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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603881C I Ballistic Missile Defense Terminal Defense Segment							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	1,536.412	454.147	388.273	302.761	-	302.761	234.679	227.921	179.248	197.459	Continuing	Continuing
MD07: THAAD	1,437.269	292.088	225.932	194.752	-	194.752	187.780	208.121	163.980	180.975	Continuing	Continuing
MC07: Cyber Operations	5.454	7.220	6.149	9.580	-	9.580	10.580	7.608	4.770	4.872	Continuing	Continuing
MD06: Patriot Advanced Capability-3 (PAC-3)	8.635	144.735	147.459	90.404	-	90.404	26.228	1.252	1.276	1.302	Continuing	Continuing
MD40: Program-Wide Support	85.054	10.104	8.733	8.025	-	8.025	10.091	10.940	9.222	10.310	Continuing	Continuing
Program MDAP/MAIS Code: 362												
Note Decrease from FY 2019 to FY 2020 reflects completion and delivery of the THAAD Remote Launcher capability (USFK JEON) in FY 2019; completion of Position, Navigation and Timing (PNT) Antenna and regional clock capabilities to replace the GPS antennas; and completion of developmental activities for Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON).												
A. Mission Description and Budget Item Justification The Ballistic Missile Defense (BMD) Terminal Defense Segment provides vital forward-deployable capabilities to support regional defensive BMD operations. The Terminal High Altitude Area Defense (THAAD) system provides Combatant Commanders a globally-transportable, rapidly-deployable capability to intercept and destroy short-range, medium-range, and limited intermediate-range missile threats inside or outside the atmosphere during terminal phase of flight. Continued development and integration will provide enhanced debris mitigation capability, improved interoperability with other BMDS elements, and training devices to support the THAAD Institutional Training Base.  This Program Element also investigates concepts and performs systems engineering to address emerging threats.												

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Missile Defense Agency	<b>Date:</b> March 2019
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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	292.262	214.173	199.399	-	199.399
Current President's Budget	454.147	388.273	302.761	-	302.761
Total Adjustments	161.885	174.100	103.362	-	103.362
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	-20.000	-10.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	186.700	184.100			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-4.815	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	103.362	-	103.362

**Change Summary Explanation**

Net increase in FY 2018 from PB19 to PB20 reflects the enacted congressional reduction of \$20.000 million for THAAD software development, and increases of \$186.700 million for USFK JEON, and improved electronic protection / objective debris mitigation (EP/ODM) discrimination.

Net increase in FY 2019 from PB19 to PB20 reflects the enacted congressional reduction of \$10.000 million for THAAD software development, and increase of \$184.100 million for USFK JEON.

Increase in FY 2020 from PB19 to PB20 provides full funding of the USFK JEON requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD07 / THAAD			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD07: THAAD	1,437.269	292.088	225.932	194.752	-	194.752	187.780	208.121	163.980	180.975	Continuing	Continuing
Quantity of RDT&E Articles	50	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2019 to FY 2020 reflects completion and delivery of the THAAD Remote Launcher capability (USFK JEON) in 2019; completion of Position, Navigation and Timing (PNT) Antenna and regional clock capabilities to replace the GPS antennas; and completion of developmental activities for Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON).

**A. Mission Description and Budget Item Justification**

The THAAD Development Program consists of multiple, independent software builds (e.g. Build 2.0, Build 3.0 - Improved Debris Mitigation, Software Build 3.2 - Remote Launcher Part 1 (USFK JEON), Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON), Software Build 5.0 - Expanded Regional Defense, and Software Build 6.0 - Enhanced Correlation and Discrimination) in an incremental evolution to expand the capability of the previously delivered THAAD system. All new software builds include cyber security and information assurance upgrades.

Software Build deliveries have been adjusted to most efficiently and effectively deliver both the USFK JEON content (THAAD Remote Launcher Part 1; Patriot Launch on Remote; THAAD / Missile Segment Enhancement (MSE) Part 1) along with program of record capabilities as follows:

Software Build 3.2 - Remote Launcher Part 1 (USFK JEON) (scheduled to be completed in 4Q FY 2019)

- Initial requirements for increased defended area footprints via remote operation of THAAD Launchers in support of USFK JEON
- PATRIOT Launch on Remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize PAC-3 MSE's full kinematic capability in support of USFK JEON

Software Build 4.0 - THAAD / MSE Integration Part 1 (USFK JEON) (scheduled to be completed in 2Q FY 2021)

- Initial requirements to integrate MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability in support of USFK JEON
- Expanded requirements for increased defended area footprints via THAAD Remote Launcher Part 2
- Improved capability to engage short-range ballistic missile (SRBM), medium-range ballistic missile (MRBM) and limited intermediate-range ballistic missile (IRBM) threats capable of creating complex scenes

Software Build 5.0 - Expanded Regional Defense (scheduled to be completed in 2Q FY 2023)

- Hypersonic tracking and reporting for the warfighter to utilize the Terminal Mode radar to report hypersonic threats to the BMDS
- Capability to track, discriminate and engage lethal objects reported on surveillance
- Expanded requirements for THAAD / MSE Integration Part 2 to increase defended area footprints via remote operation of MSE Launchers in a THAAD Battery

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Software Build 6.0 - Enhanced Correlation and Discrimination (scheduled to be completed in 1Q FY 2025) - Enhance engagement coordination with other BMD assets - Upgrades to process Command, Control, Battle Management and Communications (C2BMC) messages to obtain direction for target engagement				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
Title: Terminal High Altitude Area Defense (THAAD) Development		128.400	109.962	110.300
Articles:		-	-	-
Description: Development of the THAAD program as a series of independent, parallel software builds (e.g. Build 2.0, Build 3.0 - Improved Debris Mitigation , Software Build 3.2 - Remote Launcher Part 1 (USFK JEON), Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON), Software Build 5.0 - Expanded Regional Defense, and Software Build 6.0 - Enhanced Correlation and Discrimination) to deliver increments of enhanced weapon system capabilities and expand defense of allies and deployed forces from short-to-intermediate-range threats.				
Recurring efforts to support software development include: - Support element Models and Simulations (M&S) related activities, to include Verification, Validation and Accreditation(VV&A) and Continuous Digital Assessment (CDA) on the path of accredited models and simulations for BMDS assessment, - Support M&S related activities in element and BMDS test events in the approved Integrated Master Test Plan (IMTP) such as; requirements, design, development, and VV&A, - Design, develop, test, and field the releases of THAAD system software to ensure continued performance and operation of fielded batteries, - Provide software updates in support of the incremental evolution of performance upgrades, - Support laboratory assets and equipment to enable future development, and to isolate, identify, and remedy root causes of equipment and software deficiencies identified by the warfighter, - Perform requirements development, engineering analysis, and performance verification for THAAD development and BMDS integration to ensure THAAD compliance with the Ballistic Missile Defense (BMD) System Specification, BMD System Description Document, and Master Integration Plan, - Participate in MDA and Army studies to determine the architecture and integration of the THAAD Weapon system into the Integrated Air and Missile Defense (IAMD) Battle Command System (IBCS). - Provide and coordinate analysis, studies and papers to support the resolution of issues and concerns with the integration of the THAAD weapon system into the future Army IBCS architecture. - Development for THAAD Electronic Protection/Objective Debris Mitigation and implementation of flexible-threat packages and defense planning in order to provide an improved capability to engage SRBM, MRBM and limited IRBM threats capable of creating complex scenes.				

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<div>- Development of expanded defended area footprints via remote operation of THAAD Launchers. This effort adds additional communication pathways between launchers and THAAD Fire Control (TFCC) to allow launchers to be emplaced.</div> <div>- Development of improved tactical network architecture in order to increase availability, robustness, and security of the system to counter cybersecurity threats.</div> <div>- Incremental Development Process to identify THAAD evolution and synchronize requirements that address emerging threat evolution, obsolescence needs, Army training needs, reliability and sustainment issues. Perform redesign mitigation for obsolescence which could impact THAAD's future capability evolution.</div> <div>Specific and/or unique accomplishments to each FY are as follows:</div> <div>FY 2019 Plans:</div> <div>- Complete mitigation of Track ID Proliferation to correctly associate track objects in track when those objects are tracked by multiple BMDS sensors.</div> <div>- Complete developmental efforts to replace current GPS antennas with Position, Navigation and Timing (PNT) Antennas and regional clock capabilities. This effort is a Department of Defense mandate to ensure the integrity and availability of PNT data for the THAAD weapon system.</div> <div>FY 2020 Plans:</div> <div>- Complete development for THAAD Electronic Protection/Objective Debris Mitigation and remote operation of THAAD Launchers as described above.</div> <div>- Complete development for improved capability to engage short-range ballistic missile (SRBM), medium-range ballistic missile (MRBM) and limited intermediate-range ballistic missile (IRBM) threats capable of creating complex scenes.</div> <div>- Initiate development of future interoperability architecture and procedures with capability intended to track, discriminate and engage lethal objects reported on surveillance via coordinated, interoperable BMDS elements to conserve limited BMDS interceptors.</div> <div>- Initiate part 2 of THAAD / MSE integration to provide the warfighter the capability to extend the defended area and provide the THAAD weapon system with self-defense capability</div> <div>- Develop or modify THAAD models and supporting M&amp;S components to meet system-level and enterprise M&amp;S infrastructure requirements for both the Ground Test re-architecture and all-Digital BMDS M&amp;S architecture.</div> <div>FY 2019 to FY 2020 Increase/Decrease Statement:</div> <div>N/A</div>				
Title: Program Operations		48.543	50.930	43.801
Articles:		-	-	-

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MD07 / THAAD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p><b>Description:</b> Program Operations provides strategic planning, program integration, contracting, acquisition, engineering, financial management, internal reviews and audits, and program assessments for the THAAD Program Office.</p> <p>Recurring activities include:</p> <ul style="list-style-type: none"><li>-Provide technical and business management support activities to provide the Program Director with critical program status and decision quality data,</li><li>-Ensure THAAD program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process,</li><li>-Conduct internal program reviews to measure program progress against the six Missile Defense Agency approved baselines</li><li>-Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs, and</li><li>-Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter.</li></ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2019 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Decrease from FY 2019 to FY 2020 reflects transfer of Program Operations associated with Terminal Defense Segment Test from this Program Element to the Terminal Defense Segment Test 0604876C Program Element.</p>				
Title: USFK JEON		100.557	58.000	33.300
Articles:		-	-	-
<p><b>Description:</b> This accomplishment fully funds the THAAD portion of USFK JEON to deliver expanded engagement options and increased coverage area. This includes accelerating some content previously included in the THAAD Development accomplishment, while adding new development efforts which include Rapid Deployment of Command and Control and Software upgrades and Performance Optimization Against Additional Threats as well as the following three new priorities:</p>				

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MD07 / THAAD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2018	FY 2019	FY 2020
<p>1) PATRIOT Launch on Remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize PAC-3 MSE's full kinematic capability</p> <p>2) THAAD / MSE Integration Part 1 that integrates MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability</p> <p>3) THAAD Remote Launcher Part 1 that utilizes flexible communication paths to extend the defended area of a THAAD battery</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2019 Plans:</b></p> <p>- Completes accelerated development of the THAAD Remote Launcher Part 1 emplacement in support of the USFK JEON effort. Remote operation of the THAAD Launchers provide a mitigation against advanced threat ballistic missiles, expands defended area footprints, and enables emplacement in restricted terrain locations.</p> <p>- Completes acquisition of testbeds required to support USFK JEON development efforts.</p> <p>- Completes upgrading testbeds and laboratories to reflect current and future hardware configurations of the THAAD Weapon Systems to support the JEON development and testing.</p> <p>- Completes development of an improved and more reliable on-board vehicle power solution in support of the USFK JEON effort. This on-board power solution will increase reliability and availability to all THAAD components.</p> <p><b>FY 2020 Plans:</b></p> <p>- Completes and delivers PATRIOT Launch on Remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize PAC-3 MSE's full kinematic capability</p> <p>- Continues THAAD / MSE Integration Part 1 that integrates MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b></p> <p>Decrease from FY 2019 to FY 2020 reflects completion and delivery of the THAAD Remote Launcher capability in 2019.</p>				
<p><b>Title:</b> Project Redwood- Details at a Higher Classification</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress.</p> <p><b>FY 2019 Plans:</b></p> <p>- SEE ABOVE.</p> <p><b>FY 2020 Plans:</b></p>		6.704 -	4.356 -	4.430 -

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency							Date: March 2019				
Appropriation/Budget Activity 0400 / 4			R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment			Project (Number/Name) MD07 / THAAD					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2018	FY 2019	FY 2020		
- SEE ABOVE.											
FY 2019 to FY 2020 Increase/Decrease Statement: N/A											
Title: THAAD Program Support							7.884	2.684	2.921		
Articles:							-	-	-		
Description: This activity provides support for efforts such as communications and interoperability upgrades to operate on joint, service, or allied communications networks. This activity provides support for safety and mission assurance requirements, and support of independent government offices as part of the Materiel Release process.											
Recurring efforts include:											
- Interoperability development and maintenance to ensure the weapon system is authorized to operate on joint, service, or allied communications networks,											
- Safety confirmation and verification testing, preparation and approvals of System Safety Risk Assessments, issuance of hazard classifications and safety releases, insensitive munitions approvals and waivers, and independent oversight and support in the areas of reliability, availability, and maintainability (RAM) and quality assurance.											
Specific and/or unique accomplishments to each FY are as follows:											
FY 2019 Plans:											
- SEE ABOVE.											
FY 2020 Plans:											
- SEE ABOVE.											
FY 2019 to FY 2020 Increase/Decrease Statement: N/A											
Accomplishments/Planned Programs Subtotals							292.088	225.932	194.752		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0208866C: MD07: THAAD OM	70.044	87.560	99.819	-	99.819	97.801	101.010	99.504	107.618	Continuing	Continuing



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency								<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				<b>Project (Number/Name)</b> MD07 / <i>THAAD</i>			

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0208866C: MD07: <i>THAAD Procurement</i>	1,125.732	1,014.068	425.863	-	425.863	430.719	381.628	417.431	432.831	0.000	4,228.272
• 0603914C: <i>Ballistic Missile Defense Test</i>	406.806	515.897	395.924	-	395.924	417.946	335.481	451.723	405.136	Continuing	Continuing
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	35.738	61.017	25.137	-	25.137	32.124	48.087	61.224	22.584	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The THAAD program awards Indefinite Delivery Indefinite Quantity (IDIQ) Task Orders on the Advanced Capability Development (ACD) contract for THAAD development. The ACD contract is comprised of over 40 separate task orders with varying contract types such as firm fixed price, fixed price incentive firm, cost plus incentive fee, and cost plus fixed fee. The discrete task orders allow management and tracking of Development work.

**E. Performance Metrics**

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD07 / THAAD					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Terminal High Altitude Area Defense (THAAD) Development - Advanced Capability Development	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	714.526	88.341	Nov 2017	71.084	Nov 2018	68.933	Nov 2019	-		68.933	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - IT Program Support	C/CPAF	Northrup Grumman : AL, AK, CA, CO, HI, NM, VA	4.455	2.839	Nov 2017	3.158	Jan 2019	2.870	Jan 2020	-		2.870	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - MDA Program Support	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	7.890	3.358	Nov 2017	0.000		2.500	Dec 2019	-		2.500	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Models & Simulations	MIPR	US Army Research, Development, Engineering Command (RDECOM) : Huntsville, AL	197.010	25.037	Dec 2017	23.305	Dec 2018	31.191	Dec 2019	-		31.191	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Requirements and Design	C/CPAF	Boeing : AL	11.572	3.409	Dec 2017	3.858	Dec 2018	2.801	Jan 2020	-		2.801	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Software Support (GOVT)	MIPR	US Army Research, Development, Engineering Command (RDECOM) : Huntsville, AL	4.456	4.408	Nov 2017	5.633	Nov 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - THAAD Radar Improvements	SS/CPAF	Raytheon : MA	10.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD)	C/CPFF	TEAMS SE&I : AL / CO	11.232	1.008	Dec 2017	2.924	Dec 2018	2.005	Dec 2019	-		2.005	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development - Verification and Assessment															
USFK JEON - JEON Advanced Capability Development	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	0.000	90.785	Mar 2018	54.304	Dec 2018	30.100	Dec 2019	-		30.100	Continuing	Continuing	Continuing
USFK JEON - MDA Program Support	Various	MDA : Huntsville, AL	0.000	0.509	Apr 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
USFK JEON - OGA JEON Support (GOVT)	MIPR	US Army Tank Automotive Research, Development, and Engineering Center (TARDEC), Army Test and Evaluation Command (ATEC) : Warren, MI / Huntsville, AL	0.000	9.263	Jun 2018	3.696	Dec 2018	3.200	Dec 2019	-		3.200	Continuing	Continuing	Continuing
Subtotal			961.141	228.957		167.962		143.600		-		143.600	Continuing	Continuing	N/A
Remarks															
- The ACD contract is comprised of over 40 separate task orders with varying contract types such as firm fixed price, fixed price incentive firm, cost plus incentive fee, and cost plus fixed fee.															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - Program Operations	Various	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	236.973	48.543	Oct 2017	50.930	Oct 2018	43.801	Nov 2019	-		43.801	Continuing	Continuing	Continuing
Project Redwood- Details at a Higher Classification - Special Programs	SS/FP	N/A : N/A	77.161	6.704	Oct 2017	4.356	Oct 2018	4.430	Nov 2019	-		4.430	Continuing	Continuing	Continuing

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<b>Support (\$ in Millions)</b>				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
THAAD Program Support - Mission Support	MIPR	ATEC / SMDC / AMRDEC / MDA : WSMR, NM / Huntsville, AL	24.815	7.884	Nov 2017	2.684	Nov 2018	2.921	Dec 2019	-		2.921	Continuing	Continuing	Continuing
THAAD Program Support - Prime Contractor Support	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	0.000
THAAD Program Support - Prior year no longer funded in the FYDP	Various	Various : Various	136.579	0.000		0.000		0.000		-		0.000	0.000	136.579	0.000
<b>Subtotal</b>			476.128	63.131		57.970		51.152		-		51.152	Continuing	Continuing	N/A

  

<b>Remarks</b> N/A															
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

  

<b>Remarks</b> N/A															
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<b>Management Services (\$ in Millions)</b>				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

  

<b>Remarks</b> N/A															
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency											Date: March 2019				
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment					Project (Number/Name) MD07 / THAAD					
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			1,437.269	292.088		225.932		194.752		-		194.752	Continuing	Continuing	N/A

**Remarks**

Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency														Date: March 2019																			
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment										Project (Number/Name) MD07 / THAAD													
Significant Event Complete ▲			Milestone Decision Complete ★			Element Test Complete ◆			System Level Test Complete ●			Complete Activity ◆																					
Significant Event Planned △			Milestone Decision Planned ☆			Element Test Planned ◇			System Level Test Planned ○			Planned Activity ◇																					
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024											
THAAD Software Build 3.0 - Improved Debris Mitigation Delivery												▲																					
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON)												▲																					
Preliminary Design Review (PDR)																																	
THAAD Software Build 3.2 (USFK JEON Phase 3)																△																	
THAAD Software Build 5.0 - Expanded Regional Defense Engineering Requirements Review (ERR)																△																	
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON)																△																	
Critical Design Review																																	
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON)																				△													
Delivery																																	
THAAD Software Build 5.0 - Expanded Regional Defense Delivery																									△								

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Missile Defense Agency			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	<b>Project (Number/Name)</b> MD07 / <i>THAAD</i>	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
THAAD Software Build 3.0 - Improved Debris Mitigation Delivery	3	2018	3	2018
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON) Preliminary Design Review (PDR)	3	2018	3	2018
THAAD Software Build 3.2 (USFK JEON Phase 3)	4	2019	4	2019
THAAD Software Build 5.0 - Expanded Regional Defense Engineering Requirements Review (ERR)	1	2020	1	2020
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON) Critical Design Review	1	2020	1	2020
THAAD Software Build 4.0 - THAAD / Missile Segment Enhancement (MSE) Integration (USFK JEON) Delivery	2	2021	2	2021
THAAD Software Build 5.0 - Expanded Regional Defense Delivery	2	2023	2	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MC07 / Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MC07: Cyber Operations	5.454	7.220	6.149	9.580	-	9.580	10.580	7.608	4.770	4.872	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note Increase from FY 2019 to FY 2020 provides the improved cyber security requirements for software development efforts to align with Agency and USD(R&E) priority. Development efforts involve more robust cyber security for both offense and defense to address the advanced threat.												
A. Mission Description and Budget Item Justification Cyber Operations sustain MDA Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities; analysis of validation results, risk assessments; reviews of proposed Program Manager/Information Assurance Manager Plans of Action and Milestones for MDA THAAD mission systems; and supports THAAD certification to operate in the BMDS.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2018	FY 2019	FY 2020	
Title: Network / System Certification and Accreditation (C&A)  Articles:  Description: Funding in this project sustains MDA RMF and CVT activities, analysis of validation results, risk assessments, monitoring and tracking of Cybersecurity mitigations, and all other activities necessary to comply with the Federal Information Security Management Act (FISMA).  Recurring efforts include: - Conducting cyber security / information assurance engineering and architecture planning for THAAD information technology systems - Developing and testing cyber security/information assurance control measures for BMDS THAAD systems - Developing THAAD RMF for DoD IT certification and accreditation packages - Supporting CVT of THAAD mission, test, and training systems - Developing Plan of Action and Milestones (POA&Ms) to resource and remediate information assurance deficiencies - Conducting annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining IA controls - Perform IAVA to mitigate potential system vulnerabilities - Update THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs - Continue THAAD Weapon System software development efforts consistent with DoD cyber security requirements which were previously covered under THAAD Development, in order to correlate cyber software activities with realigned funding.									7.220	6.149	9.580	
									-	-	-	



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency										<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				<b>Project (Number/Name)</b> MC07 / <i>Cyber Operations</i>			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b><i>FY 2019 Plans:</i></b> - SEE ABOVE</p> <p><b><i>FY 2020 Plans:</i></b> - Improve software development efforts for more robust cyber security for both offense and defense to address the advanced threat in order to align with Agency and USD(R&amp;E) cyber security priority.</p> <p><b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Increase from FY 2019 to FY 2020 provides the improved cyber security requirements for software development efforts to align with Agency and USD(R&amp;E) priority. Development efforts involve more robust cyber security for both offense and defense to address the advanced threat.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	7.220	6.149	9.580

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0208866C: MD07: <i>THAAD OM</i>	70.044	87.560	99.819	-	99.819	97.801	101.010	99.504	107.618	Continuing	Continuing
• 0208866C: MD07: <i>THAAD Procurement</i>	1,125.732	1,014.068	425.863	-	425.863	430.719	381.628	417.431	432.831	0.000	4,228.272
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	35.738	61.017	25.137	-	25.137	32.124	48.087	61.224	22.584	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> N/A											
<b>E. Performance Metrics</b> N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MC07 / Cyber Operations					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : Various MDA Locations	2.294	0.860	Nov 2017	0.888	Nov 2018	0.903	Dec 2019	-		0.903	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Security Engineering	SS/CPFF	LMSSC : Sunnyvale, CA/Huntsville, AL	3.160	6.360	Jan 2018	5.261	Jan 2019	8.677	Feb 2020	-		8.677	Continuing	Continuing	Continuing
Subtotal			5.454	7.220		6.149		9.580		-		9.580	Continuing	Continuing	N/A
Remarks The increase from FY 2019 to FY 2020 provides the improved cyber security requirements for software development efforts to align with Agency and USD(R&E) priority. Development efforts involve more robust cyber security for both offense and defense to address the advanced threat. Details are available at a higher classification level.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			5.454	7.220		6.149		9.580		-		9.580	Continuing	Continuing	N/A
Remarks Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency															Date: March 2019														
Appropriation/Budget Activity 0400 / 4										R-1 Program Element (Number/Name) PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>										Project (Number/Name) MC07 / <i>Cyber Operations</i>									
Significant Event Complete ▲					Milestone Decision Complete ★					Element Test Complete ◆					System Level Test Complete ●					Complete Activity ◆									
Significant Event Planned △					Milestone Decision Planned ☆					Element Test Planned ◇					System Level Test Planned ○					Planned Activity ◇									
										FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024							
MC07 Completed Cyber Operations										◆	◆	◆	◆	◆															
MC07 Planned Cyber Operations															◇	◇	◇	◇	◇	◇	◇	◇	◇	◇					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MC07 / Cyber Operations	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC07 Completed Cyber Operations	1	2018	1	2019
MC07 Planned Cyber Operations	2	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD06 / Patriot Advanced Capability-3 (PAC-3)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD06: Patriot Advanced Capability-3 (PAC-3)	8.635	144.735	147.459	90.404	-	90.404	26.228	1.252	1.276	1.302	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2019 to FY 2020 reflects completion of the USFK JEON PATRIOT Launch on Remote

**A. Mission Description and Budget Item Justification**

PAC-3 is an operational, land-based weapon built upon the proven U.S. Army Phased Array Tracking Radar Intercept on Target (PATRIOT) air and missile defense infrastructure. The Army is responsible for production and further development of the PAC-3 System and Missile Segment Enhancements (MSE); MDA remains responsible for any BMDS interoperability and integration efforts. Lower Tier Project Office (LTPO) will utilize MDA funds to further the integration of PATRIOT with the BMDS.

Beginning in FY 2018, this project also includes LTPO's portion of the USFK JEON including:

- 1) PATRIOT launch on remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize MSE's full kinematic capability
- 2) THAAD / MSE Integration Part 1 that integrates MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> General Support	1.135	1.159	1.204
<b>Articles:</b>	-	-	-
<b>Description:</b> MDA funds PATRIOT participation in BMDS interoperability integration efforts. Activities support the day-to-day tasking that is leveraged upon LTPO by MDA based on the Transfer and Transition Plan Annex L.			
Specific and/or unique accomplishments to each FY are as follows:			
<b>FY 2019 Plans:</b> - SEE ABOVE.			
<b>FY 2020 Plans:</b> - SEE ABOVE			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD06 / Patriot Advanced Capability-3 (PAC-3)				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2018	FY 2019	FY 2020
N/A												
Title: USFK JEON - LTPO										143.600	146.300	89.200
Articles:										-	-	-
Description: This accomplishment fully funds LTPO's portion of the USFK JEON including PATRIOT Launch on Remote and THAAD / MSE integration Part 1.												
Specific and/or unique accomplishments to each FY are as follows:												
FY 2019 Plans:												
- Continues PATRIOT Launch on Remote effort to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize PAC-3 MSE full kinematic capability												
- Continues THAAD / MSE Integration Part 1 that integrates MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability												
FY 2020 Plans:												
- Completes and delivers PATRIOT Launch on Remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges and utilize PAC-3 MSE full kinematic capability												
- Continues THAAD / MSE Integration Part 1 that integrates MSE launchers and missiles into the THAAD weapon system enabling a more tightly integrated upper/lower tier defensive capability												
FY 2019 to FY 2020 Increase/Decrease Statement:												
Decrease from FY 2019 to FY 2020 reflects completion of the USFK JEON PATRIOT Launch on Remote												
Accomplishments/Planned Programs Subtotals										144.735	147.459	90.404
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• 0208866C: MD07: THAAD OM	70.044	87.560	99.819	-	99.819	97.801	101.010	99.504	107.618	Continuing	Continuing	
• 0208866C: MD07: THAAD Procurement	1,125.732	1,014.068	425.863	-	425.863	430.719	381.628	417.431	432.831	0.000	4,228.272	
• 0604876C: Ballistic Missile Defense Terminal Defense Segment Test	35.738	61.017	25.137	-	25.137	32.124	48.087	61.224	22.584	Continuing	Continuing	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency							<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 4			<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				<b>Project (Number/Name)</b> MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>		

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

**D. Acquisition Strategy**

The planned acquisition strategy for Phased Array Tracking Radar Intercept on Target (PATRIOT) support is to provide Military Interdepartmental Purchase Requests (MIPR) to the U.S. Army Lower-Tier Program Office (LTPO) to further the integration of PATRIOT with the BMDS.

**E. Performance Metrics**

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency												Date: March 2019			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD06 / Patriot Advanced Capability-3 (PAC-3)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
USFK JEON - LTPO - USFK JEON - LTPO	MIPR	Lower Tier Project Office : Huntsville, AL	0.000	143.600	Mar 2018	146.300	Dec 2018	89.200	Dec 2019	-		89.200	Continuing	Continuing	Continuing
Subtotal			0.000	143.600		146.300		89.200		-		89.200	Continuing	Continuing	N/A
Remarks N/A															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
General Support - General Support	MIPR	Lower Tier Project Office : Huntsville, AL	8.635	1.135	Nov 2017	1.159	Nov 2018	1.204	Nov 2019	-		1.204	Continuing	Continuing	Continuing
Subtotal			8.635	1.135		1.159		1.204		-		1.204	Continuing	Continuing	N/A
Remarks N/A															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A
Remarks N/A															



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Missile Defense Agency												<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>				<b>Project (Number/Name)</b> MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>				

  

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

  

<b>Remarks</b> N/A															
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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	8.635	144.735		147.459		90.404		-		90.404	Continuing	Continuing	N/A

  

<b>Remarks</b> Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.													
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency												Date: March 2019											
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment						Project (Number/Name) MD06 / Patriot Advanced Capability-3 (PAC-3)											
Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●						Complete Activity ◆											
Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○						Planned Activity ◇											
						FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		FY 2023		FY 2024					
MD06 Completed Patriot Advanced Capability-3 (PAC-3)						◆	◆	◆	◆														
MD06 Planned Patriot Advanced Capability-3 (PAC-3)										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇				

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Missile Defense Agency			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	<b>Project (Number/Name)</b> MD06 / <i>Patriot Advanced Capability-3 (PAC-3)</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD06 Completed Patriot Advanced Capability-3 (PAC-3	2	2018	1	2019
MD06 Planned Patriot Advanced Capability-3 (PAC-3)	2	2019	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency										Date: March 2019		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment				Project (Number/Name) MD40 / Program-Wide Support			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD40: Program-Wide Support	85.054	10.104	8.733	8.025	-	8.025	10.091	10.940	9.222	10.310	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

**A. Mission Description and Budget Item Justification**

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Program Wide Support	10.104	8.733	8.025
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Missile Defense Agency		<b>Date:</b> March 2019	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2018</b>	<b>FY 2019</b>
<b><i>FY 2019 Plans:</i></b> - SEE ABOVE.  <b><i>FY 2020 Plans:</i></b> - SEE ABOVE.  <b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>		10.104	8.733
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			
<b>E. Performance Metrics</b>			
N/A			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Missile Defense Agency												<b>Date:</b> March 2019			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603881C / <i>Ballistic Missile Defense Terminal Defense Segment</i>						<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>			
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : VA	3.500	0.000		0.000		1.473	Oct 2019	-		1.473	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	6.657	0.200	Jul 2018	0.132	Jul 2019	0.120	Jul 2020	-		0.120	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CA, CO, VA	3.515	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	14.049	0.000		0.550	Oct 2018	3.401	Oct 2019	-		3.401	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support International and Materiel and Readiness	MIPR	Various : Multi: AL, VA, Aust, Japan	2.534	0.921	Jul 2018	0.037	Apr 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	53.376	8.983	Jan 2018	7.650	Aug 2019	3.031	Oct 2019	-		3.031	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi: AL, VA	1.423	0.000		0.364	Jan 2019	0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			85.054	10.104		8.733		8.025		-		8.025	Continuing	Continuing	N/A
<b>Remarks</b> N/A															
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			85.054	10.104		8.733		8.025		-		8.025	Continuing	Continuing	N/A
<b>Remarks</b> Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.															

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PE 0603881C: *Ballistic Missile Defense Terminal Defen...*  
Missile Defense Agency

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603881C / Ballistic Missile Defense Terminal Defense Segment	Project (Number/Name) MD40 / Program-Wide Support	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2018	4	2024