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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I 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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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	2,669.240	305.081	213.382	190.216	-	190.216	196.279	213.945	224.146	238.269	Continuing	Continuing
MD07: <i>THAAD</i>	2,139.335	251.710	186.625	171.543	-	171.543	179.505	196.404	203.144	215.392	Continuing	Continuing
MC07: <i>Cyber Operations</i>	33.798	10.720	11.977	10.555	-	10.555	7.160	7.996	9.775	10.478	Continuing	Continuing
MD06: <i>Patriot Advanced Capability-3 (PAC-3)</i>	384.191	26.261	1.226	1.211	-	1.211	1.239	1.271	1.297	1.323	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	111.916	16.390	13.554	6.907	-	6.907	8.375	8.274	9.930	11.076	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from FY 2022 to FY 2023 reflects the completion of Software Build 4.1.

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

The Ballistic Missile Defense (BMD) Terminal Defense Segment provides vital forward-deployable capabilities to support regional defensive Missile Defense System (MDS) operations. The Terminal High Altitude Area Defense (THAAD) system provides Combatant Commands (CCMD) 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. This Program Element investigates concepts and continues the development and integration of multiple, independent THAAD software upgrades to improve reliability, availability and readiness, defense planning, and improved capability to engage short-range ballistic missile (SRBM), medium-range ballistic missile (MRBM), and limited intermediate-range ballistic missile (IRBM) threats.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>
Previous President's Budget	312.317	277.949	0.000	-	0.000
Current President's Budget	305.081	213.382	190.216	-	190.216
Total Adjustments	-7.236	-64.567	190.216	-	190.216
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-64.567			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-7.236	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	190.216	-	190.216

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**Change Summary Explanation**

Decrease of \$64.5 million in FY 2022 reflects the Congressional reduction for unjustified growth for Layered Homeland Defense (LHD) lack of validated requirement and acquisition strategy.

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<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>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
MD07: <i>THAAD</i>	2,139.335	251.710	186.625	171.543	-	171.543	179.505	196.404	203.144	215.392	Continuing	Continuing
Quantity of RDT&E Articles	50	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2022 to FY 2023 reflects the completion of Software Build 4.1.

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

The THAAD system provides a capability to intercept and destroy short-range, medium-range, and limited intermediate-range missile threats inside or outside the atmosphere during the terminal phase of flight. THAAD continues the development and integration of multiple, independent software upgrades to improve reliability, availability and readiness, defense planning, and improved capability to engage SRBM, MRBM, and limited IRBM threats.

THAAD Development continues the development and integration of multiple, independent software builds to deliver enhanced system capabilities and expand the defense of allies and deployed forces from short-to-intermediate-range threats.

Program Operations provides strategic planning, program integration, cost estimating, contracting, financial management, internal reviews and audits, earned-value management and program assessments for the THAAD Program Office.

Joint Emergent Operational Need (JEON) provides enhanced capability against specific threats by expanding engagement options and increasing coverage areas.

Project Redwood details are provided at a Higher Classification reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress.

THAAD Program Support provides support for communications and interoperability efforts to operate on multiple networks and safety and mission assurance efforts in support of the Materiel Release process.

THAAD Layered Homeland Defense effort supports the demonstration of weapon system and interceptor improvements to enhance THAAD capabilities against evolving threats. This effort will leverage the existing design improvement activities and develop software and hardware enhancements that demonstrate THAAD capabilities for regional and homeland applications. Demonstrations will be performed both at the component level and in a flight test.

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

	FY 2021	FY 2022	FY 2023
<b>Title:</b> Terminal High Altitude Area Defense (THAAD) Development	147.298	126.217	108.569
<b>Articles:</b>	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> The THAAD Development program continues the development and integration of multiple, independent software builds to deliver enhanced system capabilities and expand the defense of allies and deployed forces from short-to-intermediate-range threats.</p> <p>Software Build 4.0: THAAD/Missile Segment Enhancement (MSE) Integration Part 1 (JEON) (Development scheduled to complete in 2Q FY 2022)</p> <ul style="list-style-type: none"> <li>- 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 JEON.</li> <li>- 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.</li> <li>- Expanded requirements for THAAD Electronic Protection/Objective Debris Mitigation to provide radar enhancements improving performance against adverse environments.</li> </ul> <p>Software Build 4.1: Global Materiel Release Updates for Expanded THAAD (Development scheduled to complete in 2Q FY 2023)</p> <ul style="list-style-type: none"> <li>- Cybersecurity: Implements additional cybersecurity updates to improve cyber posture required to ensure continuity of Authority to Operate approvals.</li> <li>- Interface Change Proposal: Implements necessary Link-16 software interface changes to align with MDS interoperability.</li> <li>- Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) Radar: Integrates latest AN/TPY-2 radar software (CX 5.0) into THAAD weapon system which ensures system functionality and interoperability providing the capability to track and discriminate evolving threats.</li> <li>- Maintenance Updates: Provides required maintenance updates and implements deferred content from accelerated JEON fielding timelines.</li> <li>- External Integration: Project Manager for Short and Intermediate Effectors for Layered Defense (PM SHIELD) integration and support.</li> </ul> <p>Software Build 5.0: THAAD Updates to Maintain Mission Assurance (Development scheduled to complete in 2Q FY 2025)</p> <ul style="list-style-type: none"> <li>- MSE Safety Integration: Integrates additional MSE safety improvements and the ability to manually emplace MSE Launcher.</li> <li>- External Integration: PM SHIELD integration and support.</li> <li>- Configuration 3 system Integration and Cyber Modernization: Updates THAAD weapon system to integrate new hardware addressing obsolescence, cyber vulnerabilities and various supportability issues to ensure continuity of Authority to Operate (ATO) approvals.</li> <li>- THAAD Radio Frequency (RF) Remote Launcher: Delivers the capability to increase the defended area footprint of a single THAAD Battery by enabling RF communications from the TFCC to Remoted THAAD launchers.</li> </ul>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- AN/TPY-2 Radar: Integrates latest AN/TPY-2 radar software (CX 6.0) into THAAD weapon system which ensures system functionality and interoperability providing the capability to track and discriminate evolving threats.</p> <p>- Assured Position Navigation and Timing (APNT): Implement protective measures that increase assurance of reliable PNT data. APNT supports a Department of Defense mandate to ensure the integrity and availability of PNT data for the THAAD weapon system.</p> <p>- Remote Workstation: External THAAD Fire Control and Communication (TFCC) hardware and software connectivity allowing for the capability to remote from the TFCC tactical shelter to a remote location.</p> <p>- Dual Monitor: Integrate Dual Monitor capabilities for the ability to provide human factor improvements through additional monitor viewing space to be utilized within the TFCC and in support of Remote Workstation capability to support external Tactical Operation Centers (TOCs) and other external Remote Workstations.</p> <p>- Architecture Improvements: Improvements in Software and Hardware Architecture to increase modularity, interoperability and reduce obsolete software and architecture structures.</p> <p>Software Build 6.0: Full THAAD/MSE Integration (Development scheduled to complete in 2Q FY 2029)</p> <p>- Full THAAD MSE Integration.</p> <p>- Updated Ballistic Missile Threat Space and Represented Threats for THAAD Engagements.</p> <p>- Full Active Sensor Bias Monitoring and Reporting: Provide MDS system with bias monitoring and reporting data to support correlation and integration of Ballistic Missile Defense (BMD) System Track and other future techniques.</p> <p>Recurring efforts include:</p> <p>- Support element Models and Simulations (M&amp;S) related activities, to include Verification, Validation and Accreditation (VV&amp;A) and Continuous Digital Assessment (CDA) on the path of accredited models and simulations for MDS assessment.</p> <p>- Support M&amp;S related activities in element and MDS test events in the approved Integrated Master Test Plan (IMTP) such as requirements, design, development, and VV&amp;A.</p> <p>- Design, develop, test, and field the releases of THAAD system software to ensure continued performance and operation of fielded batteries.</p> <p>- Provide software updates in support of the incremental evolution of performance upgrades.</p> <p>- 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.</p> <p>- Perform requirements development, engineering analysis, and performance verification for THAAD development and MDS integration to ensure THAAD compliance with the MDS Specification, MDS System Description Document, and Master Integration Plan.</p> <p>- Participate in Missile Defense Agency (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).</p>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- 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.</p> <p>- Development of improved tactical network architecture in order to increase availability, robustness, and security of the system to counter cybersecurity threats.</p> <p>- Incremental Development Process to identify THAAD evolution and synchronize requirements that address emerging threat evolution, obsolescence needs, Army training needs, reliability and sustainment issues.</p> <p>- Perform Independent Verification and Validation (IV&amp;V) of software and software assurance risk report.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b>            Software Build 4.1            Provides funding to continue development and integration efforts to include:</p> <ul style="list-style-type: none"> <li>- Cybersecurity: Implements additional cybersecurity updates to improve cyber posture required to ensure continuity of Authority to Operate (ATO) approvals</li> <li>- Interface Change Proposals: Implements necessary Link-16 software interface changes to align with MDS interoperability</li> <li>- AN/TPY-2 Radar: Integrates latest AN/TPY-2 radar software (CX 5.0) into THAAD weapon system which ensures system functionality and interoperability while providing the capability to track and discriminate evolving threats.</li> <li>- Maintenance Updates: Provides required maintenance updates and implements deferred content from accelerated JEON fielding timelines.</li> <li>- External Integration: PM SHIELD integration and support.</li> </ul> <p>Software Build 5.0            Provides funding for development and integration efforts to include:</p> <ul style="list-style-type: none"> <li>- MSE Safety Integration: Integrates additional MSE safety improvements and the ability to manually emplace MSE Launcher.</li> <li>- External Integration: PM SHIELD integration and support.</li> <li>- Configuration 3 system Integration and Cyber Modernization: Updates THAAD weapon system to integrate new hardware addressing obsolescence, cyber vulnerabilities and various supportability issues to ensure continuity of Authority to Operate (ATO) approvals.</li> <li>- THAAD Radio Frequency (RF) Remote Launcher: Delivers the capability to increase the defended area footprint of a single THAAD Battery by enabling RF communications from the TFCC to Remoted THAAD launchers.</li> <li>- AN/TPY-2 Radar: Integrates latest AN/TPY-2 radar software (CX 6.0) into THAAD weapon system which ensures system functionality and interoperability providing the capability to track and discriminate evolving threats.</li> </ul>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- Assured Position Navigation and Timing (APNT): Implement protective measures that increase assurance of reliable PNT data. APNT supports a Department of Defense mandate to ensure the integrity and availability of PNT data for the THAAD weapon system.</p> <p>- Remote Workstation: External THAAD Fire Control and Communication (TFCC) hardware and software connectivity allowing for the capability to remote from the TFCC tactical shelter to a remote location</p> <p>- Dual Monitor: Integrate Dual Monitor capabilities for the ability to provide human factor improvements through additional monitor viewing space to be utilized within the TFCC and in support of Remote Workstation capability to support external Tactical Operation Centers (TOCs) and other external Remote Workstations.</p> <p>- Architecture Improvements: Improvements in Software and Hardware Architecture to increase modularity, interoperability and reduce obsolete software and architecture structures.</p> <p><b>FY 2023 Plans:</b> Software Build 4.1 Complete development and integration efforts to include:</p> <ul style="list-style-type: none"> <li>- Cybersecurity: Implements additional cybersecurity updates to improve cyber posture required to ensure continuity of Authority to Operate (ATO) approvals.</li> <li>- Interface Change Proposals: Implements necessary Link-16 software interface changes to align with MDS interoperability.</li> <li>- AN/TPY-2 Radar: Integrates latest AN/TPY-2 radar software (CX 5.0) into THAAD weapon system which ensures system functionality and interoperability while providing the capability to track and discriminate evolving threats.</li> <li>- Maintenance Updates: Provides required maintenance updates and implements deferred content from accelerated JEON fielding timelines.</li> <li>- External Integration: PM SHIELD integration and support.</li> </ul> <p>Software Build 5.0 Provides for development and integration efforts to include:</p> <ul style="list-style-type: none"> <li>- MSE Safety Integration: Integrates additional MSE safety improvements and the ability to manually emplace MSE Launcher.</li> <li>- External Integration: PM SHIELD integration and support.</li> <li>- Configuration 3 system Integration and Cyber Modernization: Updates THAAD weapon system to integrate new hardware addressing obsolescence, cyber vulnerabilities and various supportability issues to ensure continuity of Authority to Operate (ATO) approvals.</li> <li>- THAAD Radio Frequency (RF) Remote Launcher: Delivers the capability to increase the defended area footprint of a single THAAD Battery by enabling RF communications from the TFCC to Remoted THAAD launchers.</li> <li>- AN/TPY-2 Radar: Integrates latest AN/TPY-2 radar software (CX 6.0) into THAAD weapon system which ensures system functionality and interoperability providing the capability to track and discriminate evolving threats.</li> </ul>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>- Assured Position Navigation and Timing (APNT): Implement protective measures that increase assurance of reliable PNT data. APNT supports a Department of Defense mandate to ensure the integrity and availability of PNT data for the THAAD weapon system.</p> <p>- Remote Workstation: External THAAD Fire Control and Communication (TFCC) hardware and software connectivity allowing for the capability to remote from the TFCC tactical shelter to a remote location.</p> <p>- Dual Monitor: Integrate Dual Monitor capabilities for the ability to provide human factor improvements through additional monitor viewing space to be utilized within the TFCC and in support of Remote Workstation capability to support external Tactical Operation Centers (TOCs) and other external Remote Workstations.</p> <p>- Architecture Improvements: Improvements in Software and Hardware Architecture to increase modularity, interoperability and reduce obsolete software and architecture structures.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease from FY 2022 to FY 2023 reflects the completion of Software Build 4.1.</p>				
<b>Title:</b> Program Operations		49.976	46.402	48.930
<b>Articles:</b>		-	-	-
<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 efforts include:</p> <ul style="list-style-type: none"> <li>-Provide technical and business management support activities to provide Program and Agency Leadership 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 MDA 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.</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 2022 Plans:</b></p>				

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
-SEE ABOVE. <b>FY 2023 Plans:</b> -SEE ABOVE. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.				
<b>Title:</b> JEON  <b>Description:</b> This accomplishment fully funds the THAAD portion of 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:  1) U.S. Army's Phased Array Tracking Radar Intercept on Target (PATRIOT) Launch on Remote to utilize THAAD's capability to detect and track threat ballistic missiles at longer ranges. 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. 3) THAAD Remote Launcher Part 1 that utilizes flexible communication paths to extend the defended area of a THAAD battery.  Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2022 Plans:</b> -N/A. <b>FY 2023 Plans:</b> -N/A. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.		3.200 -	0.000 -	0.000 -
<b>Title:</b> Project Redwood- Details at a Higher Classification  <b>Description:</b> This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program (SAP) Annual Report to Congress.		14.993 -	12.052 -	12.045 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2023 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.</p>				
<p><b>Title:</b> THAAD Program Support</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> 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.</p> <p>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.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2023 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.</p>		1.184 -	1.954 -	1.999 -
<p><b>Title:</b> THAAD Layered Homeland Defense</p> <p align="right"><b>Articles:</b></p>		35.059 -	0.000 -	0.000 -

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> The THAAD Layered Homeland Defense effort supports the demonstration of weapon system and interceptor improvements to enhance THAAD capabilities against evolving threats. This effort will leverage the existing design improvement activities and develop software and hardware enhancements that demonstrate THAAD capabilities for regional and homeland applications. Demonstrations will be performed both at the component level and in a flight test.</p> <p><b>FY 2022 Plans:</b> N/A.</p> <p><b>FY 2023 Plans:</b> N/A.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	251.710	186.625	171.543

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0208866C: MD07: <i>THAAD O&amp;M</i>	89.706	86.828	86.945	-	86.945	89.297	91.789	93.995	96.024	Continuing	Continuing
• 0208866C: MD07: <i>THAAD Procurement</i>	578.335	380.722	74.944	-	74.944	211.524	435.682	464.343	643.513	Continuing	Continuing
• 0603914C: <i>Ballistic Missile Defense Test</i>	364.994	389.156	367.824	-	367.824	363.963	421.261	476.991	490.176	Continuing	Continuing
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	1.000	32.697	69.762	-	69.762	43.602	34.063	153.853	133.524	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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 0603881C / Ballistic Missile Defense Terminal Defense Segment						MD07 / THAAD					
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	924.051	108.560	Nov 2020	82.417	Nov 2021	65.172	Nov 2022	-		65.172	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - IT Program Support	C/CPAF	Northrup Grumman : AL, AK, CA, CO, HI, NM, VA	13.124	2.816	Nov 2020	2.819	Nov 2021	2.853	Nov 2022	-		2.853	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - MDA Program Support	MIPR	Missile Defense Agency (MDA) : Ft. Belvoir, VA/ Huntsville, AL	12.984	2.402	Dec 2020	0.000		0.000		-		0.000	0.000	15.386	0.000
Terminal High Altitude Area Defense (THAAD) Development - Models & Simulations	MIPR	US Army Combat Capabilities Development Command (CCDC) : Huntsville, AL	274.614	23.303	Dec 2020	30.384	Nov 2021	28.782	Nov 2022	-		28.782	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Requirements and Design	C/CPAF	Boeing : AL	21.342	3.546	Dec 2020	5.797	Dec 2021	7.278	Dec 2022	-		7.278	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Software IV&V	MIPR	US Army Combat Capabilities Development Command (CCDC) : Huntsville, AL	0.000	4.503	Nov 2020	4.131	Nov 2021	4.214	Nov 2022	-		4.214	Continuing	Continuing	Continuing
Terminal High Altitude Area Defense (THAAD) Development - Software Support (GOVT)	MIPR	US Army Combat Capabilities Development Command (CCDC) : Huntsville, AL	14.147	0.000		0.000		0.000		-		0.000	0.000	14.147	0.000
Terminal High Altitude Area Defense (THAAD) Development - THAAD Radar Improvements	SS/CPAF	Raytheon : MA	10.000	0.000		0.000		0.000		-		0.000	0.000	10.000	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<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>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Terminal High Altitude Area Defense (THAAD) Development - Verification and Assessment	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : AL / CO	16.767	2.168	Nov 2020	0.669	Nov 2021	0.270	Nov 2022	-		0.270	Continuing	Continuing	Continuing
JEON - Advanced Capability Development	SS/IDIQ	Lockheed Martin : Sunnyvale, CA / Huntsville, AL	177.889	0.000		0.000		0.000		-		0.000	0.000	177.889	0.000
JEON - MDA Program Support	Various	MDA : Huntsville, AL	0.509	0.000		0.000		0.000		-		0.000	0.000	0.509	0.000
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	16.159	3.200	Dec 2020	0.000		0.000		-		0.000	0.000	19.359	0.000
Project Redwood- Details at a Higher Classification - Special Programs	SS/FP	N/A : N/A	107.351	14.993	Nov 2020	12.052	Nov 2021	12.045	Nov 2022	-		12.045	Continuing	Continuing	Continuing
THAAD Layered Homeland Defense - THAAD Layered Homeland Defense	Various	Lockheed Martin / U.S. Army Combat Capabilities Development Command (CCDC) : Sunnyvale, CA / Huntsville, AL	0.000	35.059	Mar 2021	0.000		0.000		-		0.000	0.000	35.059	0.000
<b>Subtotal</b>			1,588.937	200.550		138.269		120.614		-		120.614	Continuing	Continuing	N/A

**Remarks**  
N/A.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<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>
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<b>Support (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 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 Operations - Civilian Salaries	Allot	MDA : AL	0.000	0.000		0.000		23.386	Oct 2022	-		23.386	Continuing	Continuing	Continuing
Program Operations - Contractor Support Services	C/CPFF	Various : Various	377.421	49.976	Oct 2020	46.402	Oct 2021	0.000		-		0.000	473.799	947.598	473.799
Program Operations - Program Operations	Allot	MDA : Various	0.000	0.000		0.000		8.773	Oct 2022	-		8.773	Continuing	Continuing	Continuing
THAAD Program Support - Mission Support	MIPR	ATEC / SMDC / CCDC / MDA : WSMR, NM / Huntsville, AL	35.798	1.184	Dec 2020	1.954	Dec 2021	1.999	Dec 2022	-		1.999	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>			550.398	51.160		48.356		34.158		-		34.158	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2023 Missile Defense Agency **Date:** April 2022

<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>
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<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Operations - Contractor Support Services	C/CPFF	Various : Various	0.000	0.000		0.000		16.771	Oct 2022	-		16.771	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		16.771		-		16.771	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	2,139.335	251.710	186.625	171.543	-	171.543	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 2023 Missile Defense Agency** **Date:** April 2022

<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>
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	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 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027			
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance System Requirement Review (SRR)				▲						
THAAD Software Build 4.0 - THAAD/Missile Segment Enhancement (MSE) Integration (JEON) Formal Qualification Testing (FQT)		△								
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Preliminary Design Review (PDR)			△							
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Critical Design Review (CDR)				△						
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Formal Qualification Testing (FQT)					△					
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Preliminary Design Review (PDR)						△				
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Critical Design Review (CDR)							△			
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Formal Qualification Testing (FQT)								△		
THAAD Software Build 6.0 - Full THAAD/MSE Integration System Requirement Review (SRR)									△	
THAAD Software Build 6.0 - Full THAAD/MSE Integration Preliminary Design Review (PDR)										△

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Missile Defense Agency **Date:** April 2022

<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>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance System Requirement Review (SRR)	3	2021	3	2021
THAAD Software Build 4.0 - THAAD/Missile Segment Enhancement (MSE) Integration (JEON) Formal Qualification Testing (FQT)	2	2022	2	2022
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Preliminary Design Review (PDR)	3	2022	3	2022
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Critical Design Review (CDR)	4	2022	4	2022
THAAD Software Build 4.1 - Global Materiel Release Updates for Expanded THAAD Formal Qualification Testing (FQT)	2	2023	2	2023
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Preliminary Design Review (PDR)	3	2023	3	2023
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Critical Design Review (CDR)	2	2024	2	2024
THAAD Software Build 5.0 - THAAD Updates to Maintain Mission Assurance Formal Qualification Testing (FQT)	2	2025	2	2025
THAAD Software Build 6.0 - Full THAAD/MSE Integration System Requirement Review (SRR)	1	2026	1	2026
THAAD Software Build 6.0 - Full THAAD/MSE Integration Preliminary Design Review (PDR)	1	2027	1	2027

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<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>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
MC07: <i>Cyber Operations</i>	33.798	10.720	11.977	10.555	-	10.555	7.160	7.996	9.775	10.478	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2022 to FY 2023 reflects a lower cybersecurity requirement for software development efforts.

**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 MDS. Development efforts involve robust cybersecurity for both offense and defense to address the advanced threat.

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

	FY 2021	FY 2022	FY 2023
<b>Title:</b> Network / System Certification and Accreditation (C&A)	10.720	11.977	10.555
<b>Articles:</b>	-	-	-
<p><b>Description:</b> Funding in this project sustains MDA Risk Management Framework (RMF) and Controls Validation Testing (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).</p> <p>Recurring efforts include:</p> <ul style="list-style-type: none"> <li>- Conduct cybersecurity/information assurance engineering and architecture planning for THAAD information technology systems.</li> <li>- Develop and test cybersecurity/information assurance control measures for MDS THAAD systems.</li> <li>- Develop THAAD RMF for DoD Information Technology Certification and accreditation packages.</li> <li>- Support CVT of THAAD mission, test, and training systems.</li> <li>- Develop Plan of Action and Milestones (POA&amp;Ms) to resource and remediate information assurance deficiencies.</li> <li>- Conduct annual information assurance reviews on the THAAD enclaves to assess compliance in implementing and maintaining Information Assurance (IA) controls.</li> <li>- Perform Information Assurance Vulnerability Alert (IAVA) to mitigate potential system vulnerabilities.</li> <li>- Update THAAD software and hardware to ensure compliance with DoD Weapon System Information Assurance Programs.</li> <li>- Continue THAAD Weapon System software development efforts consistent with DoD cybersecurity requirements which were previously covered under THAAD Development, in order to correlate cyber software activities with realigned funding.</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b><i>FY 2022 Plans:</i></b> -SEE ABOVE.			
<b><i>FY 2023 Plans:</i></b> -SEE ABOVE.			
<b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Decrease from FY 2022 to FY 2023 reflects a lower cybersecurity requirement for software development efforts.			
<b>Accomplishments/Planned Programs Subtotals</b>	10.720	11.977	10.555

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0208866C: MD07: <i>THAAD O&amp;M</i>	89.903	86.828	86.945	-	86.945	89.297	91.789	93.995	96.024	Continuing	Continuing
• 0208866C: MD07: <i>THAAD Procurement</i>	578.335	380.722	74.994	-	74.994	211.524	435.682	464.343	643.513	Continuing	Continuing
• 0604876C: <i>Ballistic Missile Defense Terminal Defense Segment Test</i>	1.000	32.697	69.762	-	69.762	43.602	34.063	153.853	133.524	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.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<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>
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : Various MDA Locations	5.116	1.263	Oct 2020	1.114	Oct 2021	0.000		-		0.000	7.493	14.986	7.493
Network / System Certification and Accreditation (C&A) - Civilian Salaries	Allot	MDA : AL	0.000	0.000		0.000		0.323	Oct 2022	-		0.323	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Security Engineering	SS/CPFF	LMSSC : Sunnyvale, CA/Huntsville, AL	28.682	9.457	Dec 2020	10.863	Dec 2021	9.255	Dec 2022	-		9.255	Continuing	Continuing	Continuing
<b>Subtotal</b>			33.798	10.720		11.977		9.578		-		9.578	Continuing	Continuing	N/A

**Remarks**  
N/A.

<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - Contract Support Services	C/CPFF	Various : Various	0.000	0.000		0.000		0.977	Oct 2022	-		0.977	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		0.000		0.977		-		0.977	Continuing	Continuing	N/A

**Remarks**  
N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Missile Defense Agency								<b>Date:</b> April 2022					
<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>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	33.798	10.720		11.977		10.555		-		10.555	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 2023 Missile Defense Agency** **Date:** April 2022

<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>
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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 2021		FY 2022			FY 2023			FY 2024			FY 2025			FY 2026			FY 2027			
MC07 Completed Cyber Operations					◆	◆	◆	◆	◆																
MC07 Planned Cyber Operations										◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC07 Completed Cyber Operations	1	2021	1	2022
MC07 Planned Cyber Operations	2	2022	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<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>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD06: <i>Patriot Advanced Capability-3 (PAC-3)</i>	384.191	26.261	1.226	1.211	-	1.211	1.239	1.271	1.297	1.323	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A.

**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 MDS interoperability and integration efforts. The Army's Project Manager for Short and Intermediate Effectors for Layered Defense (PM SHIELD) will utilize MDA funds to further the integration of PATRIOT with the MDS.

This project includes PM SHIELD's portion of the 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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> General Support	1.487	1.226	1.211
<b>Articles:</b>	-	-	-
<b>Description:</b> MDA funds PATRIOT participation in MDS interoperability integration efforts. Activities support the day-to-day tasking that is leveraged upon PM SHIELD by MDA based on the Transfer and Transition Plan Annex L.			
<b>FY 2022 Plans:</b> -SEE ABOVE.			
<b>FY 2023 Plans:</b> -SEE ABOVE.			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.			
<b>Title:</b> JEON - PM SHIELD	24.774	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p align="right"><i>Articles:</i></p> <p><b>Description:</b> This accomplishment fully funds PM SHIELD's portion of the JEON including PATRIOT Launch on Remote and THAAD/MSE integration Part 1.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b> - No funding is requested for this effort in FY 2022.</p> <p><b>FY 2023 Plans:</b> N/A.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A.</p>	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	26.261	1.226	1.211

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

<b>Line Item</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0208866C: MD07: THAAD O&M	89.903	86.828	86.945	-	86.945	89.297	91.789	93.995	96.024	Continuing	Continuing
• 0208866C: MD07: THAAD Procurement	578.335	380.722	74.994	-	74.994	211.524	435.682	464.343	643.513	Continuing	Continuing
• 0604876C: Ballistic Missile Defense Terminal Defense Segment Test	1.000	32.697	69.762	-	69.762	43.602	34.063	153.853	133.524	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The planned acquisition strategy for PATRIOT support is to provide Military Interdepartmental Purchase Requests (MIPR) to the U.S. Army PM SHIELD to further the integration of PATRIOT with the MDS.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<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>
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<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JEON - PM SHIELD - JEON - PM SHIELD	MIPR	PM SHIELD : Huntsville, AL	372.811	24.774	Dec 2020	0.000		0.000		-		0.000	0.000	397.585	0.000
<b>Subtotal</b>			372.811	24.774		0.000		0.000		-		0.000	0.000	397.585	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
General Support - General Support	MIPR	PM SHIELD : Huntsville, AL	11.380	1.487	Nov 2020	1.226	Nov 2021	1.211	Nov 2022	-		1.211	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.380	1.487		1.226		1.211		-		1.211	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2023 Missile Defense Agency **Date:** April 2022

<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>
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Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	384.191	26.261	1.226	1.211	-	1.211	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 2023 Missile Defense Agency** **Date:** April 2022

<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>
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	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 2021		FY 2022		FY 2023		FY 2024		FY 2025		FY 2026		FY 2027	
MD06 Completed Patriot Advanced Capability-3 (PAC-3) General Support	◆	◆	◆	◆	◆									
MD06 JEON - PM SHIELD						△								
MD06 Planned Patriot Advanced Capability-3 (PAC-3) General Support						◇	◇	◇	◇	◇	◇	◇	◇	◇

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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) General Support	1	2021	1	2022
MD06 JEON - PM SHIELD	2	2022	2	2022
MD06 Planned Patriot Advanced Capability-3 (PAC-3) General Support	2	2022	4	2027

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD40: <i>Program-Wide Support</i>	111.916	16.390	13.554	6.907	-	6.907	8.375	8.274	9.930	11.076	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency PEs 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 MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS 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 worldwide. 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 across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) 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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Program Wide Support	16.390	13.554	6.907
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS 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 worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the STEM program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; the FSRM program (formerly Real Property Maintenance) to keep the Department's			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<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 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
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>FY 2022 Plans:</b> - See ABOVE				
<b>FY 2023 Plans:</b> - SEE ABOVE				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Decrease from FY 2022 to FY 2023 reflects the PWS allocation 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.				
<b>Accomplishments/Planned Programs Subtotals</b>		16.390	13.554	6.907
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

<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>
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<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Wide Support - Agency Facilities and Maintenance	MIPR	Various : VA	4.973	0.000		7.165	Oct 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance SRM	MIPR	Various : Multi: AK, AL, CA, CO, HI, NY, VA	0.000	0.000		0.018	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Various	Various : Multi: AL, CA, CO, VA	7.109	0.000		0.000		0.000		-		0.000	0.000	7.109	0.000
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Various	Various : MDA Multi: AL, CO, CA, VA,	18.000	0.000		0.700	Oct 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support International and Materiel and Readiness	MIPR	Various : Multi: AL, VA, Aust, Japan	3.492	0.000		0.000		0.000		-		0.000	0.000	3.492	0.000
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, VA	73.040	16.390	Dec 2020	5.666	Oct 2021	5.792	Nov 2022	-		5.792	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	C/CPFF	Various : AK, AL, CA, HI, NY, VA	0.000	0.000		0.005	Nov 2021	1.115	Nov 2022	-		1.115	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPAF	Various : Multi: AL, VA	1.787	0.000		0.000		0.000		-		0.000	0.000	1.787	0.000
Program Wide Support - Prior year no longer funded in the FYDP	Various	Various : Various	3.515	0.000		0.000		0.000		-		0.000	0.000	3.515	0.000
<b>Subtotal</b>			111.916	16.390		13.554		6.907		-		6.907	Continuing	Continuing	N/A

**Remarks**  
N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Missile Defense Agency								<b>Date:</b> April 2022			
<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>Prior Years</b>	<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	111.916	16.390		13.554		6.907	-	6.907	Continuing	Continuing	N/A

**Remarks**

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



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<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>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2021	4	2027