energy Study and/or Life Cycle Analysis performed</td> <td>No</td> </tr> <tr> <td>    (f) Standard or definitive design used?</td> <td>Yes</td> </tr> <tr> <td>(3) Construction Data:</td> <td></td> </tr> <tr> <td>    (a) Contract Award</td> <td>Mar 2019</td> </tr> <tr> <td>    (b) Construction Start</td> <td>Jun 2019</td> </tr> <tr> <td>    (c) Construction Completion</td> <td>Aug 2020</td> </tr> </table>					(1) Acquisition Strategy:	Design-Bid-Build	(2) Design Data		(a) Design or request for Proposal (RFP) Started:	Apr 2018	(b) Percent Complete As Of January 2018	0%	(c) Design or RFP Complete:	Nov 2018	(d) Total Design Cost:	800,000	(e) Energy Study and/or Life Cycle Analysis performed	No	(f) Standard or definitive design used?	Yes	(3) Construction Data:		(a) Contract Award	Mar 2019	(b) Construction Start	Jun 2019	(c) Construction Completion	Aug 2020
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<p>12. SUPPLEMENTAL DATA: (cont.)</p> <p>B. Equipment associated with this project which will be provided from other appropriations:</p> <table border="1"> <thead> <tr> <th>Equipment Nomenclature</th> <th>Procuring Appropriation</th> <th>FY Appropriated or Requested</th> <th>Cost \$(000)</th> </tr> </thead> <tbody> <tr> <td>GBI Launch Support Equipment</td> <td>RDT&amp;E</td> <td>FY18</td> <td>70,000</td> </tr> <tr> <td>GBI Launch Support Equipment</td> <td>RDT&amp;E</td> <td>FY19</td> <td>1,000</td> </tr> <tr> <td>GBI Launch Support Equipment</td> <td>RDT&amp;E</td> <td>FY20</td> <td>5,000</td> </tr> <tr> <td>GBI Launch Support Equipment</td> <td>RDT&amp;E</td> <td>FY21</td> <td>5,000</td> </tr> <tr> <td></td> <td></td> <td>Total RDT&amp;E:</td> <td>81,000</td> </tr> <tr> <td>Procure, Install, and Test SIV/Silos</td> <td>Procurement</td> <td>FY19</td> <td>58,000</td> </tr> <tr> <td></td> <td></td> <td>Total Procurement:</td> <td>58,000</td> </tr> <tr> <td></td> <td></td> <td>Total:</td> <td>139,000</td> </tr> </tbody> </table>				Equipment Nomenclature	Procuring Appropriation	FY Appropriated or Requested	Cost \$(000)	GBI Launch Support Equipment	RDT&E	FY18	70,000	GBI Launch Support Equipment	RDT&E	FY19	1,000	GBI Launch Support Equipment	RDT&E	FY20	5,000	GBI Launch Support Equipment	RDT&E	FY21	5,000			Total RDT&E:	81,000	Procure, Install, and Test SIV/Silos	Procurement	FY19	58,000			Total Procurement:	58,000			Total:	139,000
Equipment Nomenclature	Procuring Appropriation	FY Appropriated or Requested	Cost \$(000)																																				
GBI Launch Support Equipment	RDT&E	FY18	70,000																																				
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**Exhibit MYP-1, Multiyear Procurement Criteria**Date:  
January 2018**Appropriation / Budget Activity:****P-1 Item Nomenclature:**

Aegis BMD Standard Missile-3 (SM-3) Block IB

**1. Multiyear Procurement Description:**

This proposed Multiyear Procurement (MYP) covers the purchase of 204 Standard Missile -3 (SM-3) Block IB AEGIS ballistic missile interceptors in FY2019 through FY2023, with advance procurement for economic order quantities beginning in FY2019.

This multiyear contract uses Economic Order Quantity Advance Procurement funding to provide the U.S. Government maximum savings in price and delivery schedule. Advance Procurement funding in FY2019 will enable equipment suppliers and subcontractors with sufficient lead time to support the planned delivery schedule within the context of the multiyear funding, prices, and cancellation ceilings.

**2. Benefit to the Government:****a. Substantial Savings:**

This multiyear contract will provide the U.S. Government maximum savings in both price and delivery schedule. Implementation of this proposed MYP will yield substantial savings through the term of the contract. Specifically, savings for the FY2019 through FY2023 attributable to this MYP strategy is estimated at \$306.1million (TY\$), for a total of 13.49%

**b. Stability of Requirement:**

The SM-3 Block IB incorporates a two-color, all reflective infrared seeker, enabling longer range acquisition and increased threat discrimination over the previous SM-3 Block IA. A Throttleable Divert Attitude Control System (TDACS) provides a more flexible and lower cost alternative to the Solid Divert Attitude Control System in the Block IA. Initial Production of the SM-3 Block IB began in FY2012 (14) with larger rate production quantities in FY2013 (33), FY2014 (52), and FY2015 (52) and FY2016 (46) and FY 2017 (35). The planned sustained production rate objective is 48 missiles per year and the maximum production rate is 52 missiles per year.

**c. Stability of Funding:**

Sufficient funding exists within the current budget controls to execute this procurement. The Missile Defense Agency has demonstrated its commitment to a stable funding stream for the SM-3 Block IB MYP through every step of this year's budget process by fully funding the requirement. This commitment was reaffirmed by top level DoD leadership through its support in the final budget submission. In addition, the Secretary of Defense supports the quantities and funding profile provided in this request. The budget submission includes sufficient funding to execute the program.

**d. Stable Configuration:**

SM-3 Block IB was found to be Operationally Suitable and Effective by Commander Operational Test and Evaluation Force October 2014 following the completion of its assessment of Developmental Test/Operational Tests. The missile has been in initial production since the FY2012 contract. The 120th SM-3 Block IB will be produced in late calendar year 2017. SM-3 Block IB configuration is governed by a rigorous control process at both the Government and contractor facilities. All SM-3 Block IB procured under the multi-year contract would be of the same design. Concurrent procurement of material will ensure that sufficient parts exist to maintain the stable

Exhibit MYP-1, Multiyear Procurement Criteria

(MYP, Page 1 of 6)

**Exhibit MYP-1, Multiyear Procurement Criteria**

Date:  
January 2018

**Appropriation / Budget Activity:**

**P-1 Item Nomenclature:**

Aegis BMD Standard Missile-3 (SM-3) Block IB

configuration.

**e. Realistic Cost Estimate:**

Cost estimates reflect experience with Standard Missile 3 (SM-3) manufacturing since 2005, including 139 procured SM-3 Block IA and 172 Block IB through June 2015. The cost estimates for the multi-year are based on 10 years of SM-3 procurement history and established learning curves and quantity curves.

The savings shown in these exhibits are based on historical experience, contract awards, and surveys of primary equipment vendors. There is a high degree of confidence the SM-3 Block IB program can achieve the stated savings and procure the MYP missiles within the funding identified. This MYP will be a fixed price incentive firm contract.

**f. National Security:**

The QDR and DPG emphasize the criticality of the planned antiballistic missile infrastructure, including investments in defensive interceptors such as the SM-3 Block IB. The SM-3 Block IB is deployed on DDG and CG class ships and planned for the Aegis Ashore platform defending U.S. interests at home and abroad. The current SM-3 Block IB inventory is significantly lower than force structure requirements, making the procurement of additional SM-3 Block IBs critical for the defense of the homeland and protection of U.S. forces and interests abroad.

**3. Source of Savings:**

The stability and upfront material purchase of a multiyear contract for the SM-3 IB Missile will enable Raytheon Missile Systems and its suppliers to implement a more efficient planning and manufacturing cycle predicated on a production rate that supports the delivery cycle.

	<u>\$ in Millions</u>
Inflation	\$6.923
Vendor Procurement	\$254.634
Manufacturing	\$44.575
Design/Engineering	\$0.000
Tool Design	\$0.000
Support Equipment	\$0.000
Other	\$0.000
Workload Savings	\$0.000
<b>Total</b>	<b>\$306.132</b>

**4. Advantages of the MYP:**

The proposed multi-year contract provides significant savings over a year-by-year contracting approach. It provides enhanced stability to the configuration of the missile by protecting against the potential loss of vendors at low procurement quantities. It also provides increased stability to the engineering base for the program by providing a predictable

**Exhibit MYP-1, Multiyear Procurement Criteria**

Date:  
January 2018

**Appropriation / Budget Activity:**

**P-1 Item Nomenclature:**

Aegis BMD Standard Missile-3 (SM-3) Block IB

workload over the 5 year period. Each of these is a significant benefit over the year-by-year contracting approach. This MYP strategy has been structured to achieve significant savings and will eliminate the need to develop an annual plan on a yearly basis; one year of planning will replace four independent years of planning. Savings resulting from economic order quantities and independent planning result in benefit to industry and government.

**5. Impact on Defense Industrial Base:**

The stability afforded by the use of a multiyear procurement will allow the prime contractor to enter into long term agreements with suppliers, at every tier, which provide substantial benefit. Such long term agreements incentivize both the prime and the subcontractors to invest in process improvements that yield long term benefits in terms of product quality and cost. The contractor and subcontractor will be at a reduced risk when implementing production process improvements, facility improvements, tooling design improvements, and fabrication process improvements. The ability for the government and industry to enter into a long-term agreement will allow industry the opportunity to place capital investments upfront, which reduces the overall cost and improves the quality of the SM-3 Block IB.

**6. Multiyear Procurement Summary:**

	<u>Annual Contracts</u>	<u>MultiYear Contract</u>
Quantity	204	204
Total Contract Price	\$2,268.943	\$1,962.811
Cancellation Ceiling (highest point)		
Funded		\$ 0.000
Unfunded		\$ 0.000
\$ Cost Avoidance Over Annual		\$306.132
% Cost Avoidance Over Annual		13.5%

UNCLASSIFIED

Exhibit MYP-2 Total Program Funding Plan (MDA)					Date: January 2018							
PROCUREMENT					P-1 Line Item Nomenclature - Aegis BMD Standard Missile-3 (SM-3) Block IB (MDA)							
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026		TOTAL
<b>Procurement Quantity</b>			37	38	41	41	47					204
<b>Annual Procurement</b>												
Gross Cost			459.0	472.4	498.4	498.6	579.9					2508.3
Less PY Adv Procurement												
Net Procurement (= P-1)			459.0	472.4	498.4	498.6	579.9					2508.3
Plus CY Adv Procurement												
Weapon System Cost			459.0	472.4	498.4	498.6	579.9					2508.3
<b>Multiyear Procurement</b>												
Gross Cost (P-1)			411.7	408.7	430.2	434.6	516.9					2202.1
Less PY Adv Procurement				(32.9)	(68.7)	(87.0)	(85.9)					(274.5)
Net Procurement (= P-1)			411.7	375.8	361.5	347.6	431.0					1927.6
<b>Advance Procurement</b>												
For FY20			32.9									32.9
For FY21			31.6	37.1								68.7
For FY22			27.7	33.5	25.9							87.1
For FY23			23.1	26.4	19.0	17.5						86.0
Plus CY Adv Procurement			115.2	97.0	44.9	17.5						274.6
Weapon System Cost			526.9	472.8	406.4	365.1	431.0					2202.2
<b>Multiyear Savings (\$)</b>			(67.9)	(0.4)	92.0	133.5	148.9					306.1
Multiyear Savings (%) (total only)												12.2%
Cancellation Ceiling, Funded												
Cancellation Ceiling, Unfunded												
<b>OUTLAYS</b>												
Annual			134.0	358.0	448.9	545.6	465.3	211.9	135.0	89.3		2388.0
Multiyear			117.6	314.3	394.1	479.0	408.5	186.0	118.5	78.4		2096.4
Savings			16.4	43.7	54.8	66.6	56.8	25.9	16.5	10.9		291.6

P-1 Shopping List - Item No  
17-MD09

\* Numbers may not add due to rounding.

UNCLASSIFIED

Exhibit MYP-3 Total Contract Funding Plan (MDA)					Date: January 2018						
PROCUREMENT					P-1 Line Item Nomenclature - Aegis BMD Standard Missile-3 (SM-3) Block IB (MDA)						
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	TOTAL
<b>Procurement Quantity</b>			37	38	41	41	47				204
<b>Annual Procurement</b>											
Gross Cost			407.3	420.9	455.0	459.9	525.8				2268.9
Less PY Adv Procurement											
Net Procurement (= P-1)			407.3	420.9	455.0	459.9	525.8				2268.9
Plus CY Adv Procurement											
Contract Price			407.3	420.9	455.0	459.9	525.8				2268.9
<b>Multiyear Procurement</b>											
Gross Cost (P-1)			360.0	357.2	386.8	396.0	462.8				1962.8
Less PY Adv Procurement				(32.9)	(68.7)	(87.1)	(86.0)				(274.6)
Net Procurement (= P-1)			360.0	324.4	318.1	308.9	376.9				1688.2
<b>Advance Procurement</b>											
For FY20			32.9								32.9
For FY21			31.6	37.1							68.7
For FY22			27.7	33.5	25.9						87.1
For FY23			23.1	26.4	19.0	17.5					86.0
Plus CY Adv Procurement			115.2	97.0	44.9	17.5					274.6
Contract Price			475.2	421.4	363.0	326.4	376.9				1962.8
<b>Multiyear Savings (\$)</b>			(67.9)	(0.4)	92.0	133.5	148.9				306.1
Multiyear Savings (%) (total only)											13.5%
Cancellation Ceiling, Funded											
Cancellation Ceiling, Unfunded											
<b>OUTLAYS</b>											
Annual			121.2	323.8	406.1	493.5	420.9	191.7	122.1	80.8	2160.1
Multiyear			140.7	337.2	418.7	420.8	250.5	165.9	90.3	68.7	1892.8
Savings			(19.5)	(13.4)	(12.6)	72.7	170.4	25.8	31.8	12.1	267.3

P-1 Shopping List - Item No  
17-MD09

\* Numbers may not add due to rounding.

Exhibit MYP-3, Total Contract Funding Plan

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Exhibit MYP-4 Present Value Analysis (MDA)					Date: January 2018						
PROCUREMENT					P-1 Line Item Nomenclature - Aegis BMD Standard Missile-3 (SM-3) Block IB (MDA)						
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	TOTAL
<b>Annual Proposal</b>											
Then Year Cost			121.2	323.8	406.1	493.5	420.9	191.7	122.1	80.8	2160.1
Constant Year Cost			118.9	311.8	383.8	457.7	383.1	171.2	107.0	69.5	2003.2
Present Value			115.7	299.9	365.0	430.5	356.3	157.5	97.4	62.5	1884.9
<b>Multiyear Proposal</b>											
Then Year Cost			140.7	337.2	418.7	420.8	250.5	165.9	90.3	68.7	1892.8
Constant Year Cost			138.1	324.7	395.7	390.3	228.0	148.2	79.2	59.1	1763.2
Present Value			134.3	312.3	376.4	367.1	212.1	136.3	72.0	53.2	1663.6
<b>Difference</b>											
Then Year Cost			(19.5)	(13.4)	(12.6)	72.7	170.4	25.8	31.8	12.1	267.3
Constant Year Cost			(19.1)	(12.9)	(11.9)	67.4	155.1	23.0	27.9	10.4	239.9
Present Value			(18.6)	(12.4)	(11.3)	63.4	144.3	21.2	25.4	9.4	221.3
<b>Multiyear Savings (\$)</b>			(19.5)	(13.4)	(12.6)	72.7	170.4	25.8	31.8	12.1	267.3

**NOTE:** MYP Procurement Period is 12 years. Real Interest Rate for MYP Procurement Period of 12 years is 1.01120000%.  
(OMB Circular No. A-94, January 2018)

\* Numbers may not add due to rounding.

Exhibit MYP-4 Present Value Analysis

(MYP, Page 6 of 6)

**UNCLASSIFIED**

**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD
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ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0604876C, 0603881C	Other Related Program Elements: 0604876C, 0603881C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	229	36	84	82	-	82	37	28	21	28	8	553
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	3,598.111	566.504	960.732	874.068	-	874.068	416.343	413.956	424.473	434.439	132.979	7,821.605
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	3,598.111	566.504	960.732	874.068	-	874.068	416.343	413.956	424.473	434.439	132.979	7,821.605
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>3,598.111</b>	<b>566.504</b>	<b>960.732</b>	<b>874.068</b>	<b>-</b>	<b>874.068</b>	<b>416.343</b>	<b>413.956</b>	<b>424.473</b>	<b>434.439</b>	<b>132.979</b>	<b>7,821.605</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	10.964	12.052	10.783	9.587	-	9.587	9.587	12.524	12.524	13.169	13.169	11.025
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	15.712	15.736	11.437	10.659	-	10.659	11.253	14.784	20.213	15.516	16.622	14.144

**Description:**

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +509.14 Million and 50+ interceptors is required to address emergency warfighting requirements.

Project MD07 THAAD: +509.140M. This is a base budget requirement.

+505.000M is required to procure 50 additional THAAD interceptors.

+4.140M is required to procure the THAAD portion of the USPACOM Joint Emergent Operational Need Statement (JEON) to deliver an integrated Upper Tier (THAAD and AEGIS BMD) and Lower Tier (PAC3 Missile Segment Enhancement-MSE) ballistic missile defense system that expands engagement options and increases coverage area.

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) comprise the THAAD system.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): B	<b>Program Elements for Code B Items:</b> 0604876C, 0603881C	<b>Other Related Program Elements:</b> 0604876C, 0603881C
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**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	THAAD	P-5a, P-21	B		229 / 3,598.111	36 / 566.504	84 / 960.732	82 / 874.068	- / -	82 / 874.068
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>229 / 3,598.111</b>	<b>36 / 566.504</b>	<b>84 / 960.732</b>	<b>82 / 874.068</b>	<b>- / -</b>	<b>82 / 874.068</b>

\*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 FY 2019 budget decrease is primarily due to a reduction in THAAD Interceptor unit cost based on updated cost estimates, a decrease in THAAD interceptor procurement quantity from 84 in FY 2018 to 82 in FY 2019, and completion of Battery 7 New Equipment Training (NET) in FY 2018.

The FY 2019 budget request includes 82 THAAD Interceptors, the THAAD Stockpile Reliability Program, obsolescence mitigation efforts, Production Support and Testing Equipment, as well as procurement of both System Power Architecture hardware and Remote Launcher Kits to support the UFK JEON requirement.

In FY 2019 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.

The first two (2) THAAD Batteries were Research Development Test and Evaluation (RDT&E) funded 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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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B	<b>MDAP/MAIS Code:</b>
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Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity (Units in Each)	229	36	84	82	-	82
Gross/Weapon System Cost (\$ in Millions)	3,598.111	566.504	960.732	874.068	-	874.068
Less PY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	3,598.111	566.504	960.732	874.068	-	874.068
Plus CY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
<b>Total Obligation Authority (\$ in Millions)</b>	<b>3,598.111</b>	<b>566.504</b>	<b>960.732</b>	<b>874.068</b>	<b>-</b>	<b>874.068</b>

*(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)	15.712	15.736	11.437	10.659	-	10.659

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
<b>Hardware Cost</b>																		
<b>Recurring Cost</b>																		
Interceptor <sup>(†)</sup>	10.964	229	2,510.707	12.052	36	433.871	10.783	84	905.734	9.587	82	786.123	-	-	-	9.587	82	786.123
Launcher <sup>(†)</sup>	8.110	36	291.977	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Support Equipment	22.887	7	160.207	1.228	1	1.228	-	-	-	-	-	-	-	-	-	-	-	-
TFCC Tactical Station Group <sup>(†)</sup>	10.522	8	84.179	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	<i>-</i>	<i>-</i>	<i>3,047.070</i>	<i>-</i>	<i>-</i>	<i>435.099</i>	<i>-</i>	<i>-</i>	<i>905.734</i>	<i>-</i>	<i>-</i>	<i>786.123</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>786.123</i>
<i>Subtotal: Hardware Cost</i>	<i>-</i>	<i>-</i>	<i>3,047.070</i>	<i>-</i>	<i>-</i>	<i>435.099</i>	<i>-</i>	<i>-</i>	<i>905.734</i>	<i>-</i>	<i>-</i>	<i>786.123</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>786.123</i>
<b>Support Cost</b>																		
Obsolescence and Modifications	23.859	4	95.434	80.807	1	80.807	26.883	1	26.883	30.920	1	30.920	-	-	-	30.920	1	30.920
Production Support & Testing	71.535	5	357.674	11.573	1	11.573	16.312	1	16.312	19.225	1	19.225	-	-	-	19.225	1	19.225
Training	19.587	5	97.933	39.025	1	39.025	7.663	1	7.663	-	-	-	-	-	-	-	-	-
USFK JEON	-	-	-	-	-	-	4.140	1	4.140	37.800	1	37.800	-	-	-	37.800	1	37.800
<i>Subtotal: Support Cost</i>	<i>-</i>	<i>-</i>	<i>551.041</i>	<i>-</i>	<i>-</i>	<i>131.405</i>	<i>-</i>	<i>-</i>	<i>54.998</i>	<i>-</i>	<i>-</i>	<i>87.945</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>87.945</i>
<b>Gross/Weapon System Cost</b>	<b>15.712</b>	<b>229</b>	<b>3,598.111</b>	<b>15.736</b>	<b>36</b>	<b>566.504</b>	<b>11.437</b>	<b>84</b>	<b>960.732</b>	<b>10.659</b>	<b>82</b>	<b>874.068</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10.659</b>	<b>82</b>	<b>874.068</b>

Remarks:

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B	<b>MDAP/MAIS Code:</b>	
<p>"Procurement Quantity" above represents interceptors only, but the "Net Procurement" cost above includes the costs of all hardware. Prior FYs funding includes procurement of ground components, which affects the "Gross Weapon System Unit Cost". Support Equipment captures miscellaneous items such as THAAD Active Leak Sensor System (TALSS) and Battery Support Center (BSC) that support the THAAD Batteries and varies from year to year.</p> <p>The decrease in the Interceptor line above is driven by a decrease in THAAD interceptor procurement quantity from 84 in FY 2018 to 82 in FY 2019 and reduced unit costs based on updated cost estimates.</p> <p>The increase in the Obsolescence and Modifications line from FY 2018 to FY 2019 is due to a surge in predicted obsolete parts which affect the THAAD interceptors and will require mitigation to be implemented in order to continue future production.</p> <p>The increase in the Production Support &amp; Testing line above is primarily driven by the initial purchase of equipment to support recertification of currently fielded THAAD interceptors as they reach their initial 10 year certification life. Upon recertification, the THAAD interceptors will be certified for another 10 years, meeting the 20 year service life requirement.</p> <p>The decrease in the Training line from FY 2018 to FY 2019 is due to completion Battery 7 New Equipment Training (NET).</p> <p>The increase in the USFK JEON line above is due to increased hardware modifications required to enable capability declaration at the deployed THAAD battery location to support USFK JEON activities.</p> <p>Obsolescence encompasses mitigation activities that protect the system design and ensure a producible technical data package. This preserves an affordable future product cost within an acceptable production schedule. Examples of mitigation activities include component replacement parts, materials, qualification, alternative source/parts qualification, and piece part/material bridge buys to support subsequent years' production lots.</p> <p>(† indicates the presence of a P-5A)</p> <p>(t) indicates the presence of a P-5a</p>		

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**Exhibit P-5a, Procurement History and Planning: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Interceptor - Lot 1 <sup>(†)</sup>		2010	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Mar 2011	Jul 2012	26	14.480	Y		Oct 2009
Interceptor - Lot 2 <sup>(†)</sup>		2011	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Mar 2011	Jul 2013	22	12.100	N		Oct 2009
Interceptor - Lot 4 <sup>(†)</sup>		2012	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Aug 2012	Jun 2015	46	11.022	N		Aug 2011
Interceptor - Lot 5 <sup>(†)</sup>		2013	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Sep 2013	Jul 2017	34	11.022	N		Aug 2011
Interceptor - Lot 6 <sup>(†)</sup>		2014	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2013	Jan 2018	27	11.022	N		Jun 2013
Interceptor - Lot 7 <sup>(†)</sup>		2015	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2015	May 2018	38	10.100	N		Mar 2014
Interceptor - Lot 8 <sup>(†)</sup>		2016	Lockheed Martin / Troy, AL	SS / FPIF	MDA, Huntsville, AL	Dec 2015	Mar 2019	36	10.100	N		Apr 2015
Launcher - Lot 1 <sup>(†)</sup>		2010	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	May 2011	Apr 2013	6	9.170	Y		Oct 2009
Launcher - Lot 3 <sup>(†)</sup>		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	May 2014	6	9.130	Y		Aug 2011
Launcher - Lot 2 <sup>(†)</sup>		2011	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	May 2011	Oct 2013	6	9.130	Y		Oct 2009
Launcher - Lot 4 <sup>(†)</sup>		2012	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	Nov 2014	6	7.490	Y		Aug 2011
Launcher - Lot 6 <sup>(†)</sup>		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 <sup>(†)</sup>		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 <sup>(†)</sup>		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 <sup>(†)</sup>		2012	Lockheed Martin / Camden, AR	SS / FFP	MDA, Huntsville, AL	Jul 2012	Oct 2014	2	9.260	Y		Aug 2011

<sup>(†)</sup> 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 2013; - Delivery of Battery 4 completed in FY 2014; - Delivery of Battery 5 completed in FY 2015; - Delivery of Battery 6 completed in FY 2016; - Delivery of Battery 7 completes 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 P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD
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Cost Elements <i>(Units in Each)</i>					Fiscal Year 2013													Fiscal Year 2014													BALANCE		
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2012	BAL DUE AS OF 1 OCT	Calendar Year 2013													Calendar Year 2014													
							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	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			
Interceptor - Lot 1																																	
	1	2010	MDA	26	1	25	-	-	-	-	-	-	3	6	6	7	3													0			
Interceptor - Lot 2																																	
	2	2011	MDA	22	0	22	-	-	-	-	-	-	-	-	-	4	4	4	3	3	3	-	-	-	1					0			
Interceptor - Lot 4																																	
	3	2012	MDA	46	0	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46			
Interceptor - Lot 5																																	
	4	2013	MDA	34	0	34																							34				
Interceptor - Lot 6																																	
	5	2014	MDA	27	0	27																							27				
Interceptor - Lot 7																																	
	6	2015	MDA	38	0	38																							38				
Interceptor - Lot 8																																	
	6	2016	MDA	36	0	36																							36				
Launcher - Lot 1																																	
	7	2010	MDA	6	0	6	-	-	-	-	-	-	1	2	-	-	3												0				
Launcher - Lot 3																																	
	8	2011	MDA	6	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1				
Launcher - Lot 2																																	
	9	2011	MDA	6	0	6	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1					0					
Launcher - Lot 4																																	
	10	2012	MDA	6	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6				
Launcher - Lot 6																																	
	11	2014	MDA	12	0	12																							12				
TFCC Tactical Station Group - Lot 2																																	
	12	2011	MDA	4	0	4	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0				
TFCC Tactical Station Group - Lot 3																																	
	13	2011	MDA	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0				
TFCC Tactical Station Group - Lot 4																																	
	14	2012	MDA	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2				
							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	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			

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

**Appropriation / Budget Activity / Budget Sub Activity:** 0300D / 01 / 17 **P-1 Line Item Number / Title:** MD07 / THAAD **Item Number / Title [DODIC]:** - / THAAD

Cost Elements <i>(Units in Each)</i>					Fiscal Year 2015													Fiscal Year 2016													BALANCE		
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2014	BAL DUE AS OF 1 OCT	Calendar Year 2015													Calendar Year 2016													
							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	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			
Interceptor - Lot 1																																	
	1	2010	MDA	26	26	0																							0				
Interceptor - Lot 2																																	
	2	2011	MDA	22	22	0																							0				
Interceptor - Lot 4																																	
	3	2012	MDA	46	0	46	-	-	-	-	-	-	-	-	3	-	-	-	-	2	7	-	-	-	-	-	12	-	-	-	22		
Interceptor - Lot 5																																	
	4	2013	MDA	34	0	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34			
Interceptor - Lot 6																																	
	5	2014	MDA	27	0	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27			
Interceptor - Lot 7																																	
	6	2015	MDA	38	0	38																							38				
Interceptor - Lot 8																																	
	6	2016	MDA	36	0	36																							36				
Launcher - Lot 1																																	
	7	2010	MDA	6	6	0																							0				
Launcher - Lot 3																																	
	8	2011	MDA	6	5	1	1																						0				
Launcher - Lot 2																																	
	9	2011	MDA	6	6	0																							0				
Launcher - Lot 4																																	
	10	2012	MDA	6	0	6	-	1	1	1	1	1	1																0				
Launcher - Lot 6																																	
	11	2014	MDA	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	1	1	2	1	2				
TFCC Tactical Station Group - Lot 2																																	
	12	2011	MDA	4	4	0																							0				
TFCC Tactical Station Group - Lot 3																																	
	13	2011	MDA	2	2	0																							0				
TFCC Tactical Station Group - Lot 4																																	
	14	2012	MDA	2	0	2	1	1																					0				
							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	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			

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2017														Fiscal Year 2018												BALANCE		
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2016	BAL DUE AS OF 1 OCT	Calendar Year 2017														Calendar Year 2018													
							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	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				
Interceptor - Lot 1																																		
	1	2010	MDA	26	26	0																												0
Interceptor - Lot 2																																		
	2	2011	MDA	22	22	0																												0
Interceptor - Lot 4																																		
	3	2012	MDA	46	24	22	-	-	-	-	-	-	2	3	9	8																		0
Interceptor - Lot 5																																		
	4	2013	MDA	34	0	34	-	-	-	-	-	-	-	-	4	8	7	1	-	9	5												0	
Interceptor - Lot 6																																		
	5	2014	MDA	27	0	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	8	5	4	6								0	
Interceptor - Lot 7																																		
	6	2015	MDA	38	0	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	5	5					27	
Interceptor - Lot 8																																		
	6	2016	MDA	36	0	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		36	
Launcher - Lot 1																																		
	7	2010	MDA	6	6	0																											0	
Launcher - Lot 3																																		
	8	2011	MDA	6	6	0																											0	
Launcher - Lot 2																																		
	9	2011	MDA	6	6	0																											0	
Launcher - Lot 4																																		
	10	2012	MDA	6	6	0																											0	
Launcher - Lot 6																																		
	11	2014	MDA	12	10	2	1	1																									0	
TFCC Tactical Station Group - Lot 2																																		
	12	2011	MDA	4	4	0																											0	
TFCC Tactical Station Group - Lot 3																																		
	13	2011	MDA	2	2	0																											0	
TFCC Tactical Station Group - Lot 4																																		
	14	2012	MDA	2	2	0																											0	
							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	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				

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2019												Fiscal Year 2020												BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	Calendar Year 2019												Calendar Year 2020												
							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	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
Interceptor - Lot 1																															
	1	2010	MDA	26	26	0																							0		
Interceptor - Lot 2																															
	2	2011	MDA	22	22	0																							0		
Interceptor - Lot 4																															
	3	2012	MDA	46	46	0																							0		
Interceptor - Lot 5																															
	4	2013	MDA	34	34	0																							0		
Interceptor - Lot 6																															
	5	2014	MDA	27	27	0																							0		
Interceptor - Lot 7																															
	6	2015	MDA	38	11	27	5	5	5	5	5	2																	0		
Interceptor - Lot 8																															
	6	2016	MDA	36	0	36	-	-	-	-	-	3	5	5	5	5	5	5	3										0		
Launcher - Lot 1																															
	7	2010	MDA	6	6	0																							0		
Launcher - Lot 3																															
	8	2011	MDA	6	6	0																							0		
Launcher - Lot 2																															
	9	2011	MDA	6	6	0																							0		
Launcher - Lot 4																															
	10	2012	MDA	6	6	0																							0		
Launcher - Lot 6																															
	11	2014	MDA	12	12	0																							0		
TFCC Tactical Station Group - Lot 2																															
	12	2011	MDA	4	4	0																							0		
TFCC Tactical Station Group - Lot 3																															
	13	2011	MDA	2	2	0																							0		
TFCC Tactical Station Group - Lot 4																															
	14	2012	MDA	2	2	0																							0		
							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	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	

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<b>Exhibit P-21, Production Schedule:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17		<b>P-1 Line Item Number / Title:</b> MD07 / THAAD
<b>Item Number / Title [DODIC]:</b> - / THAAD		

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2019	1-8-5 For 2019	MAX For 2019	Initial				Reorder			
					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 will work 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 10,000 and 999,999 all quantities are shown in thousands. 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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<b>Exhibit P-21, Production Schedule:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD07 / THAAD	<b>Item Number / Title [DODIC]:</b> - / THAAD

**UNCLASSIFIED**

**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> 0603882C	<b>Other Related Program Elements:</b> 0603882C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	-	-	10	14	-	14	8	8	-	-	-	40
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	-	0.000	227.000	497.000	-	497.000	518.000	528.000	-	-	-	1,770.000
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	47.000	88.000	-	88.000	115.000	117.000	-	-	-	367.000
Net Procurement (P-1) ( <i>\$ in Millions</i> )	-	0.000	180.000	409.000	-	409.000	403.000	411.000	-	-	-	1,403.000
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	47.000	88.000	115.000	-	115.000	117.000	-	-	-	-	367.000
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	-	<b>47.000</b>	<b>268.000</b>	<b>524.000</b>	-	<b>524.000</b>	<b>520.000</b>	<b>411.000</b>	-	-	-	<b>1,770.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	-	0.000	22.700	35.500	-	35.500	64.750	66.000	-	-	-	44.250

**Description:**

The Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) provides combatant commanders 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 and Missile Defense Integration and Operations Center (MDIOC) Colorado Springs, Colorado.

By the end of 2023, the Missile Defense Agency (MDA) will expand the number of operationally deployed GBIs from 44 to 64. To accomplish this, MDA will build a new 20 silo Missile Field #4 at Fort Greely, Alaska as well as procure 20 additional Ground Based Interceptors with Configuration 2 boosters and Redesigned Kill Vehicles. The procurement funded efforts in MD08 include 20 Missile Field 4 silo interface vaults and silos and 20 All Up Round GBIs.

FY 2017 MISSILE DEFEAT ENHANCEMENTS REPROGRAMMING (FY17-26 PA): \$47 million +\$47.000M required to address emergency warfighting requirements in support of Advanced Procurement of long lead materials and components for 10 of 20 new silos in a new missile field in Fort Greely, AK (Missile Field 4).

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$268.000M is required to address emergency warfighting readiness requirements.

Project MD08 GMD Advanced Procurement: +\$88.0 million. This is a base budget requirement.

+\$32.000M is required to procure long lead materials and equipment required to construct the +10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.

+\$56.000M is required to procure long lead materials and components for 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.

Project MD08 GMD Procurement. \$180.000M. This is a base budget requirement.

+\$180.000M is required to procure, install, and test 10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.

FY 2019 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET: \$524.000M is required to address emergency warfighting readiness requirements.

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<b>Exhibit P-40, Budget Line Item Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency		<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse
<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> 0603882C	<b>Other Related Program Elements:</b> 0603882C
<b>Line Item MDAP/MAIS Code:</b> 362		
<p>Project MD08 GMD Advanced Procurement: \$115.000M. This is a base budget requirement. +115.000M is required to procure long lead materials and components for 8 GBIs in FY20 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.</p> <p>Project MD08 GMD Procurement: \$409.000M. This is a base budget requirement. + \$212.000M is required to procure, install, and test 10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK. +\$197.000M is required to procure 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.</p> <p>NOTE: The FY 2017 ATR for Advanced Procurement was allocated to Weapons Systems Costs and should be reflected in Advance Procurement.</p>		

**UNCLASSIFIED**

**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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): A **Program Elements for Code B Items:** 0603882C **Other Related Program Elements:** 0603882C

**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Ground Based Interceptors (GBI) [None]		A		- / -	- / 0.000	- / 0.000	4 / 253.000	- / -	4 / 253.000
P-5	Silo Interface Vaults/Silos	P-5a, P-21	A		- / -	- / 0.000	10 / 227.000	10 / 244.000	- / -	10 / 244.000
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>- / -</b>	<b>- / 0.000</b>	<b>10 / 227.000</b>	<b>14 / 497.000</b>	<b>- / -</b>	<b>14 / 497.000</b>

\*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 2017 MISSILE DEFEAT ENHANCEMENTS REPROGRAMMING (FY17-26 PA): \$47.000M.  
+\$47.000M required to address emergency warfighting requirements in support of Advanced Procurement of materials and components for 10 of 20 new silos in a new missile field in Fort Greely, AK (Missile Field 4).

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: \$88.000M.  
Project MD08 GMD Advanced Procurement. This is a base budget requirement.  
+\$56.000M is required to procure long lead materials and components for 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.  
+\$32.000M is required to procure long lead materials and equipment required to construct the +10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Ft. Greely, AK.

FY 2019 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET: \$115.000M.  
Project MD08 GMD Advanced Procurement. This is a base budget requirement.  
+115.000M is required to procure long lead materials and components for 8 GBIs in FY2020 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats. The RKV-equipped GBI incorporates an obsolescence redesign of the 50 inch Configuration 2 (C2) boost vehicle and the new RKV to improve GBI fleet capacity and reliability. Lot 1 production decision anticipated 1Q FY 2019 with an initial GBI procurement starting in FY 2019 for a planned quantity of 4.

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Ground Based Interceptors (GBI) [None]

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A	<b>MDAP/MAIS Code:</b>
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<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Procurement Quantity (Units in Each)	-	-	-	4	-	4
Gross/Weapon System Cost (\$ in Millions)	-	0.000	0.000	253.000	-	253.000
Less PY Advance Procurement (\$ in Millions)	-	0.000	0.000	56.000	-	56.000
Net Procurement (P-1) (\$ in Millions)	-	0.000	0.000	197.000	-	197.000
Plus CY Advance Procurement (\$ in Millions)	-	0.000	56.000	115.000	-	115.000
<b>Total Obligation Authority (\$ in Millions)</b>	-	<b>0.000</b>	<b>56.000</b>	<b>312.000</b>	-	<b>312.000</b>

*(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)	-	0.000	0.000	63.250	-	63.250

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

<b>Cost Elements</b>	<b>Prior Years</b>			<b>FY 2017</b>			<b>FY 2018</b>			<b>FY 2019 Base</b>			<b>FY 2019 OCO</b>			<b>FY 2019 Total</b>		
	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>
Hardware Cost																		
Recurring Cost																		
Ground Based Interceptors	-	-	-	-	-	-	-	-	-	63.250	4	253.000	-	-	-	63.250	4	253.000
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	-	-	-	253.000	-	-	-	-	-	253.000
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	-	-	-	253.000	-	-	-	-	-	253.000
<b>Gross/Weapon System Cost</b>	-	-	-	<b>0.000</b>	-	<b>0.000</b>	<b>0.000</b>	-	<b>0.000</b>	<b>63.250</b>	<b>4</b>	<b>253.000</b>	-	-	-	<b>63.250</b>	<b>4</b>	<b>253.000</b>

**Remarks:**

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$56.0 million is required to address emergency warfighting readiness requirements. Project MD08 GMD Advanced Procurement: \$56.0 million. +\$56.0 million is required to procure long lead materials and components for 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.

FY 2019 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET: \$312.0 million is required to address emergency warfighting readiness requirements. Project MD08 GMD Advanced Procurement. \$115.0 million. This is a base budget requirement. +115.0 million is required to procure long lead materials and components for 8 GBIs in FY20 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.

Project MD08 GMD Procurement: \$197.0 million. This is a base budget requirement. +\$197.0 million is required to procure 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.

**UNCLASSIFIED**

<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Silo Interface Vaults/Silos

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A	<b>MDAP/MAIS Code:</b>
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<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Procurement Quantity (Units in Each)	-	-	10	10	-	10
Gross/Weapon System Cost (\$ in Millions)	-	0.000	227.000	244.000	-	244.000
Less PY Advance Procurement (\$ in Millions)	-	0.000	47.000	32.000	-	32.000
Net Procurement (P-1) (\$ in Millions)	-	0.000	180.000	212.000	-	212.000
Plus CY Advance Procurement (\$ in Millions)	-	47.000	32.000	-	-	-
<b>Total Obligation Authority (\$ in Millions)</b>	-	<b>47.000</b>	<b>212.000</b>	<b>212.000</b>	-	<b>212.000</b>

*(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)	-	0.000	22.700	24.400	-	24.400

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

<b>Cost Elements</b>	<b>Prior Years</b>			<b>FY 2017</b>			<b>FY 2018</b>			<b>FY 2019 Base</b>			<b>FY 2019 OCO</b>			<b>FY 2019 Total</b>		
	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>
Hardware Cost																		
Non Recurring Cost																		
Silos <sup>(†)</sup>	-	-	-	-	-	-	22.700	10	227.000	24.400	10	244.000	-	-	-	24.400	10	244.000
Subtotal: Non Recurring Cost	-	-	-	-	-	-	-	-	227.000	-	-	244.000	-	-	-	-	-	244.000
Subtotal: Hardware Cost	-	-	-	-	-	-	-	-	227.000	-	-	244.000	-	-	-	-	-	244.000
<b>Gross/Weapon System Cost</b>	-	-	-	0.000	-	0.000	22.700	10	227.000	24.400	10	244.000	-	-	-	24.400	10	244.000

**Remarks:**

**Budget Justification:**

FY 2017 MISSILE DEFEAT ENHANCEMENTS REPROGRAMMING (FY17-26 PA). \$47.0 million.

+\$47.0 million required to address emergency warfighting requirements in support of Advanced Procurement of materials and components for 10 of 20 new silos in a new missile field in Fort Greely, AK (Missile Field 4).

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: \$212.0 million is required to address emergency warfighting readiness requirements.

Project MD08 GMD Advanced Procurement: +\$32.0 million. This is a base budget requirement.

+\$32.0 million is required to procure materials and equipment required to construct the +10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.

Project MD08 GMD Procurement. \$180.0 million. This is a base budget requirement.

+\$180.0 million is required to procure, install, and test 10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.

FY 2019 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET: \$212.0 million is required to address emergency warfighting readiness requirements.

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Silo Interface Vaults/Silos
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A	<b>MDAP/MAIS Code:</b>	
<p>Project MD08 GMD Procurement: \$212.0 million. This is a base budget requirement. + \$212.0 million is required to procure, install, and test 10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.</p> <p>(t) indicates the presence of a P-5a</p>		

**UNCLASSIFIED**

**Exhibit P-5a, Procurement History and Planning:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Silo Interface Vaults/Silos
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$ M)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Silos - Hardware <sup>(†)</sup>		2018	Boeing / AL/AK/AZ/CA/CO/VA	SS / CPIF	Huntsville, AL	Jan 2018	Sep 2019	10	22.700	Y	Sep 2018	Jan 2018

<sup>(†)</sup> indicates the presence of a P-21

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

**Appropriation / Budget Activity / Budget Sub Activity:** 0300D / 01 / 17 **P-1 Line Item Number / Title:** MD08 / Ground Based Midcourse **Item Number / Title [DODIC]:** - / Silo Interface Vaults/Silos

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2018												Fiscal Year 2019												BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							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	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
Silos - Hardware																															
1		2018	MDA	10	0	10																							4	6	
							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	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	

**UNCLASSIFIED**

**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Silo Interface Vaults/Silos
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2020														Fiscal Year 2021														BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020														Calendar Year 2021														
							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	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					
Silos - Hardware																																			
1		2018	MDA	10	4	6	-	6																						0					
							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	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					

**UNCLASSIFIED**

**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>Item Number / Title [DODIC]:</b> - / Silo Interface Vaults/Silos
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MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2019	1-8-5 For 2019	MAX For 2019	Initial				Reorder			
					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

"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 all quantities are shown in thousands. 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).

**UNCLASSIFIED**

<b>Exhibit P-40, Advance Procurement Budget Line Item Justification:</b> PB 2019 Missile Defense Agency							<b>Date:</b> February 2018					
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency							<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse					
<b>Program Elements for Code B Items:</b> 0603882C							<b>Other Related Program Elements:</b> 0603882C					
<b>Line Item MDAP/MAIS Code:</b> 362												

<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>To Complete</b>	<b>Total</b>
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	-	47.000	88.000	115.000	-	115.000	117.000	-	-	-	-	367.000
Net Procurement (P-1) ( <i>\$ in Millions</i> )	-	47.000	88.000	115.000	-	115.000	117.000	-	-	-	-	367.000
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	-	<b>47.000</b>	<b>88.000</b>	<b>115.000</b>	-	<b>115.000</b>	<b>117.000</b>	-	-	-	-	<b>367.000</b>

**Description:**

Advanced Procurement required to expand the number of operationally deployed GBIs from 44 to 64. To accomplish this, MDA will build a new 20 silo Missile Field #4 at Fort Greely, Alaska as well as procure 20 additional Ground Based Interceptors with Configuration 2 boosters and Redesigned Kill Vehicles. The procurement funded efforts in MD08 include 20 Missile Field 4 silo interface vaults and silos and 20 All Up Round GBIs.

**UNCLASSIFIED**

<b>Exhibit P-40, Advance Procurement Budget Line Item Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency		<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse
<b>Program Elements for Code B Items:</b> 0603882C		<b>Other Related Program Elements:</b> 0603882C
<b>Line Item MDAP/MAIS Code:</b> 362		

Exhibits Schedule				Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-10	Ground Based Interceptors (GBI) [None]			- / -	- / 0.000	- / 56.000	4 / 115.000	- / -	4 / 115.000
P-10	Silo Interface Vaults/Silos			- / -	- / 47.000	10 / 32.000	10 / -	- / -	10 / -
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>			<b>- / -</b>	<b>- / 47.000</b>	<b>10 / 88.000</b>	<b>14 / 115.000</b>	<b>- / -</b>	<b>14 / 115.000</b>

\*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:**  
 FY 2017 MISSILE DEFEAT ENHANCEMENTS REPROGRAMMING (FY17-26 PA): \$47.0 million.  
 +\$47.0 million required to address emergency warfighting requirements in support of Advanced Procurement of materials and components for 10 of 20 new silos in a new missile field in Fort Greely, AK (Missile Field 4).  
  
 FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: \$88.0 million  
 Project MD08 GMD Advanced Procurement. This is a base budget requirement.  
 +\$56.0 million is required to procure long lead materials and components for 4 GBIs in FY19 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.  
 +\$32.0 million is required to procure long lead materials and equipment required to construct the +10 Silo Interface Vaults (SIVs) and silos for the new missile field (Missile Field #4) to accommodate 20 additional GBIs at Fort Greely, AK.  
  
 FY 2019 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET: \$115.0 million.  
 Project MD08 GMD Advanced Procurement. This is a base budget requirement.  
 +115.0 million is required to procure long lead materials and components for 8 GBIs in FY20 in support of fielding 20 additional GBIs at Fort Greely, AK for the warfighter to defeat developing threats.

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<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency					<b>Date:</b> February 2018	
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17			<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse		<b>P-5 Number / Title:</b> - / Ground Based Interceptors (GBI) [None]	
<b>First System (2019) Award Date:</b> January 2018		<b>First System (2019) Completion Date:</b> April 2021		<b>Interval Between Systems:</b> 3 Months		
<b>Ground Based Interceptors (GBI)</b>		<b>Production Leadtime</b> <i>(Months)</i>	<b>Prior Years</b> <i>(Each)</i>	<b>FY 2017</b> <i>(Each)</i>	<b>FY 2018</b> <i>(Each)</i>	<b>FY 2019</b> <i>(Each)</i>
Quantity		38	-	-	-	4
<b>Cost Elements</b>		<b>When Required</b> <i>(Months)</i>	<b>Prior Years</b> <i>(\$ M)</i>	<b>FY 2017</b> <i>(\$ M)</i>	<b>FY 2018</b> <i>(\$ M)</i>	<b>FY 2019</b> <i>(\$ M)</i>
<b>Other</b>						
Hardware FY19		0	-	-	-	115.000
Hardware FY18		0	-	-	56.000	0.000
<i>Total: Other</i>			<i>0.000</i>	<i>0.000</i>	<i>56.000</i>	<i>115.000</i>
<b>Total Advance Procurement/Obligation Authority</b>			<b>-</b>	<b>0.000</b>	<b>56.000</b>	<b>115.000</b>

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<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>P-5 Number / Title:</b> - / Ground Based Interceptors (GBI) [None]

Cost Elements	QPA <i>(Each)</i>	FY 2019					Total Cost Request <i>(\$ M)</i>
		Production Leadtime <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2019 Qty <i>(Each)</i>	For FY	
<b>Other</b>							
Hardware FY19	1					2019	115.000
<i>Total: Other</i>							115.000
<b>Total Advance Procurement/Obligation Authority</b>							<b>115.000</b>

**Description:**  
Long lead materials for Ground Based Interceptors

**UNCLASSIFIED**

<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency					<b>Date:</b> February 2018	
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17			<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse		<b>P-5 Number / Title:</b> - / Silo Interface Vaults/Silos	
<b>First System (2019) Award Date:</b> January 2018		<b>First System (2019) Completion Date:</b> September 2019		<b>Interval Between Systems:</b> 12 Months		
<b>Silo Interface Vaults/Silos</b>		<b>Production Leadtime</b> <i>(Months)</i>	<b>Prior Years</b> <i>(Each)</i>	<b>FY 2017</b> <i>(Each)</i>	<b>FY 2018</b> <i>(Each)</i>	<b>FY 2019</b> <i>(Each)</i>
Quantity		20	-	-	10	10
<b>Cost Elements</b>		<b>When Required</b> <i>(Months)</i>	<b>Prior Years</b> <i>(\$ M)</i>	<b>FY 2017</b> <i>(\$ M)</i>	<b>FY 2018</b> <i>(\$ M)</i>	<b>FY 2019</b> <i>(\$ M)</i>
<b>Other</b>						
Hardware FY17		0	-	47.000	-	0.000
Hardware FY18		0	-	-	32.000	0.000
<i>Total: Other</i>			<i>0.000</i>	<i>47.000</i>	<i>32.000</i>	<i>0.000</i>
<b>Total Advance Procurement/Obligation Authority</b>			-	<b>47.000</b>	<b>32.000</b>	-

**UNCLASSIFIED**

<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency	<b>Date:</b> February 2018
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<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD08 / Ground Based Midcourse	<b>P-5 Number / Title:</b> - / Silo Interface Vaults/Silos
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Cost Elements	QPA <i>(Each)</i>	FY 2019					Total Cost Request <i>(\$ M)</i>
		Production Leadtime <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2019 Qty <i>(Each)</i>	For FY	
<b>Other</b>							
<i>Total: Other</i>							<i>0.000</i>
<b>Total Advance Procurement/Obligation Authority</b>							-

**Description:**  
Long lead materials for Silos

**UNCLASSIFIED**

**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): B	<b>Program Elements for Code B Items:</b> 0604881C, 0603892C	<b>Other Related Program Elements:</b> 0604881C, 0603892C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	268	35	50	43	-	43	45	47	49	59	Continuing	Continuing
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	3,223.932	513.801	876.018	632.226	-	632.226	609.090	607.244	652.791	853.009	Continuing	Continuing
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	38.738	-	38.738	32.875	68.676	87.079	85.965	-	313.333
Net Procurement (P-1) ( <i>\$ in Millions</i> )	3,223.932	513.801	876.018	593.488	-	593.488	576.215	538.568	565.712	767.044	Continuing	Continuing
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	38.738	115.206	-	115.206	96.995	44.901	17.493	-	-	313.333
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>3,223.932</b>	<b>513.801</b>	<b>914.756</b>	<b>708.694</b>	<b>-</b>	<b>708.694</b>	<b>673.210</b>	<b>583.469</b>	<b>583.205</b>	<b>767.044</b>	<b>Continuing</b>	<b>Continuing</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	22.750	10.896	10.498	13.498	-	13.498	12.786	11.997	12.515	13.450	Continuing	Continuing
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	12.030	14.680	17.520	14.703	-	14.703	13.535	12.920	13.322	14.458	Continuing	Continuing

**Description:**

Note:

FY 2018 MISSILE DEFEAT AND DEFENSE ENHANCEMENTS (MDDE) BUDGET AMENDMENT: +\$451.000M and +16 SM-3 IIA missiles are required to address emergency warfighting readiness requirements. Project MD09 Aegis BMD SM-3 Development Articles: +\$451.000M is required for +16 additional SM-3 IIA missiles to increase capability and capacity to the warfighter. The SM-3 Block IIA is 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 Pacific Commands. This will provide a more robust protection of Europe. The SM-3 IIA also provides defense against IRBMs and other threats. This is a base budget requirement. Plan to execute an Unfinalized Contract Action (UCA) 60 days after authorization and/or passage of a budget to procure a quantity of 16 SM-3 BLK IIA missiles.

Beginning in FY 2016, MD09 and MD90 were broken out. MD90 FY16 funds realigned to MD09 for Nosecone Production Improvements and Third Stage Rocket Motor (TSRM) Cold Gas ACS Production efforts. (Note: \$6M realigned back to MD90 after 1 October 2016 for shipset contract award). For FY2018 to FY2023, flyaway unit cost represents the weighted average of SM-3 IB and SM-3 IIA. Net Procurement and Gross Weapon System costs includes all hardware and support costs but are detailed in separate P5s. Prior Year procurement quantity of 222 includes 71 Standard Missile-3 (SM-3) Block IAs and 151 SM-3 Block IBs.

The SM-3 Block IB incorporates a two-color, all reflective infrared seeker that enables longer range acquisition and increased threat discrimination. A Throttleable Divert Attitude Control System (TDACS) will provide a more flexible and lower cost alternative to the Solid Divert Attitude Control System (SDACS).

The SM-3 Block IIA incorporates a 21 inch diameter rocket motor propulsion stack, double seeker sensitivity, and a more robust advance Kinetic Warhead (KW). The SM-3 Block IIA will increase the area that can be defended by Aegis Ballistic Missile Defense and increase the probability of kill against a larger threat set. Initial production decision anticipated 4Q FY 2018 with an initial procurement contract starting in FY 2018 for a planned quantity of 16.

For FY 2017

The FY 2017 request procures a quantity of 35 SM-3 Block IB All-Up Rounds (AURs). The request also includes Canisters, Diminishing Manufacturing Sources Mitigation (DMSM), Production Engineering and Ballistic Barriers for SM-3 transportation initial spares, System Life Extension Program (SLEP).

For FY 2018

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<b>Exhibit P-40, Budget Line Item Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency		<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD
<b>ID Code</b> (A=Service Ready, B=Not Service Ready): B	<b>Program Elements for Code B Items:</b> 0604881C, 0603892C	<b>Other Related Program Elements:</b> 0604881C, 0603892C
<b>Line Item MDAP/MAIS Code:</b> 362		
<p>The FY 2018 request procures 34 SM-3 IB AURs and 16 SM-3 IIA AURs. The request also includes 35 SM-3 IB &amp; 17 IIA canisters in addition to FY2018 production support efforts (Production Engineering, SM-3 IB Obsolescence, Special Tools and Test Equipment, System Engineering and Integration).</p> <p>For FY 2019 The FY 2019 request procures 37 SM-3 IB and 6 SM-3 IIA AURs. The request also includes 38 SM-3 IB &amp; 7 IIA canisters in addition to production support efforts (Production Engineering, SM-3 IB Obsolescence, Special Tools and Test Equipment, System Engineering and Integration). The request is the first year of a 5 year Multiyear Procurement request from FY2019 through FY2023 for a total of 204 SM-3 IB AURs.</p>		

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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:**  
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:** 0604881C, 0603892C

**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Aegis BMD SM-3 Block IB	P-5a, P-21	B		268 / 3,223.932	35 / 513.801	34 / 425.018	37 / 450.416	- / -	37 / 450.416
P-5	Aegis BMD SM-3 Block IIA		B		- / -	- / 0.000	16 / 451.000	6 / 181.810	- / -	6 / 181.810
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>268 / 3,223.932</b>	<b>35 / 513.801</b>	<b>50 / 876.018</b>	<b>43 / 632.226</b>	<b>- / -</b>	<b>43 / 632.226</b>

\*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:**  
Justification of each end item reflected in P-5

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B	<b>MDAP/MAIS Code:</b>
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Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity (Units in Each)	268	35	34	37	-	37
Gross/Weapon System Cost (\$ in Millions)	3,223.932	513.801	425.018	450.416	-	450.416
Less PY Advance Procurement (\$ in Millions)	-	0.000	0.000	38.738	-	38.738
Net Procurement (P-1) (\$ in Millions)	3,223.932	513.801	425.018	411.678	-	411.678
Plus CY Advance Procurement (\$ in Millions)	-	0.000	38.738	115.206	-	115.206
<b>Total Obligation Authority (\$ in Millions)</b>	<b>3,223.932</b>	<b>513.801</b>	<b>463.756</b>	<b>526.884</b>	<b>-</b>	<b>526.884</b>

*(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)	12.030	14.680	12.501	12.173	-	12.173

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
<b>Flyaway Cost</b>																		
Recurring Cost																		
SM-3 Block IA Procurement <sup>(†)</sup>	10.800	71	766.765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SM-3 Block IB Procurement <sup>(†)</sup>	11.393	197	2,244.404	11.539	35	403.872	10.498	34	356.928	10.777	37	398.766	-	-	-	10.777	37	398.766
<i>Subtotal: Recurring Cost</i>	-	-	3,011.169	-	-	403.872	-	-	356.928	-	-	398.766	-	-	-	-	-	398.766
<i>Subtotal: Flyaway Cost</i>	-	-	3,011.169	-	-	403.872	-	-	356.928	-	-	398.766	-	-	-	-	-	398.766
<b>Hardware Cost</b>																		
Recurring Cost																		
Canisters Procurement SM-3 Block IA/IB	0.229	208	47.640	0.241	36	8.676	0.260	35	9.091	0.250	38	9.518	-	-	-	0.250	38	9.518
<i>Subtotal: Recurring Cost</i>	-	-	47.640	-	-	8.676	-	-	9.091	-	-	9.518	-	-	-	-	-	9.518
<i>Subtotal: Hardware Cost</i>	-	-	47.640	-	-	8.676	-	-	9.091	-	-	9.518	-	-	-	-	-	9.518
<b>Support Cost</b>																		
Ballistic Barriers for Transportation SM-3 Block IB	0.252	16	4.035	0.389	12	4.669	0.547	8	4.378	0.282	8	2.259	-	-	-	0.282	8	2.259
Diminishing Manufacturing Sources Mitigation	7.570	1	7.570	6.284	1	6.284	3.909	1	3.909	3.460	1	3.460	-	-	-	3.460	1	3.460
SM-3 Block IB Investment Spares	-	-	-	5.600	1	5.600	9.718	1	9.718	14.827	1	14.827	-	-	-	14.827	1	14.827

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>												<b>Date:</b> February 2018					
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17						<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD						<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB					
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B												<b>MDAP/MAIS Code:</b>					

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
SM-3 Block IB Obsolescence	-	-	-	50.000	1	50.000	11.700	1	11.700	1.328	1	1.328	-	-	-	1.328	1	1.328
SM-3 Block IB Production Engineering	30.704	5	153.518	32.233	1	32.233	6.826	1	6.826	6.598	1	6.598	-	-	-	6.598	1	6.598
SM-3 Block IB Service Life Evaluation Program	-	-	-	2.467	1	2.467	7.262	1	7.262	2.000	1	2.000	-	-	-	2.000	1	2.000
SM-3 Block IB Special Tools and Test Equipment	-	-	-	-	-	-	3.546	1	3.546	-	-	-	-	-	-	-	-	-
SM-3 Block IB Systems Engineering And Integration	-	-	-	-	-	-	11.660	1	11.660	11.660	1	11.660	-	-	-	11.660	1	11.660
<i>Subtotal: Support Cost</i>	-	-	<b>165.123</b>	-	-	<b>101.253</b>	-	-	<b>58.999</b>	-	-	<b>42.132</b>	-	-	-	-	-	<b>42.132</b>
<b>Gross/Weapon System Cost</b>	<b>12.030</b>	<b>268</b>	<b>3,223.932</b>	<b>14.680</b>	<b>35</b>	<b>513.801</b>	<b>12.501</b>	<b>34</b>	<b>425.018</b>	<b>12.173</b>	<b>37</b>	<b>450.416</b>	-	-	-	<b>12.173</b>	<b>37</b>	<b>450.416</b>

**Remarks:**

- 1/ SM-3 Block IB procurement includes AURS, and product improvements Unit cost depends on number of units procured.
  - 2/ Canisters are required for each SM-3 procured. Historical trends have identified 1 canister/yr breaking during delivery, thus the request for a spare canister.
  - 3/ SM-3 Transportation of Ballistic Barriers are required costs dictated by Joint Service Insensitive Munitions Technical Panel (JSIMTP) and Naval Ordnance Safety and Security Activity (NOSSA) to transport missiles.
  - 4/ Cyber Enhanced Security starts in FY20.
  - 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.
  - 4/ 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.
  - 6/ 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.
- In PB-18 Production Support Engineering (PSE) was divided into four sub-categories and continues in PB-19:
- Production Engineering Provides engineering efforts in support of SM-3 Guided Missile Round (GMR) production activities, manage and resolve issues that arise during manufacturing, assembly, tests, and missile integration.,

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<b>Exhibit P-5, Cost Analysis:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B		<b>MDAP/MAIS Code:</b>
<p>Systems Engineering and Integration - Addresses production technical issues that arise within the entire SM-3 vendor/supplier base. Includes improvement and efficiency activities such as configuration management and control boards, engineering assessments of manufacturing process improvement changes, engineering assessments of sub-vendor production issues, and engineering and quality review of documentation and test data prior to missile acceptance by the government</p> <p>Obsolescence 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.</p> <p>Special Tooling and Test Equipment sustains and maintains the tools and test equipment vital to manufacture and test prior to government acceptance of new SM-3 missiles. Most test equipment is expensive (multi-\$M), in excess of 10 years, old and requires regular maintenance to remain operational.</p> <p>(t) indicates the presence of a P-5a</p>		

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**Exhibit P-5a, Procurement History and Planning:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$ M)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
SM-3 Block IA Procurement <sup>(†)</sup>		2009	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Feb 2008	Mar 2010	11	8.405	Y		Mar 2007
SM-3 Block IA Procurement <sup>(†)</sup>		2010	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Apr 2008	Aug 2010	24	8.119	Y		Mar 2007
SM-3 Block IA Procurement <sup>(†)</sup>		2011	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Aug 2012	Sep 2013	22	9.525	Y		Nov 2010
SM-3 Block IA Procurement <sup>(†)</sup>		2012	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Aug 2012	Jul 2014	14	9.867	Y		Aug 2011
SM-3 Block IB Procurement <sup>(†)</sup>		2012	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	May 2012	Dec 2013	14	13.400	Y		Aug 2011
SM-3 Block IB Procurement <sup>(†)</sup>		2013	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Jun 2013	Jun 2014	33	12.130	Y		Aug 2012
SM-3 Block IB Procurement <sup>(†)</sup>		2014	Raytheon / Tucson, AZ	C / CPIF	Dahlgren, VA	Apr 2014	Jan 2016	52	10.236	Y		Aug 2013
SM-3 Block IB Procurement <sup>(†)</sup>		2015	Raytheon / Tucson, AZ	SS / FP	Dahlgren, VA	Mar 2015	Apr 2017	52	11.411	Y		Aug 2014
SM-3 Block IB Procurement <sup>(†)</sup>		2016	Raytheon / Tucson, AZ	SS / FP	Dahlgren, VA	Mar 2016	Jul 2018	46	11.538	Y		Aug 2015

<sup>(†)</sup> indicates the presence of a P-21

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2008												Fiscal Year 2009												BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2007	BAL DUE AS OF 1 OCT	Calendar Year 2008												Calendar Year 2009												
							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	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
SM-3 Block IA Procurement																															
1		2009	MDA	11	0	11																							11		
1		2010	MDA	24	0	24																							24		
1		2011	MDA	22	0	22																							22		
1		2012	MDA	14	0	14																							14		
SM-3 Block IB Procurement																															
2		2012	MDA	14	0	14																							14		
2		2013	MDA	33	0	33																							33		
2		2014	MDA	52	0	52																							52		
2		2015	MDA	52	0	52																							52		
2		2016	MDA	46	0	46																							46		
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2010												Fiscal Year 2011												BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2009	BAL DUE AS OF 1 OCT	Calendar Year 2010												Calendar Year 2011												
							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	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
SM-3 Block IA Procurement																															
1		2009	MDA	11	0	11	-	-	-	-	-	-	2	-	-	-	2	2	-	-	-	-	-	-	-	-	-	1	1	3	0
1		2010	MDA	24	0	24	-	-	-	-	-	-	-	-	-	2	2	7	-	-	-	-	-	-	-	-	-	-	-	-	13
1		2011	MDA	22	0	22																								22	
1		2012	MDA	14	0	14																								14	
SM-3 Block IB Procurement																															
2		2012	MDA	14	0	14																								14	
2		2013	MDA	33	0	33																								33	
2		2014	MDA	52	0	52																								52	
2		2015	MDA	52	0	52																								52	
2		2016	MDA	46	0	46																								46	
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2012												Fiscal Year 2013												BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	BAL DUE AS OF 1 OCT	Calendar Year 2012												Calendar Year 2013												
							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	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
SM-3 Block IA Procurement																															
	1	2009	MDA	11	11	0																							0		
	1	2010	MDA	24	11	13	-	-	-	-	6	-	1	-	-	2	-	3	-	-	-	-	-	-	-	-	-	-	1	0	
	1	2011	MDA	22	0	22											A -	-	-	-	-	-	-	-	-	-	-	-	1	21	
	1	2012	MDA	14	0	14											A -	-	-	-	-	-	-	-	-	-	-	-	-	14	
SM-3 Block IB Procurement																															
	2	2012	MDA	14	0	14											A -	-	-	-	-	-	-	-	-	-	-	-	-	14	
	2	2013	MDA	33	0	33																					A -	-	-	33	
	2	2014	MDA	52	0	52																							52		
	2	2015	MDA	52	0	52																							52		
	2	2016	MDA	46	0	46																							46		
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
--	--	--

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2014												Fiscal Year 2015												BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	BAL DUE AS OF 1 OCT	Calendar Year 2014												Calendar Year 2015												
							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	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
SM-3 Block IA Procurement																															
	1	2009	MDA	11	11	0																							0		
	1	2010	MDA	24	24	0																							0		
	1	2011	MDA	22	1	21	5	1	2	1	-	3	4	1	1	3													0		
	1	2012	MDA	14	0	14	-	-	-	-	-	-	-	-	2	1	3	-	-	-	3	4	-	1					0		
SM-3 Block IB Procurement																															
	2	2012	MDA	14	0	14	-	-	1	3	2	3	1	2	2														0		
	2	2013	MDA	33	0	33	-	-	-	-	-	-	-	-	2	1	-	1	-	6	3	1	-	3	2	4	-	-	-	1	9
	2	2014	MDA	52	0	52							A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52		
	2	2015	MDA	52	0	52																			A -	-	-	-	-	52	
	2	2016	MDA	46	0	46																							46		
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2016												Fiscal Year 2017												BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016												Calendar Year 2017												
							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	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
SM-3 Block IA Procurement																															
	1	2009	MDA	11	11	0																							0		
	1	2010	MDA	24	24	0																							0		
	1	2011	MDA	22	22	0																							0		
	1	2012	MDA	14	14	0																							0		
SM-3 Block IB Procurement																															
	2	2012	MDA	14	14	0																							0		
	2	2013	MDA	33	24	9	4	3	2																				0		
	2	2014	MDA	52	0	52	-	-	-	4	4	5	4	4	5	4	4	5	4	4	5								0		
	2	2015	MDA	52	0	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	4	4	5	4	4	26	
	2	2016	MDA	46	0	46						A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46		
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

**Appropriation / Budget Activity / Budget Sub Activity:** 0300D / 01 / 17 **P-1 Line Item Number / Title:** MD09 / AEGIS BMD **Item Number / Title [DODIC]:**  
- / Aegis BMD SM-3 Block IB

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2018												Fiscal Year 2019												BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018												Calendar Year 2019												
							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	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
SM-3 Block IA Procurement																															
1		2009	MDA	11	11	0																							0		
1		2010	MDA	24	24	0																							0		
1		2011	MDA	22	22	0																							0		
1		2012	MDA	14	14	0																							0		
SM-3 Block IB Procurement																															
2		2012	MDA	14	14	0																							0		
2		2013	MDA	33	33	0																							0		
2		2014	MDA	52	52	0																							0		
2		2015	MDA	52	26	26	5	4	4	5	4	4																	0		
2		2016	MDA	46	0	46	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4	3	4	4	3	0		
							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	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	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IB
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MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2019	1-8-5 For 2019	MAX For 2019	Initial				Reorder			
					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	Raytheon - Tucson, AZ	1	4	8	4	0	30	30	4	0	30	30
2	Raytheon - Tucson, AZ	1	4	8	0	0	0	0	0	0	0	0

"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 all quantities are shown in thousands. 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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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IIA

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B	<b>MDAP/MAIS Code:</b>
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Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity (Units in Each)	-	-	16	6	-	6
Gross/Weapon System Cost (\$ in Millions)	-	0.000	451.000	181.810	-	181.810
Less PY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	-	0.000	451.000	181.810	-	181.810
Plus CY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
<b>Total Obligation Authority (\$ in Millions)</b>	-	<b>0.000</b>	<b>451.000</b>	<b>181.810</b>	-	<b>181.810</b>

*(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)	-	0.000	28.188	30.302	-	30.302

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
<b>Flyaway Cost</b>																		
Recurring Cost																		
SM-3 Block IIA Procurement	-	-	-	-	-	-	27.111	16	433.779	28.617	6	171.700	-	-	-	28.617	6	171.700
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	433.779	-	-	171.700	-	-	-	-	-	171.700
<i>Subtotal: Flyaway Cost</i>	-	-	-	-	-	-	-	-	433.779	-	-	171.700	-	-	-	-	-	171.700
<b>Hardware Cost</b>																		
Recurring Cost																		
Canisters Procurement SM-3 Block IIA	-	-	-	-	-	-	1.013	17	17.221	0.928	7	6.498	-	-	-	0.928	7	6.498
<i>Subtotal: Recurring Cost</i>	-	-	-	-	-	-	-	-	17.221	-	-	6.498	-	-	-	-	-	6.498
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	-	-	-	17.221	-	-	6.498	-	-	-	-	-	6.498
<b>Support Cost</b>																		
SM-3 Block IIA Obsolescence	-	-	-	-	-	-	-	-	-	2.258	1	2.258	-	-	-	2.258	1	2.258
SM-3 Block IIA Production Engineering	-	-	-	-	-	-	-	-	-	1.354	1	1.354	-	-	-	1.354	1	1.354
<i>Subtotal: Support Cost</i>	-	-	-	-	-	-	-	-	-	-	-	3.612	-	-	-	-	-	3.612
<b>Gross/Weapon System Cost</b>	-	-	-	<b>0.000</b>	-	<b>0.000</b>	<b>28.188</b>	<b>16</b>	<b>451.000</b>	<b>30.302</b>	<b>6</b>	<b>181.810</b>	-	-	-	<b>30.302</b>	<b>6</b>	<b>181.810</b>

**Remarks:**

1/ SM-3 Block IIA procurement includes AURS, and product improvements Unit cost depends on number of units procured.

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<b>Exhibit P-5, Cost Analysis:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD SM-3 Block IIA
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : B		<b>MDAP/MAIS Code:</b>
<p>2/ Canisters are required for each SM-3 procured. Historical trends have identified 1 canister/yr breaking during delivery, thus the request for a spare canister.</p> <p>3/ 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.</p> <p>Production Support Engineering (PSE) was divided into four sub-categories:</p> <p>Production Engineering Provides engineering efforts in support of SM-3 Guided Missile Round (GMR) production activities, manage and resolve issues that arise during manufacturing, assembly, tests, and missile integration. In PB19, Special Tooling and Test Equipment is incorporated into this effort.</p> <p>Systems Engineering and Integration - Addresses production technical issues that arise within the entire SM-3 vendor/supplier base. Includes improvement and efficiency activities such as configuration management and control boards, engineering assessments of manufacturing process improvement changes, engineering assessments of sub-vendor production issues, and engineering and quality review of documentation and test data prior to missile acceptance by the government</p> <p>Obsolescence 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.</p> <p>Special Tooling and Test Equipment sustains and maintains the tools and test equipment vital to manufacture and test prior to government acceptance of new SM-3 missiles. Most test equipment is expensive (multi-\$M), in excess of 10 years, old and requires regular maintenance to remain operational. This effort is in Production Engineering in PB-19.</p>		

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<b>Exhibit P-40, Advance Procurement Budget Line Item Justification:</b> PB 2019 Missile Defense Agency		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency		<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD
<b>Program Elements for Code B Items:</b> 0604881C, 0603892C		<b>Other Related Program Elements:</b> 0604881C, 0603892C

<b>Line Item MDAP/MAIS Code:</b> 362												
<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>To Complete</b>	<b>Total</b>
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	-	0.000	38.738	115.206	-	115.206	96.995	44.901	17.493	-	-	313.333
Net Procurement (P-1) ( <i>\$ in Millions</i> )	-	0.000	38.738	115.206	-	115.206	96.995	44.901	17.493	-	-	313.333
<b>Total Obligation Authority</b> ( <i>\$ in Millions</i> )	-	<b>0.000</b>	<b>38.738</b>	<b>115.206</b>	-	<b>115.206</b>	<b>96.995</b>	<b>44.901</b>	<b>17.493</b>	-	-	<b>313.333</b>

**Description:**

The following long lead items will be procured in FY18

1. 44 Throttling Divert and Attitude Control System (TDACS) cases and insulation parts
2. 41 Integrated Dewars Assembly
3. 41 SM-3 IB Ejector

FY 2019 Advance Procurement funding totaling of \$99.280 to procure the Standard Missile-3 (SM-3) Block IB following components:

Examples of Economic Orders include:

1. Third Stage Rocket Motors with estimated savings of 13% across Fiscal Year Defense Plan (FYDP).
2. Throttleable Divert Attitude Control System with estimated savings of 13% across FYDP.
3. Nosecone Assembly with estimated savings of 12% across FYDP.
4. Kinetic Warhead Guidance Unit with estimated savings of 18% across FYDP.
5. Guidance Section (Gravity Switch, Thermal Batteries) with estimated savings of 3% across FYDP.

Any reduction or delay in approval of advanced procurement funding would result in significant cost increase and schedule delay to the SM-3 Block IB program.

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**Exhibit P-40, Advance Procurement Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD
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<b>Program Elements for Code B Items:</b> 0604881C, 0603892C	<b>Other Related Program Elements:</b> 0604881C, 0603892C
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**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule				Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-10	Aegis BMD SM-3 Block IB			268 / -	35 / 0.000	34 / 38.738	37 / 115.206	- / -	37 / 115.206
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>			<b>268 / -</b>	<b>35 / 0.000</b>	<b>50 / 38.738</b>	<b>43 / 115.206</b>	<b>- / -</b>	<b>43 / 115.206</b>

\*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:**

FY2018 Advanced Procurement funding totaling of \$38.738M is requested to support Long Lead material that is temporarily being extended while Aerojet Rocketdyne conducts a competitive Improvement Program (CIP) which will consolidate and optimize their facilities. The LLM items are associated with the production of the SM-3 Blk IB Kinetic Warhead (KW) inclusive of the Throttleable Divert Attitude Control System (TDACS) composite case and installation, Integrated Dewar Assembly (IDA) and the SM-3 IB Ejector assembly.

FY 2019 Advance Procurement funding totaling of \$99.28 million is to obtain long-term cost savings to the government by utilizing Economic Order Quantity (EOQ) buys. Funding to establish multiyear procurement contracts would provide the following benefits: (1) generate cost savings compared to annual procurement cost estimates; (2) provide stable production of SM-3 Block IBs; (3) provide a long-term commitment to the low density aerospace industrial base that stabilizes aerospace employment levels; (4) provide an incentive for industry capital investment for productivity improvements that would benefit several Department of Defense missile programs; and (5) reduce disruptions in vendor delivery schedules. Overall savings is estimated at approximately 12.99% across the Fiscal Year Defense Plan for the SM-3 Block IB. Any reduction or delay in approval of Advanced Procurement funding would result in a significant cost increase and lead to schedule delays to the SM-3 Block 1B program.

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<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 1 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency					<b>Date:</b> February 2018	
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17			<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD		<b>P-5 Number / Title:</b> - / Aegis BMD SM-3 Block IB	
<b>First System (2019) Award Date:</b> January 2018		<b>First System (2019) Completion Date:</b> October 2020		<b>Interval Between Systems:</b> 1 Months		
<b>Aegis BMD SM-3 Block IB</b>		<b>Production Leadtime</b> <i>(Months)</i>	<b>Prior Years</b> <i>(Each)</i>	<b>FY 2017</b> <i>(Each)</i>	<b>FY 2018</b> <i>(Each)</i>	<b>FY 2019</b> <i>(Each)</i>
Quantity		30	268	35	34	37
<b>Cost Elements</b>		<b>When Required</b> <i>(Months)</i>	<b>Prior Years</b> <i>(\$ M)</i>	<b>FY 2017</b> <i>(\$ M)</i>	<b>FY 2018</b> <i>(\$ M)</i>	<b>FY 2019</b> <i>(\$ M)</i>
<b>Other</b>						
Aegis Advacned Procurement FY19		0	-	-	-	115.206
Aegis Advanced Procurement for FY18		0	-	-	38.738	0.000
<i>Total: Other</i>			<i>0.000</i>	<i>0.000</i>	<i>38.738</i>	<i>115.206</i>
<b>Total Advance Procurement/Obligation Authority</b>			<b>-</b>	<b>0.000</b>	<b>38.738</b>	<b>115.206</b>

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<b>Exhibit P-10, Advance Procurement Requirements Analysis (page 2 - Budget Funding Justification):</b> PB 2019 Missile Defense Agency	<b>Date:</b> February 2018
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<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD09 / AEGIS BMD	<b>P-5 Number / Title:</b> - / Aegis BMD SM-3 Block IB
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Cost Elements	QPA <i>(Each)</i>	FY 2019					Total Cost Request <i>(\$ M)</i>
		Production Leadtime <i>(Months)</i>	Unit Cost <i>(\$ M)</i>	Contract Forecast Date	2019 Qty <i>(Each)</i>	For FY	
<b>Other</b>							
Aegis Advacned Procurement FY19	1					2020	115.206
Aegis Advanced Procurement for FY18	1					2019	0.000
<i>Total: Other</i>							<i>115.206</i>
<b>Total Advance Procurement/Obligation Authority</b>							<b>115.206</b>

**Description:**  
Long lead advanced procurement requested for \$99.28M in FY19

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> 0603881C, 0603884C	<b>Other Related Program Elements:</b> 0603881C, 0603884C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	5	-	-	-	-	-	-	-	-	-	-	5
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	1,172.087	5.503	11.947	13.185	-	13.185	9.785	0.999	-	-	-	1,213.506
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	1,172.087	5.503	11.947	13.185	-	13.185	9.785	0.999	-	-	-	1,213.506
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>1,172.087</b>	<b>5.503</b>	<b>11.947</b>	<b>13.185</b>	<b>-</b>	<b>13.185</b>	<b>9.785</b>	<b>0.999</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,213.506</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	10.901	-	-	-	-	-	-	-	-	-	-	10.901
Flyaway Unit Cost ( <i>\$ in Millions</i> )	172.502	-	-	-	-	-	-	-	-	-	Continuing	Continuing
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	234.417	0.000	0.000	-	-	-	-	-	-	-	-	242.701

**Description:**

The Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) radar is an integral component of the Ballistic Missile Defense System (BMDS) layered network of sensors. It is easily transported and can be configured to operate either as 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 Ballistic Missile Defense System 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.

Procurement funding acquired five of the seven AN/TPY-2 Radars required to complete the THAAD Battery acquisitions, with the initial two AN/TPY-2 radars funded from RDT&E. "Procurement Quantity" and "Flyaway Unit Cost" represent AN/TPY-2 radar systems ((i.e. one Antenna Equipment Unit (AEU), one Cooling Equipment Unit, 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 provide updated processing capabilities to EEU's in both Terminal and Forward-based modes. The AEU transformers include design improvements to extend the life of this mission critical component.

The COBRA DANE Transmitter Group Replacement (TGR) procurement is due to parts obsolescence concerns. A modern, supportable design will eliminate scores of currently unsupported parts.

FY 2018 MISSILE DEFENSE DEFEAT AND DEFENSE ENHANCEMENT (MDDE) BUDGET AMENDMENT: +\$11.0 million Project MD11 BMDS RADARS, is required to extend the lifespan of the COBRA DANE radar, a long-range sensor that provides critical coverage of the current threat to the Homeland. Nearly all of the major COBRA DANE systems have aged well beyond their intended design lifespan and the majority of the radar components are largely obsolete. Upgrades includes critical life extension redesign and software re-hosting to ensure continued operations of COBRA DANE. This is a base budget requirement.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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:**  
MD11 / BMDS AN/TPY-2 Radars

**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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 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	A		5 / 1,172.087	- / 5.503	- / 11.947	- / 13.185	- / -	- / 13.185
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>5 / 1,172.087</b>	<b>- / 5.503</b>	<b>- / 11.947</b>	<b>- / 13.185</b>	<b>- / -</b>	<b>- / 13.185</b>

\*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 2019 base procurement dollars in the amount of \$13.185 million procures one AEU transformer to replace the legacy transformer currently in each forward-based AN/TPY-2 site. The newly designed AEU transformer will include design improvements to extend the life of this mission critical component. It also procures one AN/TPY-2 EEU Modification Kit and Radar Field Upgrade (RAFU) Kit that provides updated processing capabilities in both Terminal and Forward-based mode AN/TPY-2 radars. The FY 2019 procurement dollars also fund one COBRA DANE Transmitter Group Replacement (TGR) to address parts obsolescence concerns.

**UNCLASSIFIED**

<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A	<b>MDAP/MAIS Code:</b>
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<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Procurement Quantity (Units in Each)	5	-	-	-	-	-
Gross/Weapon System Cost (\$ in Millions)	1,172.087	5.503	11.947	13.185	-	13.185
Less PY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
Net Procurement (P-1) (\$ in Millions)	1,172.087	5.503	11.947	13.185	-	13.185
Plus CY Advance Procurement (\$ in Millions)	-	0.000	0.000	-	-	-
<b>Total Obligation Authority (\$ in Millions)</b>	<b>1,172.087</b>	<b>5.503</b>	<b>11.947</b>	<b>13.185</b>	<b>-</b>	<b>13.185</b>

*(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)	234.417	0.000	0.000	-	-	-

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

<b>Cost Elements</b>	<b>Prior Years</b>			<b>FY 2017</b>			<b>FY 2018</b>			<b>FY 2019 Base</b>			<b>FY 2019 OCO</b>			<b>FY 2019 Total</b>		
	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>	<b>Unit Cost (\$ M)</b>	<b>Qty (Each)</b>	<b>Total Cost (\$ M)</b>
<b>Hardware Cost</b>																		
<b>Recurring Cost</b>																		
Antenna Equipment Unit (AEU) <sup>(†)</sup>	130.482	5	652.411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>	1.434	4	5.736	0.919	1	0.919	0.947	1	0.947	0.978	1	0.978	-	-	-	0.978	1	0.978
COBRA DANE Transmitter Group Replacement <sup>(†)</sup>	-	-	-	-	-	-	11.000	1	11.000	8.000	1	8.000	-	-	-	8.000	1	8.000
Cooling Equipment Unit (CEU) <sup>(†)</sup>	6.996	5	34.982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Spares <sup>(†)</sup>	9.742	3	29.227	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electronic Equipment Unit (EEU) <sup>(†)</sup>	20.914	5	104.572	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electronic Equipment Unit (EEU) Modification Kit <sup>(†)</sup>	3.016	7	21.114	3.134	1	3.134	-	-	-	2.709	1	2.709	-	-	-	2.709	1	2.709
Float Antenna Equipment Unit (AEU) <sup>(†)</sup>	62.019	1	62.019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Float Cooling Equipment Unit (CEU) <sup>(†)</sup>	12.929	2	25.857	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>												<b>Date:</b> February 2018					
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17						<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars						<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars					
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A												<b>MDAP/MAIS Code:</b>					

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Float Electronic Equipment Unit (EEU) <sup>(†)</sup>	21.491	2	42.982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Forward-Based Mode Prime Power Units (PPU) <sup>(†)</sup>	10.985	4	43.940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prime Power Unit (PPUs - 2 each radar system) <sup>(†)</sup>	14.109	5	70.545	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radar Field Upgrade (RAFU) Kit <sup>(†)</sup>	-	-	-	1.450	1	1.450	-	-	-	1.498	1	1.498	-	-	-	1.498	1	1.498
Transmit/Receive Integrated Microwave Module (TRIMMs) <sup>(†)</sup>	59.840	1	59.840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	1,153.225	-	-	5.503	-	-	11.947	-	-	13.185	-	-	-	-	-	13.185
<b>Non Recurring Cost</b>																		
Contractor Certification <sup>(†)</sup>	2.862	1	2.862	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Non Recurring Cost</i>	-	-	2.862	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	1,156.087	-	-	5.503	-	-	11.947	-	-	13.185	-	-	-	-	-	13.185
<b>Support Cost</b>																		
Program Support*	16.000	1	16.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Support Cost</i>	-	-	16.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Gross/Weapon System Cost</b>	<b>234.417</b>	<b>5</b>	<b>1,172.087</b>	<b>0.000</b>	<b>-</b>	<b>5.503</b>	<b>0.000</b>	<b>-</b>	<b>11.947</b>	<b>-</b>	<b>-</b>	<b>13.185</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>13.185</b>

**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).

<sup>(†)</sup> indicates the presence of a P-5a

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Exhibit P-5a, Procurement History and Planning: PB 2019 Missile Defense Agency								Date: February 2018				
Appropriation / Budget Activity / Budget Sub Activity: 0300D / 01 / 17			P-1 Line Item Number / Title: MD11 / BMDS AN/TPY-2 Radars					Item Number / Title [DODIC]: - / BMDS AN/TPY-2 Radars				
Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Antenna Equipment Unit (AEU) <sup>(†)</sup>		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	144.290	Y		
Antenna Equipment Unit (AEU) <sup>(†)</sup>		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	144.090	Y		
Antenna Equipment Unit (AEU) - 1 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	126.400	Y		
Antenna Equipment Unit (AEU) - 2 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	126.400	Y		
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Sep 2015	3	1.775	Y		
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Sep 2016	1	0.410	Y		
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Sep 2017	1	0.919	Y		
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>		2018	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2017	Sep 2018	1	0.947	Y		
Antenna Equipment Unit (AEU) Transformer <sup>(†)</sup>		2019	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2018	Sep 2019	1	0.978	Y		
COBRA DANE Transmitter Group Replacement <sup>(†)</sup>		2018	Raytheon / Washington, D.C.	C / IDIQ	MDA, Huuntsville, AL	Apr 2018	Apr 2019	1	11.000	Y		
Cooling Equipment Unit (CEU) <sup>(†)</sup>		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	7.800	Y		
Cooling Equipment Unit (CEU) <sup>(†)</sup>		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	7.668	Y		
Cooling Equipment Unit (CEU) - 1 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	6.802	Y		
Cooling Equipment Unit (CEU) - 2 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	6.802	Y		
Critical Spares <sup>(†)</sup>		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	May 2014	May 2015	1	14.361	Y		
Critical Spares <sup>(†)</sup>		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Dec 2015	1	11.391	Y		
Critical Spares <sup>(†)</sup>		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Dec 2016	1	3.475	Y		
Electronic Equipment Unit (EEU) <sup>(†)</sup>		2010	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Jun 2010	Dec 2012	1	23.400	Y		
Electronic Equipment Unit (EEU) <sup>(†)</sup>		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	2	23.000	Y		
Electronic Equipment Unit (EEU) - 1 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2012	Jun 2015	1	20.220	Y		
Electronic Equipment Unit (EEU) - 2 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	20.220	Y		

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**Exhibit P-5a, Procurement History and Planning: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost (\$ M)	Specs Avail Now?	Date Revision Available	RFP Issue Date
Electronic Equipment Unit (EEU) Modification Kit <sup>(†)</sup>		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Jun 2015	3	2.795	Y		
Electronic Equipment Unit (EEU) Modification Kit <sup>(†)</sup>		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Mar 2016	Sep 2016	4	3.183	Y		
Electronic Equipment Unit (EEU) Modification Kit <sup>(†)</sup>		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Jun 2017	1	3.134	Y		
Electronic Equipment Unit (EEU) Modification Kit <sup>(†)</sup>		2019	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2018	Jun 2019	1	2.709	Y		
Float Antenna Equipment Unit (AEU) <sup>(†)</sup>		2016	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2015	Jun 2018	1	62.019	Y		
Float Cooling Equipment Unit (CEU) <sup>(†)</sup>		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	1	7.140	Y		
Float Cooling Equipment Unit (CEU) <sup>(†)</sup>		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Sep 2014	Dec 2015	1	18.721	Y		
Float Electronic Equipment Unit (EEU) <sup>(†)</sup>		2012	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2011	Jun 2014	1	20.260	Y		
Float Electronic Equipment Unit (EEU) <sup>(†)</sup>		2014	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Sep 2014	Sep 2016	1	22.718	Y		
Forward-Based Mode Prime Power Units (PPU) <sup>(†)</sup>		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) <sup>(†)</sup>		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) <sup>(†)</sup>		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 <sup>(†)</sup>		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 <sup>(†)</sup>		2013	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2013	Jun 2016	1	13.895	Y		
Radar Field Upgrade (RAFU) Kit <sup>(†)</sup>		2017	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2016	Jun 2017	1	1.450	Y		
Radar Field Upgrade (RAFU) Kit		2019	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2018	Jun 2019	1	1.498	Y		
Transmit/Receive Integrated Microwave Module (TRIMMs) <sup>(†)</sup>		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Jun 2016	1	59.840	Y		
Contractor Certification <sup>(†)</sup>		2015	Raytheon / Woburn, MA	SS / FFP	MDA, Huntsville, AL	Dec 2014	Dec 2015	1	2.862	Y		

<sup>(†)</sup> indicates the presence of a P-21

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**Exhibit P-5a, Procurement History and Planning:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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**Remarks:**  
N/A



**UNCLASSIFIED**

**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2010													Fiscal Year 2011													BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 0 9	BAL D U E A S O F 1 O C T	Calendar Year 2010													Calendar Year 2011													
							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	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			
Electronic Equipment Unit (EEU) Modification Kit																																	
	7	2015	MDA	3	0	3																								3			
	7	2016	MDA	4	0	4																								4			
	7	2017	MDA	1	0	1																								1			
	7	2019	MDA	1	0	1																								1			
Float Antenna Equipment Unit (AEU)																																	
	8	2016	MDA	1	0	1																								1			
Float Cooling Equipment Unit (CEU)																																	
	9	2012	MDA	1	0	1																								1			
	9	2014	MDA	1	0	1																								1			
Float Electronic Equipment Unit (EEU)																																	
	10	2012	MDA	1	0	1																								1			
	10	2014	MDA	1	0	1																								1			
Forward-Based Mode Prime Power Units (PPU)																																	
	11	2013	MDA	4	0	4																								4			
Prime Power Unit (PPUs - 2 each radar system)																																	
	12	2010	MDA	1	0	1																								1			
	12	2012	MDA	2	0	2																								2			
Prime Power Unit (PPUs - 2 each radar system) - 1																																	
	12	2013	MDA	1	0	1																								1			
Prime Power Unit (PPUs - 2 each radar system) - 2																																	
	12	2013	MDA	1	0	1																								1			
Radar Field Upgrade (RAFU) Kit																																	
	13	2017	MDA	1	0	1																								1			
Transmit/Receive Integrated Microwave Module (TRIMMs)																																	
	14	2015	MDA	1	0	1																								1			
Contractor Certification																																	
	15	2015	MDA	1	0	1																								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 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			

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2012														Fiscal Year 2013														BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	BAL DUE AS OF 1 OCT	Calendar Year 2012														Calendar Year 2013														
							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	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					
Antenna Equipment Unit (AEU)																																			
	1	2010	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0				
	1	2012	MDA	2	0	2				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2				
Antenna Equipment Unit (AEU) - 1																																			
	1	2013	MDA	1	0	1																					A -	-	-	-	-	1			
Antenna Equipment Unit (AEU) - 2																																			
	1	2013	MDA	1	0	1																									1				
Antenna Equipment Unit (AEU) Transformer																																			
	2	2015	MDA	3	0	3																									3				
	2	2016	MDA	1	0	1																									1				
	2	2017	MDA	1	0	1																									1				
	2	2018	MDA	1	0	1																									1				
	2	2019	MDA	1	0	1																									1				
COBRA DANE Transmitter Group Replacement																																			
	3	2018	MDA	1	0	1																									1				
Cooling Equipment Unit (CEU)																																			
	4	2010	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0				
	4	2012	MDA	2	0	2				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2				
Cooling Equipment Unit (CEU) - 1																																			
	4	2013	MDA	1	0	1																					A -	-	-	-	-	1			
Cooling Equipment Unit (CEU) - 2																																			
	4	2013	MDA	1	0	1																									1				
Critical Spares																																			
	5	2014	MDA	1	0	1																									1				
	5	2015	MDA	1	0	1																									1				
	5	2016	MDA	1	0	1																									1				
Electronic Equipment Unit (EEU)																																			
	6	2010	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0				
	6	2012	MDA	2	0	2				A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2				
Electronic Equipment Unit (EEU) - 1																																			
	6	2013	MDA	1	0	1																					A -	-	-	-	-	1			
Electronic Equipment Unit (EEU) - 2																																			
	6	2013	MDA	1	0	1																									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 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					

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2012														Fiscal Year 2013														BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2011	BAL DUE AS OF 1 OCT	Calendar Year 2012														Calendar Year 2013														
							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	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					
Electronic Equipment Unit (EEU) Modification Kit																																			
	7	2015	MDA	3	0	3																								3					
	7	2016	MDA	4	0	4																								4					
	7	2017	MDA	1	0	1																								1					
	7	2019	MDA	1	0	1																								1					
Float Antenna Equipment Unit (AEU)																																			
	8	2016	MDA	1	0	1																								1					
Float Cooling Equipment Unit (CEU)																																			
	9	2012	MDA	1	0	1				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1					
	9	2014	MDA	1	0	1																								1					
Float Electronic Equipment Unit (EEU)																																			
	10	2012	MDA	1	0	1				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1					
	10	2014	MDA	1	0	1																								1					
Forward-Based Mode Prime Power Units (PPU)																																			
	11	2013	MDA	4	0	4																								4					
Prime Power Unit (PPUs - 2 each radar system)																																			
	12	2010	MDA	1	0	1																								0					
	12	2012	MDA	2	0	2				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2					
Prime Power Unit (PPUs - 2 each radar system) - 1																																			
	12	2013	MDA	1	0	1																								1					
Prime Power Unit (PPUs - 2 each radar system) - 2																																			
	12	2013	MDA	1	0	1																								1					
Radar Field Upgrade (RAFU) Kit																																			
	13	2017	MDA	1	0	1																								1					
Transmit/Receive Integrated Microwave Module (TRIMMs)																																			
	14	2015	MDA	1	0	1																								1					
Contractor Certification																																			
	15	2015	MDA	1	0	1																								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 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		

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>							Fiscal Year 2014														Fiscal Year 2015														BALANCE
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2013	BAL DUE AS OF 1 OCT	Calendar Year 2014														Calendar Year 2015														
							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	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					
Antenna Equipment Unit (AEU)																																			
	1	2010	MDA	1	1	0																							0						
	1	2012	MDA	2	0	2	-	-	-	-	-	-	-	-	-	2													0						
Antenna Equipment Unit (AEU) - 1																																			
	1	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1		0						
Antenna Equipment Unit (AEU) - 2																																			
	1	2013	MDA	1	0	1			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1						
Antenna Equipment Unit (AEU) Transformer																																			
	2	2015	MDA	3	0	3																							2						
	2	2016	MDA	1	0	1																							1						
	2	2017	MDA	1	0	1																							1						
	2	2018	MDA	1	0	1																							1						
	2	2019	MDA	1	0	1																							1						
COBRA DANE Transmitter Group Replacement																																			
	3	2018	MDA	1	0	1																							1						
Cooling Equipment Unit (CEU)																																			
	4	2010	MDA	1	1	0																							0						
	4	2012	MDA	2	0	2	-	-	-	-	-	-	-	-	-	2													0						
Cooling Equipment Unit (CEU) - 1																																			
	4	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0						
Cooling Equipment Unit (CEU) - 2																																			
	4	2013	MDA	1	0	1			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1						
Critical Spares																																			
	5	2014	MDA	1	0	1																							0						
	5	2015	MDA	1	0	1																							1						
	5	2016	MDA	1	0	1																							1						
Electronic Equipment Unit (EEU)																																			
	6	2010	MDA	1	1	0																							0						
	6	2012	MDA	2	0	2	-	-	-	-	-	-	-	-	-	2													0						
Electronic Equipment Unit (EEU) - 1																																			
	6	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1			0						
Electronic Equipment Unit (EEU) - 2																																			
	6	2013	MDA	1	0	1			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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 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					



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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>							Fiscal Year 2016														Fiscal Year 2017														BALANCE				
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016														Calendar Year 2017																		
							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	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									
Antenna Equipment Unit (AEU)																																							
	1	2010	MDA	1	1	0																							0										
	1	2012	MDA	2	2	0																							0										
Antenna Equipment Unit (AEU) - 1																																							
	1	2013	MDA	1	1	0																							0										
Antenna Equipment Unit (AEU) - 2																																							
	1	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	1													0										
Antenna Equipment Unit (AEU) Transformer																																							
	2	2015	MDA	3	1	2	-	1	-	1																			0										
	2	2016	MDA	1	0	1			A	-	-	-	-	-	-	-	-	-	-	1									0										
	2	2017	MDA	1	0	1																					A	-	-	-	-	-	-	-	-	-	-	1	0
	2	2018	MDA	1	0	1																								1									
	2	2019	MDA	1	0	1																							1										
COBRA DANE Transmitter Group Replacement																																							
	3	2018	MDA	1	0	1																							1										
Cooling Equipment Unit (CEU)																																							
	4	2010	MDA	1	1	0																							0										
	4	2012	MDA	2	2	0																							0										
Cooling Equipment Unit (CEU) - 1																																							
	4	2013	MDA	1	1	0																							0										
Cooling Equipment Unit (CEU) - 2																																							
	4	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	1													0										
Critical Spares																																							
	5	2014	MDA	1	1	0																							0										
	5	2015	MDA	1	0	1	-	-	1																				0										
	5	2016	MDA	1	0	1			A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0										
Electronic Equipment Unit (EEU)																																							
	6	2010	MDA	1	1	0																							0										
	6	2012	MDA	2	2	0																							0										
Electronic Equipment Unit (EEU) - 1																																							
	6	2013	MDA	1	1	0																							0										
Electronic Equipment Unit (EEU) - 2																																							
	6	2013	MDA	1	0	1	-	-	-	-	-	-	-	-	-	1													0										
							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	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									

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2016														Fiscal Year 2017														BALANCE	
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016														Calendar Year 2017														
							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	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					
Electronic Equipment Unit (EEU) Modification Kit																																			
	7	2015	MDA	3	2	1	1																												0
	7	2016	MDA	4	0	4																													0
	7	2017	MDA	1	0	1																													0
	7	2019	MDA	1	0	1																													1
Float Antenna Equipment Unit (AEU)																																			
	8	2016	MDA	1	0	1																												1	
Float Cooling Equipment Unit (CEU)																																			
	9	2012	MDA	1	1	0																												0	
	9	2014	MDA	1	0	1																												0	
Float Electronic Equipment Unit (EEU)																																			
	10	2012	MDA	1	1	0																												0	
	10	2014	MDA	1	0	1																												0	
Forward-Based Mode Prime Power Units (PPU)																																			
	11	2013	MDA	4	3	1																												1	
Prime Power Unit (PPUs - 2 each radar system)																																			
	12	2010	MDA	1	1	0																												0	
	12	2012	MDA	2	2	0																													0
Prime Power Unit (PPUs - 2 each radar system) - 1																																			
	12	2013	MDA	1	1	0																												0	
Prime Power Unit (PPUs - 2 each radar system) - 2																																			
	12	2013	MDA	1	0	1																												0	
Radar Field Upgrade (RAFU) Kit																																			
	13	2017	MDA	1	0	1																												0	
Transmit/Receive Integrated Microwave Module (TRIMMs)																																			
	14	2015	MDA	1	0	1																												0	
Contractor Certification																																			
	15	2015	MDA	1	0	1																												0	

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>							Fiscal Year 2018														Fiscal Year 2019														BALANCE
O C O	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	Calendar Year 2018														Calendar Year 2019														
							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	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					
Antenna Equipment Unit (AEU)																																			
	1	2010	MDA	1	1	0																							0						
	1	2012	MDA	2	2	0																							0						
Antenna Equipment Unit (AEU) - 1																																			
	1	2013	MDA	1	1	0																							0						
Antenna Equipment Unit (AEU) - 2																																			
	1	2013	MDA	1	1	0																							0						
Antenna Equipment Unit (AEU) Transformer																																			
	2	2015	MDA	3	3	0																							0						
	2	2016	MDA	1	1	0																							0						
	2	2017	MDA	1	1	0																							0						
	2	2018	MDA	1	0	1				A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0						
	2	2019	MDA	1	0	1																							0						
COBRA DANE Transmitter Group Replacement																																			
	3	2018	MDA	1	0	1																							0						
Cooling Equipment Unit (CEU)																																			
	4	2010	MDA	1	1	0																							0						
	4	2012	MDA	2	2	0																							0						
Cooling Equipment Unit (CEU) - 1																																			
	4	2013	MDA	1	1	0																							0						
Cooling Equipment Unit (CEU) - 2																																			
	4	2013	MDA	1	1	0																							0						
Critical Spares																																			
	5	2014	MDA	1	1	0																							0						
	5	2015	MDA	1	1	0																							0						
	5	2016	MDA	1	1	0																							0						
Electronic Equipment Unit (EEU)																																			
	6	2010	MDA	1	1	0																							0						
	6	2012	MDA	2	2	0																							0						
Electronic Equipment Unit (EEU) - 1																																			
	6	2013	MDA	1	1	0																							0						
Electronic Equipment Unit (EEU) - 2																																			
	6	2013	MDA	1	1	0																							0						
							O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S					
							C	O	E	A	E	A	A	A	U	U	A	E	C	O	V	E	A	E	A	A	U	U	A	S					
							T	V	C	N	B	R	P	Y	N	L	G	P	T	V	C	N	B	R	R	Y	N	L	G	P					

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2018													Fiscal Year 2019													BALANCE	
O C C #	M F R #	FY	SERVICE	PROC QTY	ACCEP T P R I O R T O 1 O C T 2 0 1 7	BAL D U E A S O F 1 O C T	Calendar Year 2018													Calendar Year 2019													
							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	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			
Electronic Equipment Unit (EEU) Modification Kit																																	
	7	2015	MDA	3	3	0																								0			
	7	2016	MDA	4	4	0																								0			
	7	2017	MDA	1	1	0																								0			
	7	2019	MDA	1	0	1																								0			
Float Antenna Equipment Unit (AEU)																																	
	8	2016	MDA	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0			
Float Cooling Equipment Unit (CEU)																																	
	9	2012	MDA	1	1	0																								0			
	9	2014	MDA	1	1	0																								0			
Float Electronic Equipment Unit (EEU)																																	
	10	2012	MDA	1	1	0																								0			
	10	2014	MDA	1	1	0																								0			
Forward-Based Mode Prime Power Units (PPU)																																	
	11	2013	MDA	4	3	1																								1			
Prime Power Unit (PPUs - 2 each radar system)																																	
	12	2010	MDA	1	1	0																								0			
	12	2012	MDA	2	2	0																								0			
Prime Power Unit (PPUs - 2 each radar system) - 1																																	
	12	2013	MDA	1	1	0																								0			
Prime Power Unit (PPUs - 2 each radar system) - 2																																	
	12	2013	MDA	1	1	0																								0			
Radar Field Upgrade (RAFU) Kit																																	
	13	2017	MDA	1	1	0																								0			
Transmit/Receive Integrated Microwave Module (TRIMMs)																																	
	14	2015	MDA	1	1	0																								0			
Contractor Certification																																	
	15	2015	MDA	1	1	0																								0			
							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	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			

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD11 / BMDS AN/TPY-2 Radars	<b>Item Number / Title [DODIC]:</b> - / BMDS AN/TPY-2 Radars
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MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)							
		MSR For 2019	1-8-5 For 2019	MAX For 2019	Initial				Reorder			
					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	Raytheon - Woburn, MA	1	1	4	4	3	30	33	0	0	0	0
2	Raytheon - Woburn, MA	1	4	4	2	3	9	12	2	3	9	12
3	Raytheon - Washington, D.C.	1	1	1	3	2	12	14	3	2	12	14
4	Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
5	Raytheon - Woburn, MA	1	1	4	4	2	12	14	4	2	12	14
6	Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
7	Raytheon - Woburn, MA	1	2	4	2	3	6	9	2	3	6	9
8	Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
9	Raytheon - Woburn, MA	1	1	4	4	2	15	17	0	0	0	0
10	Raytheon - Woburn, MA	1	1	4	4	2	24	26	0	0	0	0
11	Raytheon - Woburn, MA	1	1	4	4	2	24	26	0	0	0	0
12	Raytheon - Woburn, MA	1	1	4	4	2	30	32	0	0	0	0
13	Raytheon - Woburn, MA	1	2	4	2	3	6	9	2	3	6	9
14	Raytheon - Woburn, MA	1	1	4	4	2	18	20	4	2	18	20
15	Raytheon - Woburn, MA	1	1	1	3	2	12	14	3	2	12	14

"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 all quantities are shown in thousands. 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-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD26 / Israeli Program
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> N/A
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	1	1	-	1	-	1	1	1	1	1	Continuing	Continuing
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	15.000	120.000	0.000	80.000	-	80.000	55.000	77.000	62.000	90.000	Continuing	Continuing
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	15.000	120.000	0.000	80.000	-	80.000	55.000	77.000	62.000	90.000	Continuing	Continuing
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>15.000</b>	<b>120.000</b>	<b>0.000</b>	<b>80.000</b>	<b>-</b>	<b>80.000</b>	<b>55.000</b>	<b>77.000</b>	<b>62.000</b>	<b>90.000</b>	<b>Continuing</b>	<b>Continuing</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	15.000	120.000	0.000	80.000	-	80.000	55.000	77.000	62.000	90.000	Continuing	Continuing

**Description:**

For procurement of Arrow Weapon System components.  
Quantities are classified. The unit quantity of one is used as a proxy in each Fiscal Year with funding.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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 / Israeli Program

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

**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Israeli Program Procurement		A		1 / 15.000	1 / 120.000	- / 0.000	1 / 80.000	- / -	1 / 80.000
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>1 / 15.000</b>	<b>1 / 120.000</b>	<b>- / 0.000</b>	<b>1 / 80.000</b>	<b>- / -</b>	<b>1 / 80.000</b>

\*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 Arrow Weapon System components.

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**Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD26 / Israeli Program	<b>Item Number / Title [DODIC]:</b> - / Israeli Program Procurement
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**ID Code** (A=Service Ready, B=Not Service Ready) : A **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity <i>(Units in Each)</i>	1	1	-	1	-	1
Gross/Weapon System Cost <i>(\$ in Millions)</i>	15.000	120.000	0.000	80.000	-	80.000
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	15.000	120.000	0.000	80.000	-	80.000
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
<b>Total Obligation Authority <i>(\$ in Millions)</i></b>	<b>15.000</b>	<b>120.000</b>	<b>0.000</b>	<b>80.000</b>	<b>-</b>	<b>80.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Millions)</i>	15.000	120.000	0.000	80.000	-	80.000

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Recurring Cost																		
Israeli Programs	15.000	1	15.000	120.000	1	120.000	-	-	-	80.000	1	80.000	-	-	-	80.000	1	80.000
<i>Subtotal: Recurring Cost</i>	-	-	15.000	-	-	120.000	-	-	-	-	-	80.000	-	-	-	-	-	80.000
<i>Subtotal: Hardware Cost</i>	-	-	15.000	-	-	120.000	-	-	-	-	-	80.000	-	-	-	-	-	80.000
<b>Gross/Weapon System Cost</b>	<b>15.000</b>	<b>1</b>	<b>15.000</b>	<b>120.000</b>	<b>1</b>	<b>120.000</b>	<b>0.000</b>	<b>-</b>	<b>0.000</b>	<b>80.000</b>	<b>1</b>	<b>80.000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>80.000</b>	<b>1</b>	<b>80.000</b>

**Remarks:**

Quantities are classified. The unit quantity of one is used as a proxy in each Fiscal Year with funding.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD34 / Short Range Ballistic Missile Defense (SRBMD)
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> N/A
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	1	1	1	1	-	1	1	1	1	1	Continuing	Continuing
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000	50.000	50.000	30.000	30.000	Continuing	Continuing
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000	50.000	50.000	30.000	30.000	Continuing	Continuing
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>150.000</b>	<b>150.000</b>	<b>0.000</b>	<b>50.000</b>	<b>-</b>	<b>50.000</b>	<b>50.000</b>	<b>50.000</b>	<b>30.000</b>	<b>30.000</b>	<b>Continuing</b>	<b>Continuing</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	1.000	1.000	1.000	1.000	-	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000	50.000	50.000	30.000	30.000	Continuing	Continuing

**Description:**

Previously named David's Sling. PB19 name change to Short Range Ballistic Missile Defense (SRBMD).

-Provides funding to the Government of Israel to procure DSWS Components. Quantities are classified. The unit quantity of one is used as a proxy in each Fiscal Year with Funding.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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)

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

**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	1 / David's Sling Weapon System [1]		A		1 / 150.000	1 / 150.000	1 / 0.000	1 / 50.000	- / -	1 / 50.000
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>1 / 150.000</b>	<b>1 / 150.000</b>	<b>1 / 0.000</b>	<b>1 / 50.000</b>	<b>- / -</b>	<b>1 / 50.000</b>

\*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

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**Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD34 / Short Range Ballistic Missile Defense (SRBMD)	<b>Item Number / Title [DODIC]:</b> 1 / David's Sling Weapon System [1]
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**ID Code** (A=Service Ready, B=Not Service Ready) : A **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity ( <i>Units in Each</i> )	1	1	1	1	-	1
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
<b>Total Obligation Authority</b> ( <i>\$ in Millions</i> )	<b>150.000</b>	<b>150.000</b>	<b>0.000</b>	<b>50.000</b>	<b>-</b>	<b>50.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	150.000	150.000	0.000	50.000	-	50.000

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Recurring Cost																		
David's Sling Weapon System	150.000	1	150.000	150.000	1	150.000	-	-	-	50.000	1	50.000	-	-	-	50.000	1	50.000
<i>Subtotal: Recurring Cost</i>	-	-	150.000	-	-	150.000	-	-	-	-	-	50.000	-	-	-	-	-	50.000
<i>Subtotal: Hardware Cost</i>	-	-	150.000	-	-	150.000	-	-	-	-	-	50.000	-	-	-	-	-	50.000
<b>Gross/Weapon System Cost</b>	<b>150.000</b>	<b>1</b>	<b>150.000</b>	<b>150.000</b>	<b>1</b>	<b>150.000</b>	<b>0.000</b>	<b>1</b>	<b>0.000</b>	<b>50.000</b>	<b>1</b>	<b>50.000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50.000</b>	<b>1</b>	<b>50.000</b>

**Remarks:**  
DSWS Component Procurement

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD73 / Aegis Ashore Phase III
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> 0603892C, 0604881C, 0604880C	<b>Other Related Program Elements:</b> 0604880C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	3	1	1	1	-	1	-	-	-	-	-	6
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	367.588	57.493	59.739	15.000	-	15.000	-	-	-	-	-	499.820
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	367.588	57.493	59.739	15.000	-	15.000	-	-	-	-	-	499.820
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>367.588</b>	<b>57.493</b>	<b>59.739</b>	<b>15.000</b>	-	<b>15.000</b>	-	-	-	-	-	<b>499.820</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	122.529	57.493	59.739	15.000	-	15.000	-	-	-	-	-	83.303

**Description:**

Note: The increase from FY 2017 to FY 2018 accounts for all final costs associated to meet European Phased Adaptive Approach (EPAA) Phase III, which includes configuration and test validations.

This program supports the procurement of Aegis Ashore Poland. 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 Ballistic Missile Defense (BMD) capabilities. Aegis Ashore represents one of these land-based capabilities.

Phase III of EPAA (2019 timeframe): 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.

Aegis Ashore will provide 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 a SPY 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.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD73 / Aegis Ashore Phase III
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> 0603892C, 0604881C, 0604880C	<b>Other Related Program Elements:</b> 0604880C
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**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Aegis Ashore Poland, Equipment and Deckhouse		A		3 / 367.588	1 / 57.493	1 / 59.739	1 / 15.000	- / -	1 / 15.000
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>3 / 367.588</b>	<b>1 / 57.493</b>	<b>1 / 59.739</b>	<b>1 / 15.000</b>	<b>- / -</b>	<b>1 / 15.000</b>

\*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 SPY 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 by the end of the calendar year 2019, keep the individual components up to date with the Navy's destroyer modernization plan and install modifications as required to enhance co-existence with Broadband Wireless Access systems in the European theater. MDA will continue to use 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.

FY 2016 Started site activation, 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 Completion of the combat system and combat structure adaptation, integration, installation, and testing.

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>		<b>Date:</b> February 2018
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD73 / Aegis Ashore Phase III	<b>Item Number / Title [DODIC]:</b> - / Aegis Ashore Poland, Equipment and Deckhouse

<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A	<b>MDAP/MAIS Code:</b>
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<b>Resource Summary</b>	<b>Prior Years</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019 Base</b>	<b>FY 2019 OCO</b>	<b>FY 2019 Total</b>
Procurement Quantity ( <i>Units in Each</i> )	3	1	1	1	-	1
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	367.588	57.493	59.739	15.000	-	15.000
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	367.588	57.493	59.739	15.000	-	15.000
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
<b>Total Obligation Authority</b> ( <i>\$ in Millions</i> )	<b>367.588</b>	<b>57.493</b>	<b>59.739</b>	<b>15.000</b>	<b>-</b>	<b>15.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	122.529	57.493	59.739	15.000	-	15.000

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

<b>Cost Elements</b>	<b>Prior Years</b>			<b>FY 2017</b>			<b>FY 2018</b>			<b>FY 2019 Base</b>			<b>FY 2019 OCO</b>			<b>FY 2019 Total</b>		
	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)	<b>Unit Cost</b> (\$ M)	<b>Qty</b> (Each)	<b>Total Cost</b> (\$ M)
Flyaway Cost																		
Recurring Cost																		
Aegis Ashore Poland, Equipment and Deckhouse	122.529	3	367.588	57.493	1	57.493	59.739	1	59.739	15.000	1	15.000	-	-	-	15.000	1	15.000
<i>Subtotal: Recurring Cost</i>	-	-	367.588	-	-	57.493	-	-	59.739	-	-	15.000	-	-	-	-	-	15.000
<i>Subtotal: Flyaway Cost</i>	-	-	367.588	-	-	57.493	-	-	59.739	-	-	15.000	-	-	-	-	-	15.000
<b>Gross/Weapon System Cost</b>	<b>122.529</b>	<b>3</b>	<b>367.588</b>	<b>57.493</b>	<b>1</b>	<b>57.493</b>	<b>59.739</b>	<b>1</b>	<b>59.739</b>	<b>15.000</b>	<b>1</b>	<b>15.000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15.000</b>	<b>1</b>	<b>15.000</b>

**Remarks:**

N/A

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD83 / Iron Dome
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> 0603913C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	5	1	1	1	-	1	1	1	1	1	-	12
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	1,249.630	62.000	42.000	70.000	-	70.000	95.000	73.000	108.000	80.000	-	1,779.630
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	1,249.630	62.000	42.000	70.000	-	70.000	95.000	73.000	108.000	80.000	-	1,779.630
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>1,249.630</b>	<b>62.000</b>	<b>42.000</b>	<b>70.000</b>	<b>-</b>	<b>70.000</b>	<b>95.000</b>	<b>73.000</b>	<b>108.000</b>	<b>80.000</b>	<b>-</b>	<b>1,779.630</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	249.926	62.000	42.000	70.000	-	70.000	95.000	73.000	108.000	80.000	-	148.303

**Description:**

Provides funding to the Government of Israel to procure Iron Dome batteries and Tamir Missiles to counter short-range rocket threats.

Quantities are classified. The unit quantity of one is used as a proxy in each Fiscal Year with funding.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD83 / Iron Dome
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> 0603913C
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**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Iron Dome		A		5 / 1,249.630	1 / 62.000	1 / 42.000	1 / 70.000	- / -	1 / 70.000
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>5 / 1,249.630</b>	<b>1 / 62.000</b>	<b>1 / 42.000</b>	<b>1 / 70.000</b>	<b>- / -</b>	<b>1 / 70.000</b>

\*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 2017: Procurement of additional Iron Dome equipment.  
 FY 2018: Procurement of additional Iron Dome equipment.

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**Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD83 / Iron Dome	<b>Item Number / Title [DODIC]:</b> - / Iron Dome
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**ID Code** (A=Service Ready, B=Not Service Ready) : A **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity ( <i>Units in Each</i> )	5	1	1	1	-	1
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	1,249.630	62.000	42.000	70.000	-	70.000
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	1,249.630	62.000	42.000	70.000	-	70.000
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-
<b>Total Obligation Authority</b> ( <i>\$ in Millions</i> )	<b>1,249.630</b>	<b>62.000</b>	<b>42.000</b>	<b>70.000</b>	<b>-</b>	<b>70.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	249.926	62.000	42.000	70.000	-	70.000

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Recurring Cost																		
Iron Dome	249.926	5	1,249.630	62.000	1	62.000	42.000	1	42.000	70.000	1	70.000	-	-	-	70.000	1	70.000
<i>Subtotal: Recurring Cost</i>	-	-	1,249.630	-	-	62.000	-	-	42.000	-	-	70.000	-	-	-	-	-	70.000
<i>Subtotal: Hardware Cost</i>	-	-	1,249.630	-	-	62.000	-	-	42.000	-	-	70.000	-	-	-	-	-	70.000
<b>Gross/Weapon System Cost</b>	<b>249.926</b>	<b>5</b>	<b>1,249.630</b>	<b>62.000</b>	<b>1</b>	<b>62.000</b>	<b>42.000</b>	<b>1</b>	<b>42.000</b>	<b>70.000</b>	<b>1</b>	<b>70.000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>70.000</b>	<b>1</b>	<b>70.000</b>

**Remarks:**

Quantities are classified. The unit quantity of one is used as a proxy in each Fiscal Year with funding.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> N/A
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	27	6	21	28	-	28	36	27	30	31	-	206
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	125.300	63.098	160.330	97.057	-	97.057	125.755	60.420	87.191	84.896	-	804.047
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	125.300	63.098	160.330	97.057	-	97.057	125.755	60.420	87.191	84.896	-	804.047
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority (<i>\$ in Millions</i>)</b>	<b>125.300</b>	<b>63.098</b>	<b>160.330</b>	<b>97.057</b>	<b>-</b>	<b>97.057</b>	<b>125.755</b>	<b>60.420</b>	<b>87.191</b>	<b>84.896</b>	<b>-</b>	<b>804.047</b>
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>												
Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	4.641	10.516	7.635	3.466	-	3.466	3.493	2.238	2.906	2.739	-	3.903

**Description:**

Note:

FY 2019 Base procurement budget request supports the procurement and installation of Aegis Ballistic Missile Defense (ABMD) material for operational ships and sites.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software
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ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
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**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	Aegis BMD Shipsets	P-5a, P-21	A		27 / 125.300	6 / 63.098	21 / 160.330	28 / 97.057	- / -	28 / 97.057
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				<b>27 / 125.300</b>	<b>6 / 63.098</b>	<b>21 / 160.330</b>	<b>28 / 97.057</b>	<b>- / -</b>	<b>28 / 97.057</b>

\*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 2019 Base procurement dollars in the amount of \$97.057M supports the continued procurement and deployment of ABMD capabilities to operational ships and sites.

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>											<b>Date:</b> February 2018				
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17						<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software					<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets				
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A						<b>MDAP/MAIS Code:</b>									
<b>Resource Summary</b>				<b>Prior Years</b>		<b>FY 2017</b>		<b>FY 2018</b>		<b>FY 2019 Base</b>		<b>FY 2019 OCO</b>		<b>FY 2019 Total</b>	
Procurement Quantity (Units in Each)				27		6		21		28		-		28	
Gross/Weapon System Cost (\$ in Millions)				125.300		63.098		160.330		97.057		-		97.057	
Less PY Advance Procurement (\$ in Millions)				-		0.000		0.000		-		-		-	
Net Procurement (P-1) (\$ in Millions)				125.300		63.098		160.330		97.057		-		97.057	
Plus CY Advance Procurement (\$ in Millions)				-		0.000		0.000		-		-		-	
<b>Total Obligation Authority (\$ in Millions)</b>				<b>125.300</b>		<b>63.098</b>		<b>160.330</b>		<b>97.057</b>		<b>-</b>		<b>97.057</b>	
<i>(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)</i>															
Initial Spares (\$ in Millions)				-		-		-		-		-		-	
Gross/Weapon System Unit Cost (\$ in Millions)				4.641		10.516		7.635		3.466		-		3.466	

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Recurring Cost																		
Aegis BL 5.4 (BMD 4.1) Installs <sup>(†)</sup>	-	-	-	-	-	-	-	-	-	0.615	3	1.845	-	-	-	0.615	3	1.845
Aegis BL 5.4 (BMD4.1) Procurement	-	-	-	-	-	-	-	-	-	0.162	10	1.620	-	-	-	0.162	10	1.620
Aegis BL 9.C1 (5.0 CU) Installs	1.400	1	1.400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aegis BL 9.C2 (BMD 5.1) BackFit Installs <sup>(†)</sup>	-	-	-	1.133	3	3.400	1.308	8	10.460	1.485	3	4.455	-	-	-	1.485	3	4.455
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement <sup>(†)</sup>	2.009	11	22.097	2.533	6	15.200	-	-	-	-	-	-	-	-	-	-	-	-
Aegis BL 9.C2 (BMD 5.1) Inline Installs <sup>(†)</sup>	-	-	-	3.310	1	3.310	1.552	3	4.657	1.499	1	1.499	-	-	-	1.499	1	1.499
Aegis BL 9.C2 (BMD 5.1) Inline Procurements <sup>(†)</sup>	4.502	2	9.003	4.513	1	4.513	4.651	3	13.953	4.325	3	12.975	-	-	-	4.325	3	12.975
Aegis BMD 3.6 to 4.X Hardware Procurements <sup>(†)</sup>	11.800	6	70.800	17.875	1	17.875	17.922	2	35.844	17.451	1	17.451	-	-	-	17.451	1	17.451
Aegis BMD 3.6 to 4.X Installs <sup>(†)</sup>	18.800	1	18.800	18.800	1	18.800	18.431	5	92.156	18.215	3	54.645	-	-	-	18.215	3	54.645
<i>Subtotal: Recurring Cost</i>	-	-	122.100	-	-	63.098	-	-	157.070	-	-	94.490	-	-	-	-	-	94.490

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<b>Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency</b>													<b>Date:</b> February 2018					
<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17						<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software						<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets						
<b>ID Code</b> (A=Service Ready, B=Not Service Ready) : A										<b>MDAP/MAIS Code:</b>								

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
<b>Non Recurring Cost</b>																		
MDA PNT 4650.05	-	-	-	-	-	-	3.260	1	3.260	-	-	-	-	-	-	-	-	-
<i>Subtotal: Non Recurring Cost</i>	-	-	-	-	-	-	-	-	3.260	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	<b>122.100</b>	-	-	<b>63.098</b>	-	-	<b>160.330</b>	-	-	<b>94.490</b>	-	-	-	-	-	<b>94.490</b>
<b>Software Cost</b>																		
<b>Recurring Cost</b>																		
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs <sup>(†)</sup>	-	-	-	-	-	-	-	-	-	0.642	4	2.567	-	-	-	0.642	4	2.567
Aegis BMD 4.0 to 4.X Software Installs	0.533	6	3.200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Recurring Cost</i>	-	-	3.200	-	-	-	-	-	-	-	-	2.567	-	-	-	-	-	2.567
<i>Subtotal: Software Cost</i>	-	-	<b>3.200</b>	-	-	-	-	-	-	-	-	<b>2.567</b>	-	-	-	-	-	<b>2.567</b>
<b>Gross/Weapon System Cost</b>	<b>4.641</b>	<b>27</b>	<b>125.300</b>	<b>10.516</b>	<b>6</b>	<b>63.098</b>	<b>7.635</b>	<b>21</b>	<b>160.330</b>	<b>3.466</b>	<b>28</b>	<b>97.057</b>	-	-	-	<b>3.466</b>	<b>28</b>	<b>97.057</b>

**Remarks:**

The Aegis BL 9.C2 (BMD 5.1) upgrade provides EPAA Phase III integrated Air and Aegis BMD mission capability. The Aegis BL 9.C2 (BMD 5.1) Inline procurement/installation upgrades non-BMD capable ships to full Aegis BL 9.C2 (BMD 5.1) capability. Unit costs for Aegis BL 9.C2 (BMD 5.1) Inline Procurements is dependent on specific ship configuration. (DDGs 79-90 are approximately \$4.3M/ship, while inline procurements for DDGs 91-112 are approximately \$6.3M/ship). 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.

The Aegis BL 9.C2 (BMD 5.1) Backfit Procurement upgrade consists of an Aegis Weapon System, Command/Control/Communication and Vertical Launching System hardware necessary to upgrade an in-service Aegis BL 9.C1 (BMD 5.0CU) capable ship to BL 9.C2 (BMD 5.1).

The Aegis BL 5.4 (BMD 4.1) provides EPAA Phase II capability with a single, integrated Aegis BL 5.3.11 (Air Defense) and Aegis BMD 4.1 computer program.

All Shipset procurements and installs are in alignment with Navy Ship Fielding Plan as of JUN 2017

Incorporates FY17 Above Threshold Reprogramming for acceleration of SM-3 Blk IIA capability on DDG 114, 116, 117 and 118.

(† indicates the presence of a P-5A)

(t) indicates the presence of a P-5a

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**Exhibit P-5a, Procurement History and Planning: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$ M)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Aegis BL 5.4 (BMD 4.1) Installs <sup>(†)</sup>		2019	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Apr 2019	Sep 2019	3	0.150	Y		Jun 2018
Aegis BL 9.C2 (BMD 5.1) BackFit Installs <sup>(†)</sup>		2017	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Oct 2017	Oct 2018	3	1.134	Y		Aug 2016
Aegis BL 9.C2 (BMD 5.1) BackFit Installs <sup>(†)</sup>		2018	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Oct 2017	Jun 2018	8	0.710	Y		Aug 2016
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement <sup>(†)</sup>		2016	Lockheed Martin / Moorestown, N.J.	SS / FP	Dahlgren, VA	Nov 2015	Jan 2016	11	0.000	N		Sep 2015
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement <sup>(†)</sup>		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2017	Aug 2018	6	2.533	Y		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Installs <sup>(†)</sup>		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2017	Aug 2018	1	3.310	Y		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Installs <sup>(†)</sup>		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Jan 2018	Jan 2019	3	0.450	Y		Jul 2017
Aegis BL 9.C2 (BMD 5.1) Inline Procurements <sup>(†)</sup>		2016	Lockheed Martin / Moorestown, N.J.	SS / FP	Dahlgren, VA	Jan 2016	Jan 2016	2	0.000	N		Sep 2015
Aegis BL 9.C2 (BMD 5.1) Inline Procurements		2017	Raytheon / Norfolk, VA	SS / FFP	Washington, D.C.	May 2017	Nov 2018	0	0.600	Y		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Procurements <sup>(†)</sup>		2017	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	May 2017	Nov 2018	1	3.913	Y		Jul 2016
Aegis BL 9.C2 (BMD 5.1) Inline Procurements <sup>(†)</sup>		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2018	Apr 2019	3	3.735	Y		Jul 2017
Aegis BMD 3.6 to 4.X Hardware Procurements <sup>(†)</sup>		2016	Lockheed Martin / Moorestown, N.J.	SS / FP	Dahlgren, VA	Jan 2016	Jan 2016	6	0.000	N		Sep 2015
Aegis BMD 3.6 to 4.X Hardware Procurements		2017	Raytheon / Norfolk, VA	SS / FFP	Washington, D.C.	Feb 2017	Aug 2018	0	0.980	Y		Jul 2016
Aegis BMD 3.6 to 4.X Hardware Procurements <sup>(†)</sup>		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	Raytheon / Norfolk, VA	SS / FFP	Washington, D.C.	Feb 2018	Aug 2019	0	0.980	Y		Jul 2017
Aegis BMD 3.6 to 4.X Hardware Procurements <sup>(†)</sup>		2018	Lockheed Martin / Moorestown, N.J.	SS / FPIF	Washington, D.C.	Feb 2018	Aug 2019	2	12.100	Y		Jul 2017
Aegis BMD 3.6 to 4.X Installs <sup>(†)</sup>		2016	Lockheed Martin / Moorestown, N.J.	SS / FP	Dahlgren, VA	Jan 2016	Jan 2016	1	0.000	N		Sep 2015
Aegis BMD 3.6 to 4.X Installs <sup>(†)</sup>		2017	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Jan 2017	Jun 2018	1	9.100	Y		May 2016
Aegis BMD 3.6 to 4.X Installs <sup>(†)</sup>		2018	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Feb 2018	Feb 2019	5	7.100	Y		Aug 2016

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**Exhibit P-5a, Procurement History and Planning:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets
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Cost Elements	O C O	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty <i>(Each)</i>	Unit Cost <i>(\$ M)</i>	Specs Avail Now?	Date Revision Available	RFP Issue Date
Aegis BMD 3.6 to 4.X Installs <sup>(†)</sup>		2019	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Nov 2017	Sep 2019	3	7.300	Y		Nov 2017
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs <sup>(†)</sup>		2019	Lockheed Martin / Moorestown, N.J.	SS / CPIF	Dahlgren, VA	Apr 2019	Sep 2019	4	0.150	Y		Apr 2018

<sup>(†)</sup> indicates the presence of a P-21

**Remarks:**  
An Aegis BMD 3.6 to 4.x hardware procurement consists of two contracts: one SS/FPIF with Lockheed Martin, Moorestown NJ and one SS/FFP with Raytheon, Norfolk VA.

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets
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Cost Elements <i>(Units in Each)</i>						Fiscal Year 2016												Fiscal Year 2017												BALANCE	
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEP PRIOR TO 1 OCT 2015	BAL DUE AS OF 1 OCT	Calendar Year 2016												Calendar Year 2017												
							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	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
<b>Aegis BL 5.4 (BMD 4.1) Installs</b>																															
1		2019	MDA	3	0	3																						3			
<b>Aegis BL 9.C2 (BMD 5.1) BackFit Installs</b>																															
2		2017	MDA	3	0	3																						3			
2		2018	MDA	8	0	8																						8			
<b>Aegis BL 9.C2 (BMD 5.1) BackFit Procurement</b>																															
3		2016	MDA	11	0	11			A -																			0			
4		2017	MDA	6	0	6																				A -			6		
<b>Aegis BL 9.C2 (BMD 5.1) Inline Installs</b>																															
5		2017	MDA	1	0	1																					A -		1		
5		2018	MDA	3	0	3																						3			
<b>Aegis BL 9.C2 (BMD 5.1) Inline Procurements</b>																															
6		2016	MDA	2	0	2							A2															0			
7		2017	MDA	1	0	1																					A -		1		
7		2018	MDA	3	0	3																						3			
<b>Aegis BMD 3.6 to 4.X Hardware Procurements</b>																															
8		2016	MDA	6	0	6							A6															0			
9		2017	MDA	1	0	1																					A -		1		
9		2018	MDA	2	0	2																						2			
<b>Aegis BMD 3.6 to 4.X Installs</b>																															
10		2016	MDA	1	0	1							A1															0			
10		2017	MDA	1	0	1																					A -		1		
10		2018	MDA	5	0	5																						5			
10		2019	MDA	3	0	3																						3			
<b>Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs</b>																															
11		2019	MDA	4	0	4																						4			



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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

**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

Cost Elements <i>(Units in Each)</i>						Fiscal Year 2020												Fiscal Year 2021												BALANCE	
O C O #	M F R #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	Calendar Year 2020												Calendar Year 2021												
							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	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
Aegis BL 5.4 (BMD 4.1) Installs																															
1		2019	MDA	3	3	0																							0		
Aegis BL 9.C2 (BMD 5.1) BackFit Installs																															
2		2017	MDA	3	3	0																							0		
2		2018	MDA	8	8	0																							0		
Aegis BL 9.C2 (BMD 5.1) BackFit Procurement																															
3		2016	MDA	11	11	0																							0		
4		2017	MDA	6	6	0																							0		
Aegis BL 9.C2 (BMD 5.1) Inline Installs																															
5		2017	MDA	1	1	0																							0		
5		2018	MDA	3	3	0																							0		
Aegis BL 9.C2 (BMD 5.1) Inline Procurements																															
6		2016	MDA	2	2	0																							0		
7		2017	MDA	1	1	0																							0		
7		2018	MDA	3	1	2		-	-	-	1		-	-	1														0		
Aegis BMD 3.6 to 4.X Hardware Procurements																															
8		2016	MDA	6	6	0																							0		
9		2017	MDA	1	1	0																							0		
9		2018	MDA	2	1	1		-		1																			0		
Aegis BMD 3.6 to 4.X Installs																															
10		2016	MDA	1	1	0																							0		
10		2017	MDA	1	1	0																							0		
10		2018	MDA	5	4	1		-		1																			0		
10		2019	MDA	3	3	0																							0		
Aegis BL 9.B/C2 (BMD 5.1) Software Upgrade Installs																															
11		2019	MDA	4	4	0																							0		

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**Exhibit P-21, Production Schedule:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD90 / Aegis BMD Hardware and Software	<b>Item Number / Title [DODIC]:</b> - / Aegis BMD Shipsets
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MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Month)			Procurement Leadtime (Months)								
		MSR For 2019	1-8-5 For 2019	MAX For 2019	Initial				Reorder				
					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	3	0	0	0	0	0	0	0	0	0
2	Lockheed Martin - Moorestown, N.J.	1	1	4	0	0	0	0	0	0	0	0	0
3	Lockheed Martin - Moorestown, N.J.	1	1	11	0	0	0	0	0	0	0	0	0
4	Lockheed Martin - Moorestown, N.J.	1	1	2	0	0	0	0	0	0	0	0	0
5	Lockheed Martin - Moorestown, N.J.	1	1	1	0	0	0	0	0	0	0	0	0
6	Lockheed Martin - Moorestown, N.J.	1	1	2	0	0	0	0	0	0	0	0	0
7	Lockheed Martin - Moorestown, N.J.	1	1	1	0	0	0	0	0	0	0	0	0
8	Lockheed Martin - Moorestown, N.J.	1	1	6	0	0	0	0	0	0	0	0	0
9	Lockheed Martin - Moorestown, N.J.	1	1	1	0	0	0	0	0	0	0	0	0
10	Lockheed Martin - Moorestown, N.J.	1	1	3	0	0	0	0	0	0	0	0	0
11	Lockheed Martin - Moorestown, N.J.	1	1	4	0	0	0	0	0	0	0	0	0

**Remarks:**  
An Aegis BMD 3.6 to 4.x hardware procurement consists of two contracts: one SS/FFIF with Lockheed Martin, Moorestown NJ and one SS/FFP with Raytheon, Norfolk VA.

"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 all quantities are shown in thousands. 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-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D: Procurement, Defense-Wide / BA 01: Major Equipment / BSA 17: Major Equipment, Missile Defense Agency	<b>P-1 Line Item Number / Title:</b> MD97 / Improved Homeland Defense (HLD)
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<b>ID Code</b> (A=Service Ready, B=Not Service Ready): A	<b>Program Elements for Code B Items:</b> N/A	<b>Other Related Program Elements:</b> 0604874C
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**Line Item MDAP/MAIS Code:** 362

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Procurement Quantity ( <i>Units in Each</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost ( <i>\$ in Millions</i> )	-	50.000	0.000	-	-	-	-	-	-	-	-	50.000
Less PY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) ( <i>\$ in Millions</i> )	-	50.000	0.000	-	-	-	-	-	-	-	-	50.000
Plus CY Advance Procurement ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-
<b>Total Obligation Authority</b> ( <i>\$ in Millions</i> )	-	<b>50.000</b>	<b>0.000</b>	-	-	-	-	-	-	-	-	<b>50.000</b>

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost ( <i>\$ in Millions</i> )	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost ( <i>\$ in Millions</i> )	-	0.000	0.000	-	-	-	-	-	-	-	-	-

**Description:**

Note: \$25M was included on ATR (17-16PA) as a source for higher DoD priorities.

The Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) provides combatant commanders 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 Improved Homeland Defense interceptor includes a Redesigned Kill Vehicle (RKV), an improved booster (C3), and All Up Round (AUR) engineering necessary to integrate the RKV with new and existing booster configurations. The RKV improves interceptor reliability, reduces unit cost, improves maintainability in the field, and improves performance against emerging threats.

FY 2017 June Prior Approval Request (FY17-16PA): -\$25.0 million was required to support the critical design, development and integration of the Redesign Kill Vehicle (RKV) required to maintain the FY 2019 RKV Critical Design Review schedule. Given the priority of the Ground-Based Midcourse Defense Ballistic Missile Defense System mission, it is critical that the RKV capability schedule be maintained. This is a congressional special interest item. This was a base budget requirement.

FY 2017 Ballistic Missile Defense - Integration Joint Emergent Operational Need Request (FY17-24PA) / Rapid Acquisition Authority (RAA): \$20.0 million was required for a USPACOM JEON (PC-0021) and will be executed within the HLD program. Additional classified details can be provided under a separate cover. This was a base budget requirement.

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**Exhibit P-40, Budget Line Item Justification:** PB 2019 Missile Defense Agency **Date:** February 2018

**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:**  
MD97 / Improved Homeland Defense (HLD)

**ID Code** (A=Service Ready, B=Not Service Ready): A **Program Elements for Code B Items:** N/A **Other Related Program Elements:** 0604874C

**Line Item MDAP/MAIS Code:** 362

Exhibits Schedule					Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/MAIS Code	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)	Quantity / Total Cost (Each) / (\$ M)
P-5	RKV Long Lead Materials		A		- / -	- / 30.000	- / 0.000	- / -	- / -	- / -
P-5	USPACOM JEON (PC-0021)		A		- / -	- / 20.000	- / 0.000	- / -	- / -	- / -
<b>P-40</b>	<b>Total Gross/Weapon System Cost</b>				- / -	- / 50.000	- / 0.000	- / -	- / -	- / -

\*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:**  
 \$5.0M to procure High Level Attitude Control System (HLACS) platelet injector sets for current and future Redesigned Kill Vehicles.  
  
 \$20.0M approved in FY17-24 Prior Approval for Ballistic Missile Defense - Joint Emergent Operational Need (JEON). Funds utilized for classified USPACOM JEON (PC-0021).

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**Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD97 / Improved Homeland Defense (HLD)	<b>Item Number / Title [DODIC]:</b> - / RKV Long Lead Materials
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**ID Code** (A=Service Ready, B=Not Service Ready) : A **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	30.000	0.000	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	30.000	0.000	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
<b>Total Obligation Authority</b> <i>(\$ in Millions)</i>	-	<b>30.000</b>	<b>0.000</b>	-	-	-

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Non Recurring Cost																		
RKV Long Lead Materials	-	-	-	30.000	1	30.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Non Recurring Cost</i>	-	-	-	-	-	30.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	<b>30.000</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Gross/Weapon System Cost</b>	-	-	-	<b>0.000</b>	-	<b>30.000</b>	<b>0.000</b>	-	<b>0.000</b>	-	-	-	-	-	-	-	-	-

**Remarks:**

N/A

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**Exhibit P-5, Cost Analysis: PB 2019 Missile Defense Agency** **Date:** February 2018

<b>Appropriation / Budget Activity / Budget Sub Activity:</b> 0300D / 01 / 17	<b>P-1 Line Item Number / Title:</b> MD97 / Improved Homeland Defense (HLD)	<b>Item Number / Title [DODIC]:</b> - / USPACOM JEON (PC-0021)
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**ID Code** (A=Service Ready, B=Not Service Ready) : A **MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Procurement Quantity <i>(Units in Each)</i>	-	-	-	-	-	-
Gross/Weapon System Cost <i>(\$ in Millions)</i>	-	20.000	0.000	-	-	-
Less PY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
Net Procurement (P-1) <i>(\$ in Millions)</i>	-	20.000	0.000	-	-	-
Plus CY Advance Procurement <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-
<b>Total Obligation Authority</b> <i>(\$ in Millions)</i>	-	<b>20.000</b>	<b>0.000</b>	-	-	-

*(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)*

Initial Spares <i>(\$ in Millions)</i>	-	-	-	-	-	-
Gross/Weapon System Unit Cost <i>(\$ in Millions)</i>	-	0.000	0.000	-	-	-

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

Cost Elements	Prior Years			FY 2017			FY 2018			FY 2019 Base			FY 2019 OCO			FY 2019 Total		
	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)	Unit Cost (\$ M)	Qty (Each)	Total Cost (\$ M)
Hardware Cost																		
Non Recurring Cost																		
USPACOM JEON (PC-0021)	-	-	-	20.000	1	20.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Non Recurring Cost</i>	-	-	-	-	-	20.000	-	-	-	-	-	-	-	-	-	-	-	-
<i>Subtotal: Hardware Cost</i>	-	-	-	-	-	<b>20.000</b>	-	-	-	-	-	-	-	-	-	-	-	-
<b>Gross/Weapon System Cost</b>	-	-	-	<b>0.000</b>	-	<b>20.000</b>	<b>0.000</b>	-	<b>0.000</b>	-	-	-	-	-	-	-	-	-

**Remarks:**

N/A