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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<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 0603890C / <i>BMD Enabling Programs</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	2,564.899	614.855	634.449	599.380	-	599.380	552.815	544.582	560.863	582.675	Continuing	Continuing
MD24: <i>System Engineering &amp; Integration</i>	999.907	205.845	164.291	160.678	-	160.678	147.997	147.202	156.300	162.148	Continuing	Continuing
MT23: <i>Enabling - Test</i>	74.213	38.699	59.029	49.293	-	49.293	45.398	49.007	49.922	52.408	Continuing	Continuing
MD28: <i>Intelligence &amp; Security</i>	233.183	46.628	43.851	42.501	-	42.501	42.698	43.312	46.345	52.063	Continuing	Continuing
MD30: <i>BMD Information Management Systems</i>	488.004	76.997	84.525	84.753	-	84.753	85.475	80.309	81.248	83.249	Continuing	Continuing
MC30: <i>Cyber Operations</i>	62.165	97.405	117.100	64.659	-	64.659	67.264	68.130	69.815	71.257	Continuing	Continuing
MD31: <i>Modeling &amp; Simulation</i>	267.102	79.982	88.487	107.710	-	107.710	88.557	77.761	70.661	69.913	Continuing	Continuing
MC31: <i>Engineering Cyber Operations</i>	10.263	20.559	23.618	35.709	-	35.709	22.911	25.706	25.689	27.007	Continuing	Continuing
MD32: <i>Quality, Safety, and Mission Assurance</i>	266.350	28.190	29.986	30.269	-	30.269	30.578	31.258	32.181	32.846	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	163.712	20.550	23.562	23.808	-	23.808	21.937	21.897	28.702	31.784	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from FY 2020 to FY 2021 reflects the FY 2020 Congressional add to MC30 for Cyber Security Enhancements, partially offset by the FY 2021 increases in MD31 and MC31 to provide modeling and simulation software development and testing for the End-to-end Digital Integrated System-level Simulation Early Digital Product, planning and requirements determination for the Full Digital Product, full funding for Cyber Assistance Teams (CATs) and Cyber Engineering to provide System-level analysis, cyber assessments, Adversarial Assessments, and Cyber Vulnerability Penetration Assessments (CVPAs) to support Component-level cybersecurity.

The FY 2021 funding request was reduced by \$2.5 million during DWR to reduce Discrimination efforts.

The funding request for FY 2021 includes Joint Emergent Operational Need (JEON) PC-0021 requirements.

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

The Missile Defense System (MDS) Enabling Programs provide critical products and processes needed to combine element missile defense capabilities into a single, integrated and layered System to evaluate existing and provide new defensive capabilities against the emerging threats. Specifically, the Enabling Programs:

- Assess architecture alternatives to address advanced threats, define MDS functional requirements, conduct Analyses of Alternatives (AoA) for the DoD, and provide engineering requirements, execution support, and pre- and post-mission analysis for System-level tests
- Provide validated models and simulations for System assessment
- Assess System performance (through data collection and analysis) and deliver capabilities to the Warfighter
- Provide multi-disciplinary security and intelligence support for acquisition, development, test, and deployment of current and future MDS capabilities
- Identify potential threats and vulnerabilities to MDA and the MDS and develop and implement strategies to mitigate those risks
- Provide Information Management tools and products supporting the development of MDS capabilities while safeguarding networks and critical program information
- Provide MDA secure communication networks, IT systems, special purpose processing nodes, operations and monitoring centers, and disaster recovery and continuity of operations requirements
- Evaluate quality, technical safeguards, and mission assurance effectiveness
- Assess System ability to maintain integrity and superiority with advances in technology development

This Program Element also funds MDS threat discrimination capability development to enhance MDS effectiveness against the evolving adversary threat. The end result will be a MDS architecture more capable of discriminating and destroying reentry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, and more efficiently using interceptor inventory. MDS threat discrimination development is funded from the Enabling (0603890C); Midcourse (0603882C); BMD Sensors (0603884C); BMD Command, Control, Battle Management and Communications (C2BMC) (0603896C); and Aegis BMD (0603892C) PEs.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	620.831	571.507	603.672	-	603.672
Current President's Budget	614.855	634.449	599.380	-	599.380
Total Adjustments	-5.976	62.942	-4.292	-	-4.292
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	62.942			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-11.142	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	5.166	0.000	-4.292	-	-4.292

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

**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 0603890C / *BMD Enabling Programs*

**Change Summary Explanation**

Increase of \$62.942 million in FY 2020 reflects the Congressional plus up for Cyber Engineering (planning, analysis, and assessment) required to provide cybersecurity assessments of BMDS critical infrastructure Control Systems (CS) operations, selected sensors, weapons, and C2BMC systems. Conducts Cyber Visum exercises to identify resiliency issues that must be resolved by BMDS design changes.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD24 / System Engineering & Integration			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD24: System Engineering & Integration	999.907	205.845	164.291	160.678	-	160.678	147.997	147.202	156.300	162.148	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

System Engineering & Integration (SE&I) defines, designs, tests and integrates the BMDS, and provides analysis, decision support and planning activities for real-world operations to the National Command Authority, Joint Staff, Military Services, Combatant Commanders, Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others.

The SE&I Major Program Goals are:

- Plan, design, develop, integrate, and test a layered MDS that provides the required performance
- Provide system-level engineering support to the MDS Elements, and lead collaborative cross-Element, cross-Component engineering
- Analyze architecture alternatives and new technologies, and develop requirements to respond to the proliferation of short and medium range ballistic missiles
- Provide a more effective missile defense capability for U.S. deployed forces, allies, and partners, and enhance homeland defense
- Develop discrimination improvements for the Homeland and Regional Defense missions
- As technical authority for Integrated Air and Missile Defense (IAMD), provide a consistent, disciplined systems engineering process using a multi-Service team to integrate Joint IAMD systems
- Provide technical direction to Element and Component developers and provide System-level forums to track, assess, and improve hardware and software reliability
- Identify BMDS capabilities and limitations
- Develop performance assessment requirements, verify BMDS performance through testing, and conduct assessments to form the basis for technical capability declarations in support of fielding decisions
- Identify Critical Engagement Conditions and data required to develop the test campaigns to demonstrate MDS performance
- Define the test objectives necessary to anchor System-level models and simulations, enable independent verification and validation
- Identify System issues occurring in ground and flight tests and lead the effort to resolve them
- Ensure the BMDS is complementary to and interoperable with North Atlantic Treaty Organization (NATO) and other theater systems
- Develop anti-tamper approaches to enable international fielding

The MDS discrimination improvements and countermeasures mitigation effort will develop and field integrated Element capabilities to improve the capability to identify lethal reentry vehicles and non-lethal threat objects. SE&I will conduct analysis and engineering to specify the MDS functional, performance, and interface requirements for achieving the improved capabilities.

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Title:</b> Requirements and Design</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Requirements and Design effort develops the BMD System level requirements and specifications and drives the integration of the BMDS. Requirements and Design allocates requirements to BMDS Elements and adjudicates Element level specifications to provide required capabilities for the Warfighter.</p> <ul style="list-style-type: none"> <li>- Define BMDS technical content expectations and develop system requirements to address evolving threats</li> <li>- Develop and allocate functional performance, interface, and design suitability requirements to Programs, in collaboration with BMDS element engineers</li> <li>- Deliver system technical baseline updates to document integrated system build content as identified in the R-4 summary</li> <li>- Identify and resolve technical disconnects through the requirements trace process and element certifications; conduct engineering analyses and perform trade studies</li> <li>- Participate in Element Requirements Reviews</li> <li>- Develop Specification Change Notices (SCN) for future requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports</li> <li>- Ensure accurate reporting of Element functionality and software / hardware integration in the BMDS Accountability Report (BAR) and Director's Program Reviews</li> <li>- Assess and add emerging threats to MDA's lethality prediction models</li> <li>- Incorporate updates to lethality assessments, collateral effects, and consequences of intercept into the BMDS Lethality Program Plan</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete system requirements and interface definition for additional sensors.</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Develop BMD System-level requirements to address advanced threats</li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>		53.251	30.736	33.133
		-	-	-
<p><b>Title:</b> Integrated Air and Missile Defense (IAMD)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The IAMD effort provides a consistent, disciplined systems engineering process using a joint service systems engineering team to develop the technical requirements necessary to support integration of joint service IAMD systems, implementing capabilities required by the Geographic Combatant Commands. This effort includes systems engineering analysis,</p>		15.538	15.981	17.052
		-	-	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>development of technical and interface control requirements and documents, definition of candidate Joint IAMD increments, and configuration control across the joint systems. IAMD provides improved performance such as an improved air picture to enable engagement coordination decision making, increase battlespace, and improve track continuity. Additional efforts will address critical joint Command and Control and interoperability needs such as integrated fire control.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete IAMD Increment 2 Joint Planning and Combat ID engineering efforts</li> <li>- Conduct engineering required to address critical Joint Command and Control and interoperability needs, including Joint Integrated Fire Control (IFC)</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct engineering investigations and evaluation of Advanced Association Algorithms to improve overall joint IAMD Tracking Capabilities</li> <li>- Conduct analysis into existing and emerging IAMD capabilities to ensure they are appropriately represented during BMD and IAMD wargames/exercises</li> <li>- Continue engineering activities supporting critical Joint Command and Control and interoperability needs:                             <ul style="list-style-type: none"> <li>-- Continue to advance improvements in combat identification integration and interoperability among Joint Integrated Air and Missile Defense systems and the ability to represent these advanced capabilities within a engineering level Modeling and Simulation environment</li> <li>-- Working with the Joint Staff Joint Integrated Air and Missile Defense Organization (JIAMDO), translate identified Engagement Coordination Initial Capability Document requirements into to technical requirements for implementation within Services and Agency existing and developing programs of record to improve Engagement Coordination and implement advanced fire control capabilities across the Joint Integrated Air and Missile Defense kill-chain</li> </ul> </li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> System-Level Verification and Assessment</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This activity funds BMD System Assessment and Verification, Validation, and Accreditation (VV&amp;A) activities to support BMDS Operational Capacity Baseline (OCB) delivery decisions and Technical Capability Declarations (TCDs), and anchor System modeling &amp; simulation.</p> <ul style="list-style-type: none"> <li>- Develop and manage assessment plans and requirements for BMDS capability increments:</li> <li>-- Map assessment requirements to data collection venues (i.e., ground tests, flight tests, and exercises)</li> </ul>		31.183	25.369	23.082
		-	-	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
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<p>-- Evaluate current Modeling &amp; Simulation (M&amp;S) capability to address assessment requirements, and provide recommendations for new or improved M&amp;S</p> <ul style="list-style-type: none"> <li>- Maintain assessment documentation per the R-4 summary</li> <li>- Conduct extensive analysis of data collected in BMDS ground and flight test events to characterize BMDS interoperability and performance, and anchor models and simulations</li> <li>- Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment</li> <li>- Monitor development and recommend improvements to the simulation enterprise based on an evaluation of the validity of Component, Element and System-level models (and frameworks) and participation in assessment activities and Modeling and Simulation events</li> <li>- Continue VV&amp;A activities to meet and maintain Hardware-in-the-Loop (HWIL) model accreditation in accordance with the HWIL Accreditation plan</li> <li>- Conduct assessments of BMD System capabilities and limitations prior to capability delivery decisions</li> <li>- Produce independent assessments of each incremental BMDS Capability Delivery to support fielding readiness determinations</li> <li>- Verify BMDS performance against specified requirements, and produce BMDS verification reports</li> <li>- Maintain M&amp;S VV&amp;A database and toolkit</li> <li>- Maintain verification data for BMD System Specification Change Notices</li> <li>- Recommend solutions to improve assessment confidence, including M&amp;S and testing issue resolutions</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct VV&amp;A for the initial BMDS end-to-end Digital simulation</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Conduct VV&amp;A and assessment of the Long Range Discrimination Radar (LRDR)</li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>			
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<p><b>Title:</b> Knowledge Centers</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Knowledge Centers serve as independent technical advisors to MDA program offices in the C2BMC, Interceptor, Space, and Sensor areas to support development of technical approaches and improve reliability.</p> <ul style="list-style-type: none"> <li>- Provide Federally Funded Research and Development Centers (FFRDC) and University Affiliated Research Centers (UARC) subject matter expertise, to include reach-back capability as needed, for Element program managers:</li> </ul>	13.757	14.138	14.319
	-	-	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>-- Provide Subject Matter Expertise and analytical support for Independent Review Teams, mission assurance assessments, Failure Review Boards and Failure Investigation Teams</li> <li>-- Identify and provide recommendations to mitigate technical risks, including innovative and unconventional approaches</li> <li>-- Promote knowledge sharing between external technical sources and MDA</li> <li>- Perform independent technical assessments of critical System and Element program issues:</li> <li>-- Define element knowledge points (KPs), establish closure criteria, and provide closure recommendations</li> <li>-- Continue to provide System and Element performance assessments</li> <li>- Conduct assessments of emerging technologies as required</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Future Concepts and Planning		22.895	13.288	13.632
		<b>Articles:</b>	-	-
<p><b>Description:</b> This activity funds MDS architecture and future concept development, and efforts and studies to address the emergent threat, including DoD Analyses of Alternatives (AoA).</p> <ul style="list-style-type: none"> <li>- Participate in designated Office of the Secretary of Defense (OSD) activities or analyses, as directed by Congress</li> <li>- Perform MDS capability gap analysis, and analyze and document architecture alternatives and/or new technologies to address gaps</li> <li>- Develop Initial Requirements Documents (IRDs) to establish functional, performance and integration planning requirements for next generation weapons and sensors to counter future threats</li> <li>- Identify architecture alternatives that improve MDS performance and are complementary to and interoperable with North Atlantic Treaty Organization (NATO) systems and theaters around the world</li> <li>- Conduct technology development reviews for future/follow-on MDS Element development efforts</li> <li>- Update concept capability documentation based on architectural options, trade studies, and technology development experiments</li> <li>- Maintain and update Phased Implementation Plan to document integrated requirements for improvements to, or augmentations of, current system capabilities</li> </ul>				

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>- Develop Preliminary Specification Change Notices for selected future MDS capabilities and technologies</li> <li>- Maintain a dialog with the Warfighter community for all MDS engineering and technical issues</li> <li>-- Inform Warfighter development of the Prioritized Capabilities List (PCL) by providing relevant System data</li> <li>-- Develop updates to the Achievable Capabilities List (ACL) as required</li> <li>- Lead collaborative effort to improve foreign partners' understanding of existing system capabilities, architectural performance and operational concepts of the BMDS</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Deliver the 2020 Achievable Capabilities List</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p> <p>N/A</p>				
<p><b>Title:</b> System Engineering, Engineering Analysis and Quick Response Team</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This task provides rapid response, high quality systems engineering analysis products and supporting technical data to address external and internal Agency inquiries and decisions:</p> <ul style="list-style-type: none"> <li>- Conduct system level analyses to support ongoing MDS Architecture and Systems Engineering efforts</li> <li>- Analyze expected performance of BMDS Architecture options:                             <ul style="list-style-type: none"> <li>-- Analyze and predict the performance of future MDS capabilities</li> <li>-- Provide technical assessments, and collaborate with BMDS Elements to define and track technical performance measures</li> </ul> </li> <li>- Respond to Warfighter, Combatant Command (CCMD) and congressional requests for information and analysis</li> <li>- Provide analytical support for real-world events</li> <li>- Maintain analysis parameters database and standards per the R4 summary to ensure consistency</li> <li>- Develop analytical data to respond to information requests from MDA and DoD leadership</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2021 Plans:</b></p>		9.219	10.497	11.300
		-	-	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
- SEE ABOVE.				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Discrimination		26.446	23.334	19.478
<b>Articles:</b>		-	-	-
<p><b>Description:</b> MDA designs, develops, tests, and delivers MDS discrimination improvements and countermeasures mitigation capabilities to address emerging adversary countermeasures. MDA is focused on providing the Warfighter with capability improvements to identify Reentry Vehicles (RVs) within a threat missile complex in the presence of decoys and with advanced capabilities to address other countermeasures.</p> <p>SE&amp;I will lead and integrate the Discrimination program across the entire MDS, establish performance goals for the technology development phase, and develop functional, performance, and interface requirements to address the threat. SE&amp;I will establish ground and flight test requirements, and develop updated high fidelity threat models to support analysis and testing activities. Other activities include:</p> <ul style="list-style-type: none"> <li>- Perform systems engineering support for discrimination and counter-countermeasures analysis and assessments</li> <li>- Provide technical support for fielding improved discrimination capabilities</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Provide technical support for fielding discrimination capability in BMDS Increment 6B/6C</li> <li>- Conduct deep dive analysis on impact of new discrimination techniques on MDS engagement performance</li> <li>- Develop prototype modeling techniques of Electronic Attack for definition and validation of initial requirements</li> <li>- Develop Electronic Attack/Electronic Protection models and interfaces to current analysis environment to support performance analysis and technique assessment</li> <li>- Define operational concepts for improved Counter-countermeasure techniques and technologies and develop required models and tools to estimate MDS impact and performance improvements</li> <li>- Assess discrimination planning and reporting of BMDS Midterm Increment 6C Technical Capability Declaration</li> <li>- Develop models and simulations for reactive/responsive Electronic Attack, objective debris mitigation, electro-optical/infrared improvements, and high fidelity scene generation</li> <li>- Develop Preliminary Change Notice, Functional Specification Change Notice, Performance Specification Change Notice, and Document Change Notice for discrimination improvements, Electronic Protection, and Objective Debris Mitigation</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Perform discrimination systems engineering support for counter-countermeasures analysis, and assessments</li> </ul>				

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	
<ul style="list-style-type: none"> <li>- Provide technical support for fielding improved discrimination capability</li> <li>- Conduct analysis on predicted performance of advanced algorithm development for definition of initial requirements</li> <li>- Develop Electronic Attack models to support MDS requirements definition for Electronic Protection techniques</li> <li>- Define operational concepts for improved counter-countermeasure techniques and technologies</li> <li>- Assess discrimination planning and reporting for BMDS Increment 6C Technical Capability Declaration</li> <li>- Develop models and simulations for reactive/responsive Electronic Attack, objective debris mitigation, electro-optical/infrared improvements, advanced/dynamic threat, and high fidelity scene generation</li> <li>- Develop updated high fidelity threat models</li> <li>- Develop Preliminary Change Notice, Functional Specification Change Notice, Performance Specification Change Notice, and Document Change Notice for discrimination improvements, Electronic Protection, and Objective Debris Mitigation</li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Reduction from FY 2020 to FY 2021 reflects a refinement of Discrimination efforts to provide capabilities depicted in BMDS increments.</p>					
<p><b>Title:</b> Risk Management</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Risk Management task identifies BMDS element and component technical risks, and tracks status and risk mitigation progress.</p> <ul style="list-style-type: none"> <li>- Convene and chair Risk Management Working Group</li> <li>- Execute the risk management and mission readiness working group process</li> <li>- Maintain a risk database using the Failure Reporting and Corrective Action System</li> <li>- Review and approve program element risks, on quarterly basis</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>		8.138	7.497	7.820	
		-	-	-	
<p><b>Title:</b> Anti-Tamper &amp; Engineering Manufacturing Readiness Level Development</p> <p align="right"><b>Articles:</b></p>		5.824	5.065	5.269	
		-	-	-	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Description:</b> This task develops anti-tamper approaches to inhibit reverse engineering of critical technologies, and oversees the use of Engineering and Manufacturing Readiness Levels (EMRLs) to assess Element, Component, or System maturity.</p> <ul style="list-style-type: none"> <li>- Develop anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the System</li> <li>- Engage and support the Services in understanding and transitioning BMDS Element Anti-Tamper activities</li> <li>- Participate in Element reviews to assess proposed Anti-Tamper solutions and assist programs in developing and implementing Anti-Tamper detection and response technologies to mitigate risk</li> <li>- Monitor application of EMRLs to evaluate engineering and manufacturing maturity of BMDS elements, systems, and components</li> <li>- Assess and report readiness of MDA development efforts for transition to production</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> Manufacturing and Producibility</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This activity supports a system-level manufacturing and producibility team to address materials, key component, and subsystem design and development to reduce cycle time, part count, and risk. This activity also supports a system-level reliability team to reduce risk of test failures and performance shortcomings and drive reliability into system and component designs.</p> <ul style="list-style-type: none"> <li>- Assess Missile Defense industrial base and determine critical manufacturing technologies</li> <li>-- Conduct assessments of critical component supply base and update critical technologies database</li> <li>-- Collaborate with national security space components on investment strategies for critical technologies</li> <li>-- Develop engineering management tool to characterize industrial base risks</li> <li>- Utilize supply chain risk identification and mitigation tracking system to mitigate manufacturing supply issues for critical components</li> <li>- Assess the effectiveness of reliability programs for each MDA Product (Radar, Launcher, Missile/Interceptor, etc.) to achieve/sustain required reliability</li> <li>- Perform reliability, composite risk, and probability of mission success assessments for flight tests</li> <li>- Identify failure trends/modes and evaluate impact on the Probability of Mission Success; evaluate potential corrective actions</li> </ul>		7.496 -	4.686 -	4.914 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>-- Provide element/program scorecard data to support reliability evaluations/assessments</p> <p>- With Logistics Support, develop MDA Reliability and Logistic Policies/Plans to promote integrated sustainability efforts</p> <p>- Ensure that Missile Defense products have achieved the required maturity in Reliability, Availability, and Maintainability (RAM) to support the transition from MDA to the appropriate service organization; provide RAM expertise as needed to Element Program Offices</p> <p>- Provide updates to MDA RAM policy and guidance</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> USINDOPACOM JEON Capability</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> In conjunction with the Lower Tier Project Office (LTPO), for a United States Indo-Pacific Command (USINDOPACOM) Joint Emergent Operational Need (JEON), provide system-level engineering activities to develop, test and deploy an integrated solution for upper tier/lower tier integration by achieving enhanced interoperability between the Terminal High Altitude Area Defense (THAAD) and PATRIOT capabilities, including:</p> <p>-- Develop threat updates to inform requirements</p> <p>-- Develop functional, performance, and interface requirements</p> <p>-- Develop test requirements</p> <p>-- Update Modeling and Simulation (M&amp;S) frameworks and core truth models</p> <p>-- Provide M&amp;S integration for testing, and provide Wargame and training support</p> <p>-- Develop requirements for capability assessments</p> <p>-- Provide test and performance analysis</p> <p>-- Perform Element integration</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p>		12.098	13.700	10.679
		-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
- SEE ABOVE.			
<b>FY 2021 Plans:</b> - SEE ABOVE.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 reflects completion of the JEON effort.			
<b>Accomplishments/Planned Programs Subtotals</b>	205.845	164.291	160.678

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603881C: Ballistic Missile	383.369	306.761	412.627	-	412.627	340.071	302.279	204.986	227.970	Continuing	Continuing
<i>Defense Terminal Defense Segment</i>											
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	790.316	1,303.716	1,004.305	-	1,004.305	776.125	726.566	767.592	1,068.536	Continuing	Continuing
• 0603884C: Ballistic Missile Defense Sensors	382.759	352.288	281.957	-	281.957	576.699	656.539	574.703	593.592	Continuing	Continuing
• 0603892C: AEGIS BMD	724.731	737.269	814.936	-	814.936	674.825	553.402	478.000	449.145	Continuing	Continuing
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	500.965	549.756	593.353	-	593.353	593.330	546.471	581.376	543.971	Continuing	Continuing
• 0603914C: Ballistic Missile Defense Test	510.292	399.738	378.302	-	378.302	385.910	396.524	394.949	417.261	Continuing	Continuing
• 0604181C: Hypersonic Defense	132.612	390.204	206.832	-	206.832	107.521	111.084	115.487	118.333	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution. Products and Services will be acquired by competitive means to the extent that is possible and practical.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Requirements and Design - Reqts & Design - Lethality Spt - FFRDC/UARC	MIPR	Various : CA	2.451	1.455	Nov 2018	0.963	Nov 2019	0.978	Nov 2020	-		0.978	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - CSS	C/CPAF	TEAMS : NC	2.217	0.111	Nov 2018	0.604	Nov 2019	0.672	Nov 2020	-		0.672	Continuing	Continuing	Continuing
Requirements and Design - BMDS ground test infrastructure improvements	Various	Various (GWAC) : AL, CO	0.000	16.353	Jan 2019	0.000		0.000		-		0.000	0.000	16.353	0.000
Requirements and Design - Previous Year Reqts & Design Content No Longer in FYDP	Various	Various : Various	17.503	0.000		0.000		0.000		-		0.000	0.000	17.503	0.000
Requirements and Design - Reqts & Design	C/CPFF	TEAMS : AL, VA	40.189	3.992	Nov 2018	4.646	Nov 2019	6.126	Nov 2020	-		6.126	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 1	MIPR	ORNL : TN	1.375	0.453	Nov 2018	0.406	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 2	MIPR	MITRE : VA	3.391	1.985	Nov 2018	1.219	Nov 2019	1.245	Nov 2020	-		1.245	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - HAENS Spt	MIPR	NSWC Crane : IN	1.922	1.813	Nov 2018	0.498	Nov 2019	0.508	Nov 2020	-		0.508	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Requirements and Design - Reqs & Design - Industry	C/CPFF	Boeing : AL	115.366	7.231	Nov 2018	7.136	Nov 2019	6.742	Nov 2020	-		6.742	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - MDA	Allot	MDA : AL, VA	55.487	7.384	Oct 2018	8.289	Oct 2019	7.716	Nov 2020	-		7.716	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - OGA	MIPR	AMRDEC : AL	9.521	1.566	Nov 2018	2.275	Nov 2019	2.376	Nov 2020	-		2.376	Continuing	Continuing	Continuing
Requirements and Design - Reqs & Design - Post Intercept Assessment	Various	Various : Various	6.900	3.934	Nov 2018	4.700	Nov 2019	6.355	Nov 2020	-		6.355	Continuing	Continuing	Continuing
Requirements and Design - Systems Engineering Improvements	Various	Various : VA, AL, CO	3.467	4.519	Nov 2018	0.000		0.000		-		0.000	0.000	7.986	0.000
Requirements and Design - Threat engineering	MIPR	Various : AL, VA, MD	3.508	2.455	Jan 2019	0.000		0.000		-		0.000	0.000	5.963	0.000
Integrated Air and Missile Defense (IAMD) - IAMD - OGA	MIPR	AMRDEC : AL	8.767	6.097	Nov 2018	4.720	Nov 2019	4.862	Nov 2020	-		4.862	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	C/CPFF	TEAMS : AL, VA, CO	5.388	0.900	Nov 2018	0.898	Nov 2019	1.609	Nov 2020	-		1.609	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	43.624	8.541	Nov 2018	10.363	Nov 2019	10.581	Nov 2020	-		10.581	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - Previous Year IAMD Content No Longer in FYDP	Various	Various : AL, VA, MD	6.520	0.000		0.000		0.000		-		0.000	0.000	6.520	0.000
System-Level Verification and Assessment - Previous Year Sys V&A content no longer in the FYDP	Various	Various : Various	8.545	3.691	Dec 2018	0.000		0.000		-		0.000	0.000	12.236	0.000
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	TEAMS : AL	9.777	2.514	Nov 2018	4.221	Nov 2019	2.685	Nov 2020	-		2.685	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	19.924	1.650	Nov 2018	1.800	Nov 2019	1.825	Nov 2020	-		1.825	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU/APL : MD, VA	12.058	0.000		0.000		1.245	Nov 2020	-		1.245	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 3	MIPR	GTRI : AL	0.000	1.461	Nov 2018	1.150	Nov 2019	1.175	Nov 2020	-		1.175	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	21.298	0.000		1.450	Nov 2019	1.000	Nov 2020	-		1.000	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	19.784	1.526	Nov 2018	1.623	Nov 2019	1.641	Nov 2020	-		1.641	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - M&S Accreditation	Various	AMRDEC : AL	2.000	12.244	Nov 2018	6.873	Dec 2019	2.836	Nov 2020	-		2.836	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	9.657	2.594	Nov 2018	4.806	Oct 2019	6.326	Oct 2020	-		6.326	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	AMRDEC : AL	11.480	2.775	Nov 2018	2.490	Nov 2019	2.375	Nov 2020	-		2.375	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	17.500	2.728	Nov 2018	0.956	Nov 2019	1.974	Nov 2020	-		1.974	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 5	MIPR	Draper : VA	0.000	0.579	Nov 2018	0.652	Nov 2019	0.665	Nov 2020	-		0.665	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	14.973	0.289	Nov 2018	1.865	Nov 2019	1.902	Nov 2020	-		1.902	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	9.027	0.984	Nov 2018	1.069	Nov 2019	1.090	Nov 2020	-		1.090	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	9.108	1.332	Nov 2018	1.084	Nov 2019	1.106	Nov 2020	-		1.106	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	7.955	0.959	Nov 2018	0.714	Nov 2019	0.728	Nov 2020	-		0.728	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	4.649	0.483	Nov 2018	0.377	Nov 2019	0.385	Nov 2020	-		0.385	Continuing	Continuing	Continuing
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	35.275	4.101	Oct 2018	4.264	Oct 2019	3.315	Oct 2020	-		3.315	Continuing	Continuing	Continuing
Knowledge Centers - KC - TEAMS	C/CPFF	TEAMS : AL	3.276	2.632	Nov 2018	2.708	Nov 2019	2.144	Nov 2020	-		2.144	Continuing	Continuing	Continuing
Knowledge Centers - KC - Various	MIPR	Various : Various	7.438	2.398	Dec 2018	1.405	Dec 2019	2.984	Dec 2020	-		2.984	Continuing	Continuing	Continuing
Knowledge Centers - Previous Year KC Content No Longer In FYDP	Various	Various : AL, AK, CA, CO, HI, NM, VA	3.032	0.000		0.000		0.000		-		0.000	0.000	3.032	0.000
Future Concepts and Planning - Future Concepts - Architecture CSS	C/CPFF	TEAMS : AL, VA	13.726	4.243	Nov 2018	5.212	Nov 2019	4.987	Nov 2020	-		4.987	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	12.053	0.339	Nov 2018	1.000	Nov 2019	1.000	Nov 2020	-		1.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	3.458	0.028	Nov 2018	0.406	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 3	MIPR	MIT/LL : MA	4.699	0.000		0.406	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 5	MIPR	MITRE : VA	2.922	1.179	Nov 2018	0.488	Nov 2019	0.498	Nov 2020	-		0.498	Continuing	Continuing	Continuing
Future Concepts and Planning - Future	MIPR	Aerospace : CA	4.456	0.576	Nov 2018	0.406	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603890C / BMD Enabling Programs				MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Concepts - FFRDC / UARC 6															
Future Concepts and Planning - Future Concepts - Industry	C/CPFF	Boeing : AL	32.976	1.820	Nov 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	13.552	6.643	Oct 2018	5.370	Oct 2019	5.902	Oct 2020	-		5.902	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Technology	Various	Various : Various	0.000	8.067	Dec 2018	0.000		0.000		-		0.000	0.000	8.067	0.000
Future Concepts and Planning - Previous Year Future Concepts - No Longer in FYDP	Various	Various : Various	32.925	0.000		0.000		0.000		-		0.000	0.000	32.925	0.000
Future Concepts and Planning - Previous Year Hypersonic Defense Content	Various	Various : Various	7.200	0.000		0.000		0.000		-		0.000	0.000	7.200	0.000
System Engineering, Engineering Analysis and Quick Response Team - Previous Year Sys Engrg, QRT - No Longer In FYDP	Various	Various : Various	1.295	0.000		0.000		0.000		-		0.000	0.000	1.295	0.000
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	TEAMS : AL	38.463	1.957	Nov 2018	2.105	Nov 2019	2.680	Nov 2020	-		2.680	Continuing	Continuing	Continuing
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	25.993	5.630	Nov 2018	7.800	Nov 2019	7.956	Nov 2020	-		7.956	Continuing	Continuing	Continuing
System Engineering, Engineering Analysis and Quick Response Team -	C/CPFF	Boeing : VA, AL	0.000	0.492	Nov 2018	0.592	Nov 2019	0.664	Nov 2020	-		0.664	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603890C / BMD Enabling Programs				MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Sys Engrg, QRT - Industry Spt															
System Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - MDA	Various	MDA : VA, AL	3.818	1.140	Oct 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Discrimination - Discrimination - CSS	C/CPFF	TEAMS : AL	17.225	6.120	Nov 2018	6.600	Nov 2019	5.771	Nov 2020	-		5.771	Continuing	Continuing	Continuing
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	37.515	10.787	Nov 2018	14.898	Nov 2019	11.906	Nov 2020	-		11.906	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Allot	MDA : AL, VA	28.752	3.983	Oct 2018	1.836	Oct 2019	1.801	Oct 2020	-		1.801	Continuing	Continuing	Continuing
Discrimination - Discrimination - Various	Various	Various : AL, VA	28.648	5.556	Nov 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Discrimination - Prior Year Discrimination Improvements no longer funded in FYDP	Various	Various : Various	27.219	0.000		0.000		0.000		-		0.000	0.000	27.219	0.000
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	25.170	6.862	Oct 2018	6.585	Oct 2019	6.929	Oct 2020	-		6.929	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	C/CPAF	TEAMS : AL	3.696	0.276	Nov 2018	0.302	Nov 2019	0.268	Nov 2020	-		0.268	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	5.412	1.000	Nov 2018	0.610	Nov 2019	0.623	Nov 2020	-		0.623	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	2.125	0.000		0.000		0.000		-		0.000	0.000	2.125	2.125
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper	Various	Various : AL, VA, CO	0.000	1.048	Nov 2018	1.097	Dec 2019	0.237	Dec 2020	-		0.237	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT &	MIPR	AMRDEC : AL	0.000	0.000		0.261	Dec 2019	0.264	Nov 2020	-		0.264	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603890C / BMD Enabling Programs				MD24 / System Engineering & Integration					
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
EMRL - Anti-Tamper OGA Support															
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper Support	MIPR	NSWC Crane : IN	6.979	0.232	Nov 2018	0.256	Dec 2019	0.264	Nov 2020	-		0.264	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - MDA	Allot	MDA : AL, VA	25.944	4.544	Oct 2018	3.451	Nov 2019	4.504	Oct 2020	-		4.504	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - Prior Year AT & EMRL no longer funded in FYDP	Various	Various : Various	2.983	0.000		0.000		0.000		-		0.000	0.000	2.983	0.000
Manufacturing and Producibility - Core Standards	C/CPFF	Boeing : AL	4.813	1.211	Nov 2018	1.653	Nov 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility	Allot	MDA : AL	3.898	1.721	Oct 2018	0.819	Nov 2019	3.152	Oct 2020	-		3.152	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - CSS	C/CPFF	TEAMS : AL, VA	0.000	1.503	Nov 2018	0.498	Nov 2019	0.967	Nov 2020	-		0.967	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	AMRDEC : AL	9.990	1.172	Nov 2018	1.716	Nov 2019	0.645	Nov 2020	-		0.645	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - Various	Various	Various : AL	0.000	1.889	Dec 2018	0.000		0.150	Nov 2020	-		0.150	Continuing	Continuing	Continuing
Manufacturing and Producibility - Previous Year Mfg and Producibility - No Longer In FYDP	Various	Various : Various	1.450	0.000		0.000		0.000		-		0.000	0.000	1.450	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
USINDOPACOM JEON Capability - CSS	C/CPFF	TEAMS : VA, AL	0.652	2.913	Nov 2018	0.920	Dec 2019	1.340	Nov 2020	-		1.340	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - FFRDC/UARC	MIPR	MITRE : VA	0.528	0.406	Nov 2018	0.407	Dec 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - Framework, Truth Models	Various	Various : CO, AL	1.064	1.303	Nov 2018	1.942	Dec 2019	0.622	Nov 2020	-		0.622	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - Industry Support	C/CPFF	Boeing : AL, VA	2.106	0.000		0.000		0.000		-		0.000	0.000	2.106	0.000
USINDOPACOM JEON Capability - Industry Support - IRES	C/CPAF	Northrop Grumman : AL, VA	2.445	2.363	Nov 2018	2.335	Dec 2019	1.818	Nov 2020	-		1.818	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - OGA	MIPR	AMRDEC : AL	0.984	2.052	Nov 2018	1.232	Dec 2019	1.443	Nov 2020	-		1.443	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - Systems Engineering	Various	MDA Various : VA, AL, CO	1.179	2.271	Nov 2018	1.979	Dec 2019	1.025	Nov 2020	-		1.025	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - Test & Performance Analysis	Various	Various : VA, AL	3.268	0.790	Nov 2018	4.210	Dec 2019	3.200	Nov 2020	-		3.200	Continuing	Continuing	Continuing
USINDOPACOM JEON Capability - UARC	MIPR	JHU / APL : MD, VA	3.974	0.000		0.675	Dec 2019	0.816	Nov 2020	-		0.816	Continuing	Continuing	Continuing
<b>Subtotal</b>			999.907	205.845		164.291		160.678		-		160.678	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	999.907	205.845	164.291	160.678	-	160.678	Continuing	Continuing	N/A

**Remarks**  
Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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	Significant Event Complete ▲ Significant Event Planned △		Milestone Decision Complete ★ Milestone Decision Planned ☆		Element Test Complete ◆ Element Test Planned ◇		System Level Test Complete ● System Level Test Planned ○		Complete Activity ◆ Planned Activity ◇									
											FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	
Update to BMD SDD - 1Q FY 2019	▲																	
BMD SS - 1Q FY 2019	▲																	
E/CCA 1Q - FY 2019	▲																	
Element Design Reviews - FY 2019			▲															
Update to BMD SDD- 3Q FY 2019				▲														
BMD SS - 3Q FY 2019				▲														
E/CCA 4Q - FY 2019					▲													
Update to BMD SDD - FY 2020						▲												
Update Achievable Capabilities List - FY 2020												△						
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2020												△						
SEP Update - FY 2020												△						
BMD SS - FY 2020												△						
BMDS Engineering Review - FY 2020												△						
Update to IMAP - 3Q FY 2020												△						
Update MIP - FY 2020													△					
E/CCA - 4Q - FY 2020													△					
Update to BMD SDD - FY 2021														△				
Update MIP - FY 2021														△				
BMD SS - FY 2021														△				
Update to IMAP - FY 2021														△				
BMDS Engineering Review - FY 2021														△				
E/CCA - 4Q FY 2021															△			
Update to BMD SDD - FY 2022																△		
Update MIP - FY2022																	△	

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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	Element Test Complete			System Level Test Complete			Complete Activity															
	Element Test Planned			System Level Test Planned			Planned Activity															
	FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			
Update Achievable Capabilities List - FY 2022																						
Updates to IMAP -FY 2022																						
SEP Update FY 2022																						
BMD SS - FY 2022																						
BMDS Engineering Review - FY 2022																						
E/CCA - 4Q FY 2022																						
Update MIP - FY 2023																						
Update to BMD SDD - FY 2023																						
BMD SS - FY 2023																						
Update to IMAP - FY 2023																						
E/CCA - 4Q - FY 2023																						
Update MIP - FY 2024																						
Update to BMD SDD - FY 2024																						
BMD SS - 2024																						
Update Achievable Capabilities List - FY 2024																						
Update to IMAP - FY 2024																						
SEP Update - FY 2024																						
E/CCA - 4Q - FY 2024																						
Update MIP - FY 2025																						
Update to BMD SDD - FY 2025																						
BMD SS - 2025																						
Update to IMAP - FY 2025																						
E/CCA - 4Q - FY 2025																						

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Update to BMD SDD - 1Q FY 2019	1	2019	1	2019
BMD SS - 1Q FY 2019	1	2019	1	2019
E/CCA 1Q - FY 2019	1	2019	1	2019
Element Design Reviews - FY 2019	2	2019	2	2019
Update to BMD SDD- 3Q FY 2019	3	2019	3	2019
BMD SS - 3Q FY 2019	3	2019	3	2019
E/CCA 4Q - FY 2019	4	2019	4	2019
Update to BMD SDD - FY 2020	1	2020	1	2020
Update Achievable Capabilities List - FY 2020	2	2020	2	2020
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2020	2	2020	2	2020
SEP Update - FY 2020	2	2020	2	2020
BMD SS - FY 2020	2	2020	2	2020
BMDS Engineering Review - FY 2020	3	2020	3	2020
Update to IMAP - 3Q FY 2020	3	2020	3	2020
Update MIP - FY 2020	4	2020	4	2020
E/CCA - 4Q - FY 2020	4	2020	4	2020
Update to BMD SDD - FY 2021	1	2021	1	2021
Update MIP - FY 2021	1	2021	1	2021
BMD SS - FY 2021	2	2021	2	2021
Update to IMAP - FY 2021	2	2021	2	2021
BMDS Engineering Review - FY 2021	3	2021	3	2021
E/CCA - 4Q FY 2021	4	2021	4	2021
Update to BMD SDD - FY 2022	1	2022	1	2022

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD24 / System Engineering & Integration
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Events	Start		End	
	Quarter	Year	Quarter	Year
Update MIP - FY2022	1	2022	1	2022
Update Achievable Capabilities List - FY 2022	2	2022	2	2022
Updates to IMAP -FY 2022	2	2022	2	2022
SEP Update FY 2022	2	2022	2	2022
BMD SS - FY 2022	2	2022	2	2022
BMDS Engineering Review - FY 2022	3	2022	3	2022
E/CCA - 4Q FY 2022	4	2022	4	2022
Update MIP - FY 2023	1	2023	1	2023
Update to BMD SDD - FY 2023	1	2023	1	2023
BMD SS - FY 2023	2	2023	2	2023
Update to IMAP - FY 2023	2	2023	2	2023
E/CCA - 4Q - FY 2023	4	2023	4	2023
Update MIP - FY 2024	1	2024	1	2024
Update to BMD SDD - FY 2024	1	2024	1	2024
BMD SS - 2024	1	2024	1	2024
Update Achievable Capabilities List - FY 2024	2	2024	2	2024
Update to IMAP - FY 2024	2	2024	2	2024
SEP Update - FY 2024	2	2024	2	2024
E/CCA - 4Q - FY 2024	4	2024	4	2024
Update MIP - FY 2025	1	2025	1	2025
Update to BMD SDD - FY 2025	1	2025	1	2025
BMD SS - 2025	1	2025	1	2025
Update to IMAP - FY 2025	2	2025	2	2025
E/CCA - 4Q - FY 2025	4	2025	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MT23 / Enabling - Test			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MT23: <i>Enabling - Test</i>	74.213	38.699	59.029	49.293	-	49.293	45.398	49.007	49.922	52.408	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2020 to FY 2021 is in accordance with the Integrated Master Test Plan (IMTP) 21.1 and the completion of hardware purchase and installation in the BID Lab in FY 2020.

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

The Enabling Test project includes the System Engineering & Integration (SE&I) that drives Ballistic Missile Defense System (BMDS) test planning, execution, and post-test analysis and assessment, and the Modeling & Simulation (M&S) tools and framework required to prepare for and execute ground and flight tests.

SE&I allocates test requirements to individual test events, designs test architectures, defines target requirements, and generates ground and flight test scenarios to collect data essential for model validation and system verification. SE&I works with the Service Operational Test Agencies (OTA) to incorporate operational test requirements into BMDS events to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. The resulting data ensures BMDS requirements are being met by the system under test and confirms proper BMD System operation. It also helps to anchor system and element M&S for use in simulations to characterize System performance across the battle space, including areas where no live-fire-testing is performed.

Engineering ground test (GT) responsibilities include System performance sensitivity analysis; scenario design and optimization; analysis to mitigate test data collection risks; test architecture certification analysis; and test result analysis. Flight test (FT) responsibilities include pre-mission scenario analysis to identify and mitigate test execution risk in advance; range safety analysis; mission analysis during test execution; extensive post-mission analysis; and event analysis reporting products. These efforts inform senior leaders' decisions on MDS development and evolution and underpin the capability declarations that deliver new capabilities to the Warfighter.

Pre-mission predictions use the test framework and Hardware in the Loop (HWIL) and digital models of the test configuration to exercise system interfaces, calculate expected System performance, and gauge readiness for test execution. Post-mission, MDA uses test results to anchor System and element M&S and provide confidence in their ability to correctly predict System behavior and performance.

Reliability, Availability and Maintainability data collected through BMDS test events increases confidence in System performance over the entire lifecycle. SE&I documents any abnormal System behavior observed during tests and alerts MDA to issues with test article reliability. SE&I leads test failure review boards, identifies data collection shortfalls, and reallocates objectives to future test events as needed until all required model validation data is collected. The Failure Reporting, Analysis, and Corrective Action System provides a framework to investigate test failures and anomalies and identify solutions that will ultimately improve System performance and reliability.

MDA's M&S systems and products provide the Agency, the Warfighter, and the OTA with the capability to evaluate individual System components and the overall M&S system-of-systems. MDA validates and accredits System-level models and simulations to support accurate and comprehensive assessments. M&S System and product

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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testing follows the test program outlined in MDA's IMTP and serves as a necessary precursor to conducting System-level testing. Resources for the planning, design, execution and management of this testing are provided in accordance with the BMDS Test Policy, as listed in the most current version of the IMTP.

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

	FY 2019	FY 2020	FY 2021
<p><b>Title:</b> Engineering and Analysis</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Engineering and Analysis effort provides essential System ground and flight test event planning, execution, and evaluation activities for each test event:</p> <ul style="list-style-type: none"> <li>- Design test architecture, define test objectives and evaluation criteria, define target requirements, and generate ground and flight test scenarios appropriate to the data collection requirements to assess System performance and anchor Models and Simulations (M&amp;S)</li> <li>- Produce threat data for System ground and flight tests</li> <li>- Coordinate with BMDS Operational Test Agency (OTA) to address test issues, disposition them, coordinate them, and recommend action plans to achieve closure</li> <li>- Deliver HWIL M&amp;S integration test cases</li> <li>- Conduct M&amp;S HWIL Integration Benchmarking and integrate the BMDS HWIL M&amp;S framework with MDA and non-MDA Elements into the test event architecture</li> <li>- Integrate, test, and deliver end-to-end System-level simulations supporting ground test missions</li> <li>- Deploy and maintain M&amp;S System Interface Units (SIUs) for testing</li> <li>- Analyze System-level interoperability</li> <li>- Conduct modeling and technical analysis for Combatant Command wargames and exercises</li> <li>- Utilize M&amp;S for pre-test assessment, post-test review, and M&amp;S updates</li> <li>- Provide test configuration management; risk assessments; and anomaly/deficiency review, assessment and closure</li> <li>- Analyze test results to identify verification and validation data collection shortfalls and reassign objectives to future test events as required</li> <li>- Document test observations for System-level test anomalies and coordinate the resulting BMDS Discrepancy Reports within the Failure Reporting, Analysis, and Corrective Action System (FRACAS)</li> <li>- Upgrade test analysis tools in concert with the MDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- SEE ABOVE.</li> </ul> <p><b>FY 2021 Plans:</b></p>	35.048	35.773	31.725
	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs		<b>Project (Number/Name)</b> MT23 / Enabling - Test
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
- SEE ABOVE.				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 is in accordance with the Integrated Master Test Plan (IMTP) 21.1.				
<b>Title:</b> Continuous Integration and Agile Test (CI/CAT)		3.651	13.293	11.263
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide test planning, analysis, M&S integration, M&S execution, and post-event analysis for integrated ground testing.				
Specific and/or unique accomplishments to each FY are as follows:				
<b>FY 2020 Plans:</b>				
- Execute pre-CI/CAT Sprint activities:				
-- Develop and documented ground test sprint requirements				
-- Develop scenario designs for sprints				
-- Provide M&S integration				
-- Provide pre-mission analysis for ground test sprints				
- Execute agency ground test plan in accordance with new CONOPS and maintain integration across concurrent ground test and flight test activities				
<b>FY 2021 Plans:</b>				
- Execute agency ground test plan in accordance with approved IMTP and maintain integration across concurrent ground test and flight test activities				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 reflects completion of activation efforts in FY 2020.				
<b>Title:</b> Continuous Development & Integration (CDI) Environment		0.000	9.963	6.305
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide a Continuous Development and Integration (CDI) environment, allowing MDS Elements to integrate new tactical and M&S software to be tested ahead of a ground test event. CDI will provide a venue for early test of MDS Element and System upgrades, reducing risk of anomalies during HWIL integration and execution, and impacts of testing delays due to test configuration rework. This is a critical enabler to achieve the planned Continuous Integration/Continuous Agile Testing (CI/CAT) schedule and tempo.				
<b>FY 2020 Plans:</b>				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
- Procure additional hardware to enable pre-event integration - Initiate expansion of BMDS Integration and Development (BID) Lab to replicate the System in order to meet evolving IMTP cadence - Conduct early integration activities such as scenario refinement, framework capability, and early checkout of Element software for GT-21 Sprints  <b>FY 2021 Plans:</b> - Conduct Early Integration activities such as scenario refinement and early checkout of Element software for GT-22 Sprints  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 reflects completion of hardware purchase and installation in the BID Lab in FY 2020.			
<b>Accomplishments/Planned Programs Subtotals</b>	38.699	59.029	49.293

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603914C: <i>Ballistic Missile Defense Test</i>	510.292	399.738	378.302	-	378.302	385.910	396.524	394.949	417.261	Continuing	Continuing
• 0604878C: <i>Aegis BMD Test</i>	92.160	169.822	170.880	-	170.880	191.744	163.103	179.877	217.735	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

In order to optimize System performance, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution. MDA will acquire products and services by competitive means to the extent practical.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Engineering and Analysis - Engineering & Analysis - CSS Support	C/CPFF	TEAMS : AL	4.534	2.211	Nov 2018	5.131	Nov 2019	5.229	Nov 2020	-		5.229	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - FFRDC	MIPR	Aerospace : AL	1.122	0.304	Nov 2018	0.406	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	14.573	4.435	Nov 2018	7.201	Nov 2019	7.314	Nov 2020	-		7.314	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Integration Support CSS	C/CPAF	COLSA : AL, CO	20.270	1.474	Nov 2018	0.000		0.000		-		0.000	0.000	21.744	0.000
Engineering and Analysis - Engineering & Analysis - Non-MDA Element Support for IMTP Events	Various	Various : AL, CO	0.000	1.838	Dec 2018	7.641	Nov 2019	3.651	Nov 2020	-		3.651	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	26.642	18.476	Nov 2018	14.856	Nov 2019	14.567	Nov 2020	-		14.567	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support - NME	MIPR	LTPO : AL	1.202	3.085	Nov 2018	0.000		0.000		-		0.000	0.000	4.287	0.000
Engineering and Analysis - Engineering & Analysis - Technical Support	C/CPAF	Northrop Grumman : VA, AL	2.559	2.995	Nov 2018	0.000		0.000		-		0.000	0.000	5.554	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	3.311	0.230	Nov 2018	0.538	Nov 2019	0.549	Nov 2020	-		0.549	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT M&S Integration	Various	Various : AL, CO	0.000	0.000		7.673	Dec 2019	6.113	Dec 2020	-		6.113	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test & Performance Analysis	Various	Various : AL, CO	0.000	0.000		4.567	Dec 2019	4.076	Dec 2020	-		4.076	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CI/ CAT Test Requirements Development	C/CPFF	TEAMS : AL, CO	0.000	0.000		1.053	Nov 2019	1.074	Nov 2020	-		1.074	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - CSS	Various	Various : Various	0.000	1.962	Nov 2018	0.000		0.000		-		0.000	0.000	1.962	0.000
Continuous Integration and Agile Test (CI/CAT) - Hardware	C/CPFF	TBE : AL	0.000	1.689	Nov 2018	0.000		0.000		-		0.000	0.000	1.689	0.000
Continuous Development & Integration (CDI) Environment - Continuous Development and Integration Environment	MIPR	AMRDEC : AL, CO	0.000	0.000		9.963	Dec 2019	6.305	Dec 2020	-		6.305	Continuing	Continuing	Continuing
<b>Subtotal</b>			74.213	38.699		59.029		49.293		-		49.293	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	74.213	38.699	59.029	49.293	-	49.293	Continuing	Continuing	N/A

**Remarks**  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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	FY 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025		
	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3
IMTP Engineering Inputs - 1Q - FY 2019	▲																				
IMTP Engineering Inputs - 3Q - FY 2019			▲																		
IMTP Engineering Inputs - 1Q - FY 2020				▲																	
IMTP Engineering Inputs - 3Q - FY 2020					△																
IMTP Engineering Inputs - 1Q - FY 2021							△														
GTI-09 Sprint 1 (E/C) (BMDS Ground Test)								◇													
IMTP Engineering Inputs - 2Q - FY 2021								△													
GTI-09 Sprint 2 (E/C) (BMDS Ground Test)								◇													
IMTP Engineering Inputs - 1Q - FY2022									△												
IMTP Engineering Inputs - 3Q - FY 2022										△											
IMTP Engineering Inputs - 1Q - FY 2023											△										
IMTP Engineering Inputs - 3Q - FY 2023												△									
IMTP Engineering Inputs - 1Q - FY 2024													△								
IMTP Engineering Inputs - 3Q - FY 2024														△							
IMTP Engineering Inputs - 1Q - FY 2025																				△	
IMTP Engineering Inputs - 3Q - FY 2025																					△

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MT23 / Enabling - Test
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IMTP Engineering Inputs - 1Q - FY 2019	1	2019	1	2019
IMTP Engineering Inputs - 3Q - FY 2019	3	2019	3	2019
IMTP Engineering Inputs - 1Q - FY 2020	1	2020	1	2020
IMTP Engineering Inputs - 3Q - FY 2020	3	2020	3	2020
IMTP Engineering Inputs - 1Q - FY 2021	1	2021	1	2021
GTI-09 Sprint 1 (E/C) (BMDS Ground Test)	2	2021	2	2021
IMTP Engineering Inputs - 2Q - FY 2021	3	2021	3	2021
GTI-09 Sprint 2 (E/C) (BMDS Ground Test)	3	2021	3	2021
IMTP Engineering Inputs - 1Q - FY2022	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2022	3	2022	3	2022
IMTP Engineering Inputs - 1Q - FY 2023	1	2023	1	2023
IMTP Engineering Inputs - 3Q - FY 2023	3	2023	3	2023
IMTP Engineering Inputs - 1Q - FY 2024	1	2024	1	2024
IMTP Engineering Inputs - 3Q - FY 2024	3	2024	3	2024
IMTP Engineering Inputs - 1Q - FY 2025	1	2025	1	2025
IMTP Engineering Inputs - 3Q - FY 2025	3	2025	3	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD28 / Intelligence & Security			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD28: <i>Intelligence &amp; Security</i>	233.183	46.628	43.851	42.501	-	42.501	42.698	43.312	46.345	52.063	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

The Intelligence and Security program provides multi-disciplinary intelligence and security for the Missile Defense System (MDS) acquisition, development, test and deployment. The Intelligence and Security Major Program Goals are:

- Ensure the Intelligence Community (IC) understands and fulfills MDA's current and future prioritized intelligence requirements; advocate Missile Defense test intelligence requirements; and work closely with the IC.
- Leverage available National and DoD Counterintelligence resources. Ensure counterintelligence products and services are fully integrated into all RDT&E programs and activities to protect classified information and critical technologies and to protect Missile Defense Agency (MDA) and BMDS personnel, facilities, information and activities.
- Define cybersecurity systems engineering requirements for MDS assets. Identify cybersecurity systems engineering and infrastructure intelligence requirements to focus IC collection, analysis and production to target MDA/MDS cyber vulnerabilities. Incorporate cybersecurity engineering requirements into the MDS systems engineering process.
- Provide cross-Agency acquisition security oversight and support for the identification and protection of Critical Program Information (CPI), and evaluation and implementation of developing Supply Chain Risk Management (SCRM) requirements. Provide physical security for BMDS weapons/sensor system deployments, including Foreign Military Sales (FMS). Implement MDA's information security and declassification programs. Strengthen Test and Operations Security (OPSEC) across the Agency.

The Security and Intelligence Project captures five specific areas: 1) Intelligence 2) Counterintelligence 3) Cybersecurity Engineering 4) Program Protection, and 5) Threat Systems Engineering. Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities; protection of personnel, activities, and technology from espionage and terrorism; and identification and mitigation of MDS system vulnerabilities.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Intelligence	9.541	9.696	8.771
<b>Articles:</b>	-	-	-
<b>Description:</b> The Intelligence program provides expertise to develop intelligence products on threat system capabilities, and leverages unique intelligence-community developed, owned, and operated capabilities for the benefit and advocacy of the missile defense community. Program goals include:			
- Serve as designated intelligence broker between MDA and the Intelligence Community			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>-- Maintain and communicate prioritized, specific Missile Defense intelligence requirements to the Intelligence Community</li> <li>-- Maintain a focused dialogue with members of the Intelligence Community to ensure understanding, urgency and context of MDA intelligence requirements</li> <li>- Provide Current, Technical, Acquisition, Collection and Cyber intelligence to the MDS throughout the acquisition life cycle</li> <li>- Maintain and update MDA's knowledge base of foreign ballistic missile threats, including development, enhancement, and population of the Missile Threat Portals with Intelligence Community produced documents at the appropriate security classification levels</li> <li>- Characterize all missile threat systems from adversaries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the MDS</li> <li>- Maintain Missile Intelligence Secure Link (MISL) classified portal (full operational capability)</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> Counterintelligence</p> <p><b>Articles:</b></p> <p><b>Description:</b> The Counterintelligence Program detects, mitigates or neutralizes espionage, foreign intelligence collection activities and terrorist activities conducted for or on behalf of foreign powers, organizations, persons, or their agents directed against U.S. national security interests, or DoD/MDA and its personnel, information, material, facilities, and activities. Program goals include:</p> <ul style="list-style-type: none"> <li>- Serve as MDA Liaison with Federal, State and Local Law Enforcement and Counterintelligence (CI) Organizations to report and resolve incidents involving MDA personnel, information and technologies</li> <li>-- Engage National, Combatant Command and DoD CI resources to share and obtain threat information impacting MDA personnel, facilities, information, technologies, programs and activities, worldwide</li> <li>-- Provide CI, technical and cyber threat support to MDA flight tests, conferences, and deployment activities worldwide, including FMS Programs, to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and Missile Defense technologies, personnel, facilities and activities</li> </ul>		8.018 -	7.051 -	7.496 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>- Execute life cycle replacement of outdated technical surveillance countermeasures and cyber forensics gear to employ the latest technologies during conferences, flight tests and other classified activities to detect, deter and prevent the loss or compromise of classified or sensitive information to foreign adversary collection activities</li> <li>- Conduct CI in Cyberspace activities to detect malicious and insider threat activities targeting MDA administrative and fire control networks</li> <li>- Conduct MDA Insider Threat Program to identify, deter and mitigate potential insider threats</li> <li>- Provide required CI Awareness and Reporting training to MDA workforce</li> <li>- Provide CI research and assistance for cyber forensics and analysis to identify insider and foreign entity cyber threats to MDA computer networks and Missile Defense fire control systems</li> <li>- Conduct CI research and analysis to produce CI threat products that address foreign intelligence, cyber and international terrorist threats to MDA personnel, facilities, information, systems and activities worldwide</li> <li>- Maintain technical surveillance countermeasures and cyber forensic gear to detect, identify and neutralize adversary collection platforms and capabilities used to gain unauthorized access to MDA classified and controlled unclassified information</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Cybersecurity Engineering Program		3.084	4.413	4.826
		<b>Articles:</b> -	-	-
<p><b>Description:</b> Cybersecurity is focused on developing designs and solutions to protect the MDS from existing and emerging cyber threats through coherent cybersecurity systems engineering. Program goals include:</p> <ul style="list-style-type: none"> <li>- Ensure Cybersecurity is integrated into the Acquisition Process</li> <li>- Assess the Cybersecurity Architecture to address gaps/disconnects, enhance interoperability, and realize efficiencies across all mission systems; define the "As Built" and "To Be" Cybersecurity Systems Engineering concepts to strengthen technical assessments and cybersecurity design solutions and implementation recommendations impacted by the change in requirements</li> <li>-- Develop and coordinate near-term and long-term engineering changes to the MDS</li> <li>-- Develop requirements for building cybersecurity into incremental MDS hardware and software builds</li> <li>-- Monitor allocation of these requirements to the Elements</li> </ul>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>-- Recommend updates to the BMDS Core Standards, including Cyber-related requirements specified by the Agency, the Combatant Commanders (CCMDs), the DoD, and the Federal Government</p> <p>-- Perform cybersecurity systems engineering assessments for proposed BMD System Specification and interface changes and additions</p> <ul style="list-style-type: none"> <li>- Provide and recommend updates to cybersecurity systems engineering policy and guidance for MDS design and acquisition to enhance resiliency against cyber threats</li> <li>- Implement cybersecurity engineering resiliency techniques</li> <li>- Provide objectives and requirements for Cybersecurity testing</li> <li>- Provide independent cybersecurity reviews at critical engineering milestones</li> <li>- Provide information system security engineering by assessing cybersecurity requirements, design, and implementations and provide recommendations to address architecture gaps or shortfalls</li> <li>- Implement cyber threat mitigation strategies within MDS architecture, design, system requirements, and specifications documentation to ensure traceability to necessary components and interfaces that make up the Missile Defense mission</li> <li>- Coordinate evaluation of cybersecurity capability during System tests</li> <li>- Develop verification and assessment strategies for System cybersecurity requirements</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase from FY 2020 to FY 2021 provides required personnel to keep pace with evolving cybersecurity mission.</p>				
<p><b>Title:</b> Program Protection</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Protects Missile Defense information, Critical Program Information, technologies, and deploying systems; develops and coordinates Security Classification Guides; and performs declassification reviews to identify equities that warrant continued protection in order to preserve the technological advantage of the MDS. Program Protection also coordinates MDA intelligence, counterintelligence and security to help MDS test activities. Program goals include:</p> <ul style="list-style-type: none"> <li>- Perform reviews required for all Agency public release, security classification, and FOIA and Mandatory Declassification Reviews to ensure sensitive Missile Defense information is not inadvertently released into the public domain</li> <li>- Perform Information Security program management and oversee implementation by MDA programs</li> </ul>		10.141 -	11.443 -	10.929 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs		<b>Project (Number/Name)</b> MD28 / Intelligence & Security
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>-- Perform internal program reviews, policy oversight and implementation, and training to identify and fix deficiencies and protect critical information</p> <p>-- Collect information required for annual reports and communicate security posture to leadership</p> <p>- Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents</p> <p>- Execute an effective SCRM program to prevent unmitigated risks from degrading the performance of components and systems across the BMDS supply chain</p> <p>- Provide dedicated on-site security and protection of Missile Defense resources and personnel at operational sites in Alaska, California and Colorado to ensure security protection coverage of MDS mission operations and test assets based in those regions</p> <p>- Perform systematic Declassification reviews on historical Agency information to prevent unauthorized disclosures due to automatic declassification requirements</p> <p>- Identify and integrate Physical Security requirements for overseas sites with existing or planned missile defense weapons or sensor systems to ensure protection of deployed sites</p> <p>- Provide effective physical protection to low density/high demand emerging Warfighter capability</p> <p>- Expand security activities to include FMS</p> <p>- Conduct program protection planning for the continuing assessment of candidate critical program information for Advanced Technology programs and reassessment of other MDA programs affected by technical baseline changes; ensure critical technologies embedded in missile defense systems are not vulnerable to compromise</p> <p>- Keep pace with mission growth in program protection, system security engineering, acquisition security, and SCRM</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Threat Systems Engineering		15.844	11.248	10.479
		<b>Articles:</b> -	-	-
<b>Description:</b> Threat Engineering provides representations of adversary missile capabilities based on available intelligence information, and develops, coordinates, and baselines MDS-level targets and countermeasures requirements to define target capabilities required to meet BMDS flight test objectives. Program goals include:				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> <li>- Develop threat definitions for system specifications</li> <li>-- Produce threat / scenario data for MDS development events</li> <li>-- Perform Threat Verification and Validation analysis to verify missile models meet specifications and are consistent with intelligence assessments</li> <li>- Produce Adversary Data Package (ADP) updates</li> <li>- Develop target requirements to ensure flight test targets meet operationally realistic conditions</li> <li>- Produce Target Assessment and Certification Reports</li> <li>- Assess threat representation of flight test targets</li> <li>- Develop target system specifications and guide targets requirements development, planning, and certification for MDS flight tests</li> <li>- Analyze flight test target performance relative to threat intelligence assessments to support target system verification and certification</li> <li>- Provide Technical Data for major reviews (System Requirements Reviews, Critical Design Reviews, etc.)</li> <li>- Complete Target Specification builds</li> <li>- Update MDA INS 5000.06, Target Class Capabilities and Requirements documents as necessary</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	46.628	43.851	42.501

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0305103C: Cyber Security Initiative	0.961	11.138	1.148	-	1.148	1.172	1.194	1.231	1.255	Continuing	Continuing
<b>Remarks</b>											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MD28 / <i>Intelligence &amp; Security</i>
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**D. Acquisition Strategy**

This project leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the Military Services, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution. Products and Services will be acquired by competitive means to the extent that is beneficial and practical.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Intelligence - Intelligence Analysis & Support	Allot	MDA : VA, AL, CO	25.265	4.487	Oct 2018	3.668	Oct 2019	3.903	Oct 2020	-		3.903	Continuing	Continuing	Continuing
Intelligence - Intelligence Support	C/CPFF	TEAMS : AL, VA, CO	25.315	5.054	Nov 2018	5.714	Nov 2019	4.289	Nov 2020	-		4.289	Continuing	Continuing	Continuing
Intelligence - Intelligence Support - IT Maintenance	C/CPFF	Northrop Grumman : AL, CO	2.613	0.000		0.314	Nov 2019	0.579	Nov 2020	-		0.579	Continuing	Continuing	Continuing
Intelligence - Prior year Intelligence Support no longer funded in FYDP	Various	Various : Various	7.770	0.000		0.000		0.000		-		0.000	0.000	7.770	0.000
Counterintelligence - CI Analysis & Support	Allot	MDA : AL, CO, VA	10.508	3.688	Oct 2018	2.788	Oct 2019	2.852	Oct 2020	-		2.852	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support	C/CPFF	TEAMS : AL, CO, VA	19.459	4.067	Nov 2018	3.839	Nov 2019	4.211	Nov 2020	-		4.211	Continuing	Continuing	Continuing
Counterintelligence - CI Surveillance Gear	Various	Various : Various	0.797	0.263	Dec 2018	0.424	Dec 2019	0.433	Dec 2020	-		0.433	Continuing	Continuing	Continuing
Counterintelligence - Prior Year Counterintelligence Support no longer funded in FYDP	C/CPFF	MIDAESS : VA	1.069	0.000		0.000		0.000		-		0.000	0.000	1.069	0.000
Cybersecurity Engineering Program - Cybersecurity - FFRDC	FFRDC	Aerospace : CA, VA	3.663	0.000		0.000		0.000		-		0.000	0.000	3.663	0.000
Cybersecurity Engineering Program - Cybersecurity - FFRDC (2)	FFRDC	MITRE : VA, AL	3.858	0.000		0.000		0.000		-		0.000	0.000	3.858	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Cybersecurity Engineering Program - Cybersecurity Engineering	Allot	MDA : VA, AL	14.153	2.090	Oct 2018	2.058	Oct 2019	2.103	Oct 2020	-		2.103	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering - Hardware	Various	Various : AL, CO, VA	0.000	0.000		1.107	Nov 2019	0.923	Nov 2020	-		0.923	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	TEAMS : VA, AL	3.369	0.994	Nov 2018	1.248	Nov 2019	1.800	Nov 2020	-		1.800	Continuing	Continuing	Continuing
Program Protection - Declassification Analysis	C/CPFF	TEAMS : VA, AL	8.557	1.216	Nov 2018	2.096	Nov 2019	2.436	Nov 2020	-		2.436	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis	Allot	MDA : VA, AL	25.447	4.105	Oct 2018	3.733	Oct 2019	4.956	Oct 2020	-		4.956	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis & Support	C/CPFF	TEAMS : AL, AK, CA, CO, VA	23.540	4.572	Nov 2018	4.821	Nov 2019	3.122	Nov 2020	-		3.122	Continuing	Continuing	Continuing
Program Protection - Program Protection Support	Various	Various : AL, VA, CO	3.312	0.248	Nov 2018	0.793	Nov 2019	0.415	Nov 2020	-		0.415	Continuing	Continuing	Continuing
Threat Systems Engineering - Prior Year Threat Systems Engineering Support no longer funded in FYDP	Various	Various : AL, MD, VA	19.225	0.000		0.000		0.000		-		0.000	0.000	19.225	0.000
Threat Systems Engineering - Threat Systems Engineering	Allot	MDA : VA, AL, CO	19.028	3.557	Oct 2018	3.731	Oct 2019	3.604	Oct 2020	-		3.604	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	TEAMS : VA, AL	9.527	1.782	Nov 2018	4.672	Nov 2019	2.725	Nov 2020	-		2.725	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat	FFRDC	MIT/LL : MA	3.043	1.163	Nov 2018	1.219	Nov 2019	1.660	Nov 2020	-		1.660	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Systems Engineering - FFRDC															
Threat Systems Engineering - Threat Systems Engineering - OGA	MIPR	Various : CA, VA, AL	0.000	7.669	Dec 2018	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - UARC	FFRDC	JHU/APL : MD	3.665	1.673	Nov 2018	1.626	Nov 2019	2.490	Nov 2020	-		2.490	Continuing	Continuing	Continuing
<b>Subtotal</b>			233.183	46.628		43.851		42.501		-		42.501	Continuing	Continuing	N/A

**Remarks**  
NASIC - National Air and Space Intelligence Center

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	233.183	46.628	43.851	42.501	-	42.501	Continuing	Continuing	N/A

**Remarks**  
 Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.  
 Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security
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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 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
MD28 Intelligence & Security	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
ADP - 2019			▲																									
Annual Declassification Review - 2019			▲																									
Adversary Data Package (ADP) - 2020								△																				
MDA OPSEC Report to USD(I) - 2020								△																				
Annual Declassification Review - 2020								△																				
Annual Report to Congress for SAPs (FY 2020)								△																				
Annual Report to Congress for SAPs (FY 2021)												△																
ADP - 2021												△																
Annual Declassification Review - 2021												△																
Annual Report to Congress for SAPs (FY 2022)																△												
ADP - 2022																△												
MDA OPSEC Report to USD(I) - 2022																△												
Annual Declassification Review - 2022																△												
Annual Report to Congress for SAPs (FY 2023)																				△								
ADP - 2023																				△								
Annual Declassification Review - 2023																				△								
ADP - 2024																				△								
MDA OPSEC Report to USD(I) - 2024																				△								
Annual Declassification Review - 2024																				△								
Annual Report to Congress for SAPs (FY 2024)																								△				
ADP - 2025																								△				
Annual Declassification Review - 2025																								△				
Annual Report to Congress for SAPs (FY 2025)																											△	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD28 / Intelligence & Security

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD28 Intelligence & Security	1	2019	4	2025
ADP - 2019	3	2019	3	2019
Annual Declassification Review - 2019	4	2019	4	2019
Adversary Data Package (ADP) - 2020	4	2020	4	2020
MDA OPSEC Report to USD(I) - 2020	4	2020	4	2020
Annual Declassification Review - 2020	4	2020	4	2020
Annual Report to Congress for SAPs (FY 2020)	4	2020	4	2020
Annual Report to Congress for SAPs (FY 2021)	4	2021	4	2021
ADP - 2021	4	2021	4	2021
Annual Declassification Review - 2021	4	2021	4	2021
Annual Report to Congress for SAPs (FY 2022)	4	2022	4	2022
ADP - 2022	4	2022	4	2022
MDA OPSEC Report to USD(I) - 2022	4	2022	4	2022
Annual Declassification Review - 2022	4	2022	4	2022
Annual Report to Congress for SAPs (FY 2023)	4	2023	4	2023
ADP - 2023	4	2023	4	2023
Annual Declassification Review - 2023	4	2023	4	2023
ADP - 2024	1	2024	1	2024
MDA OPSEC Report to USD(I) - 2024	1	2024	1	2024
Annual Declassification Review - 2024	1	2024	1	2024
Annual Report to Congress for SAPs (FY 2024)	4	2024	4	2024
ADP - 2025	1	2025	1	2025
Annual Declassification Review - 2025	1	2025	1	2025

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MD28 / <i>Intelligence &amp; Security</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
Annual Report to Congress for SAPs (FY 2025)	4	2025	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD30: BMD Information Management Systems	488.004	76.997	84.525	84.753	-	84.753	85.475	80.309	81.248	83.249	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

The BMD Information Management Systems budget project funds information technology mission critical functions necessary for the efficient operations and safeguarding of BMD information in compliance with DoD policies and in keeping with the President's declaration on 29 May 2009, "cyber threat is one of the most serious economic and national security challenges we face as a nation". IT is critical to the day-to-day functions of MDA personnel to communicate (classified and unclassified) with each other, Congress, senior DoD and other U.S. government agency personnel, Combatant Commander's, NATO partners, and other industry partners. Communication among these organizations facilitates the MDA mission of developing and fielding an integrated BMDS to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight.

MDA information management systems capabilities support rigorous missile defense Research, Development, Test and Engineering (RDT&E) and facilitate the development of technologies to guard against evolving missile threat. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The BMD information management consists of MDA Special Purpose Processing Nodes (SPPNs), IT systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. This infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Non secure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, and the Defense Research Engineering Network (DREN). These mission critical functions provide for the efficient operation and safeguarding of all agency information in locations supporting MDA around the world.

Project MD30 is aligned into the following inter-agency mission critical IT services and the associated plans in accordance with the Federal Information Technology Shared Services Strategy.

1. End User Support
2. Special Purpose Processing Nodes (SPPNs)
3. IT Planning and Solutions
4. Unified Communications
5. Portal and Data Services
6. Business Automation Services

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Title:</b> End User Support</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides IT operations, support and maintenance (24 hours a day, 7 days a week, 365 days a year) to over 10,500 MDA worldwide users (classified and unclassified) executing the Research, Development, Test and Engineering (RDT&amp;E) mission. Services include Integrated Service Desk support (Help Desk and Client Support Services); management of hardware and software maintenance and licensing; and monitoring network activity to ensure users comply with DoD policies for the proper use of information systems. Services also include printing and copying; email and file; directory and authentication services. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Provides life-cycle management of over 190,000 IT assets including IT procurement, receiving, shipping/transportation, warehousing, transfers and disposal using the Defense Property Accountability System (DPAS).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>	17.809	21.076	21.476
	-	-	-
<p><b>Title:</b> Special Purpose Processing Nodes (SPPN)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides for the developmental engineering and operational strategies and concepts; and planning, design, implementation and maintenance for MDA Research, Development, Test and Evaluation (RDT&amp;E) Special Purpose Processing Nodes (SPPNs) in Huntsville, AL and Colorado Springs, CO. The SPPN infrastructure consists of routers, switches, firewalls, compute, storage and intrusion detection systems that provide IT support to over 10,500 MDA classified/unclassified users worldwide. The SPPNs support dynamic and rapid modifications and reconfigurations of network infrastructure in support of RDT&amp;E mission and event unique configurations. Funds provide for network operations and performance monitoring; development of detailed solutions, designs, and plans; Disaster Recovery and Continuity of Operations (DR and COOP) rehearsals; Internet access management; and web filtering. Sustains core communications distribution services across the MDA Enterprise. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Plan, engineer and implement sustainment projects for general IT services and business systems consistent with the IT architecture roadmap.</p>	10.964	11.632	4.340
	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 reflects a labor realignment from SPPN to the Unified Communications and the Portal and Data Services accomplishments for greater visibility and to align with new contract structure.</p>				
<p><b>Title:</b> Information Technology (IT) Planning and Solutions</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides IT engineering support for new requirements analysis, design, planning and implementation of IT solutions for real-world issues. Addresses the increasing demand for more complex IT products and highly specialized IT services. Manages the prioritization and integration of investments in the MDA IT Portfolio to ensure compliance with Federal and DoD polices. Supports the MDA Chief Information Officer Enterprise Architecture Board, Project Steering Committee and the Change Control Board. Ensures compliance with Federal Laws, DoD policies, directives and regulations including: Clinger-Cohen Act, the Federal Information Security Management Act (FISMA), and Office of Management and the Office of Management and Budget (OMB) IT budget reporting policies.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>		14.431	12.893	13.181
		-	-	-
<p><b>Title:</b> Unified Communications</p> <p align="right"><b>Articles:</b></p>		16.973	18.667	23.187
		-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
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**Description:** Provides for the management, operations and sustainment of classified and unclassified globally deployed video teleconferencing capabilities and equipment. Also includes unclassified desktop instant messaging, wireless services, and collaboration capabilities. Provides and implements engineering solutions for all unified communications services. Supports MDA global RDT&E mission for classified and unclassified voice and data circuits (wide area, local area and metropolitan area networks) and interfaces with the Defense Information System Network (DISN) Video Services Global (DVSG), the Defense Research and Engineering Network (DREN), Joint Service Provider (JSP) and commercial vendors. Maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and desktop telephony devices).

Specific and/or unique accomplishments to each FY are as follows:

**FY 2020 Plans:**

-SEE ABOVE.

**FY 2021 Plans:**

-SEE ABOVE.

**FY 2020 to FY 2021 Increase/Decrease Statement:**

Increase from FY 2020 to FY 2021 reflects a labor realignment from the SPPN accomplishment to this accomplishment for greater visibility and to align with new contract structure.

<b>Title:</b> Portal and Data Services	7.565	9.742	14.431
<b>Articles:</b>	-	-	-

**Description:** Provides for the management, operation and maintenance support for the classified and unclassified MDA Portal application and the IT portal infrastructure. The support includes web-based developmental engineering and operations, planning, design, application implementation, content management and training. Also provides MDA Privacy Office and Civil Liberties compliance and reporting, and manages data storage capacity to accommodate MDA users.

Specific and/or unique accomplishments to each FY are as follows:

**FY 2020 Plans:**

-SEE ABOVE.

**FY 2021 Plans:**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
-SEE ABOVE.			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Increase from FY 2020 to FY 2021 reflects a labor realignment from the SPPN and Business Automations accomplishments to this accomplishment for greater visibility and to align with new contract structure.			
<b><i>Title:</i></b> Business Automation Services	9.255	10.515	8.138
<b><i>Articles:</i></b>	-	-	-
<b><i>Description:</i></b> Provides for the management, operation and maintenance of enterprise business applications for the MDA community to access and share various sources of available data, information and knowledge and enable improved organization, retrieval, manipulation, and storage. Operate and maintain nine Defense Business Systems that meet the reporting requirements of Title 10 United States Code section 2222; these include portal-based Electronic Learning Management System (E-LMS), Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Human Resource Tracking System/Personnel Tracking System (HRTS/PTS), TEAMMATE, E-TASKER, TASK MANAGEMENT TOOL (TMT) , Electronic Content and Records Tool (ECART).			
Specific and/or unique accomplishments to each FY are as follows:			
<b><i>FY 2020 Plans:</i></b> -SEE ABOVE.			
<b><i>FY 2021 Plans:</i></b> -SEE ABOVE.			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Decrease from FY 2020 to FY 2021 reflects a labor realignment to the Portal and Data Services accomplishment for greater visibility and to align with new contract structure.			
<b>Accomplishments/Planned Programs Subtotals</b>	76.997	84.525	84.753

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603176C: <i>Advanced Concepts and Performance Assessment</i>	12.720	46.201	14.910	-	14.910	15.178	16.205	16.879	17.300	Continuing	Continuing
• 0603178C: <i>Weapons Technology</i>	13.400	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems
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**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2019	FY 2020	FY 2021	FY 2021	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0603180C: <i>Advanced Research</i>	42.100	27.674	18.687	-	18.687	18.883	18.975	19.720	20.222	Continuing	Continuing
• 0603294C: <i>Common Kill Vehicle Technology</i>	55.549	13.600	11.058	-	11.058	10.996	11.052	11.290	11.563	Continuing	Continuing
• 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>	383.369	306.761	412.627	-	412.627	340.071	302.279	204.986	227.970	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	790.316	1,303.716	1,004.305	-	1,004.305	776.125	726.566	767.592	1,068.536	Continuing	Continuing
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	382.759	352.288	281.957	-	281.957	576.699	656.539	574.703	593.592	Continuing	Continuing
• 0603892C: <i>AEGIS BMD</i>	724.731	737.269	814.936	-	814.936	674.825	553.402	478.000	449.145	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	500.965	549.756	593.353	-	593.353	593.330	546.471	581.376	543.971	Continuing	Continuing
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	48.401	51.532	49.560	-	49.560	51.735	51.059	53.133	54.023	Continuing	Continuing
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	51.689	56.161	55.356	-	55.356	55.721	57.457	59.798	61.334	Continuing	Continuing
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	125.900	128.156	118.318	-	118.318	135.931	131.510	145.582	169.980	Continuing	Continuing
• 0603913C: <i>Israeli Cooperative Programs</i>	300.000	300.000	300.000	-	300.000	300.000	300.000	300.000	300.000	Continuing	Continuing
• 0603914C: <i>Ballistic Missile Defense Test</i>	510.292	399.738	378.302	-	378.302	385.910	396.524	394.949	417.261	Continuing	Continuing
• 0603915C: <i>Ballistic Missile Defense Targets</i>	561.349	542.939	536.133	-	536.133	593.939	519.028	520.625	540.675	Continuing	Continuing
• 0604880C: <i>Land Based SM-3 (LBSM3)</i>	25.200	38.352	56.628	-	56.628	43.742	29.073	31.507	27.908	Continuing	Continuing
• 0901598C: <i>Management HQ - MDA</i>	28.626	27.065	26.902	-	26.902	26.708	26.364	26.495	27.036	Continuing	Continuing

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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**Remarks**

**D. Acquisition Strategy**

This acquisition strategy to provide IT services for MDA consists of three MDA issued contracts. The Integrated Research and Development for Enterprise Solutions (IRES) provides IT design, engineering, implementation and sustainment services. The Research and Development Enterprise Collaboration Services (RECS) provides Video Teleconferencing, Portal, Data and Business Automation Services. MDA issues multiple Military Interdepartmental Purchase Requests (MIPRs) for leased communications including the Defense Information Systems Agency (DISA), DREN and the US Army.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
End User Support - End User Consolidated Support Logistics/Asset Mgmt	C/CPFF	Venturi : AL, CO	0.000	0.514	Nov 2018	0.383	Nov 2019	0.350	Nov 2020	-		0.350	Continuing	Continuing	Continuing
End User Support - End User IT Software & Licenses	MIPR	Accenture : AL, AK, CA, CO, HI, NM, VA	0.000	0.000		0.000		0.982	Aug 2021	-		0.982	Continuing	Continuing	Continuing
End User Support - End User Civilian Pay	Allot	MDA Civilian Pay : AL, CO, NM, VA	18.046	3.117	Oct 2018	1.881	Oct 2019	2.835	Oct 2020	-		2.835	Continuing	Continuing	Continuing
End User Support - End User IT Hardware Support	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	37.313	4.640	Nov 2018	6.630	Nov 2019	4.944	Nov 2020	-		4.944	Continuing	Continuing	Continuing
End User Support - End User IT Software / Licenses	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	13.581	3.772	Nov 2018	5.710	Nov 2019	6.412	Nov 2020	-		6.412	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	50.929	5.766	Oct 2018	6.472	Oct 2019	5.953	Oct 2020	-		5.953	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPN) - SPPN Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	7.255	1.326	Oct 2018	0.506	Oct 2019	1.041	Oct 2020	-		1.041	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPN) - SPPN Licenses	C/CPAF	Jacobs Engineering : AL, CO, VA	73.837	6.525	Nov 2018	9.000	Nov 2019	1.984	Nov 2020	-		1.984	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Special Purpose Processing Nodes (SPPN) - SPPN Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	70.410	3.113	Jan 2019	2.126	Jan 2020	1.315	Jan 2021	-		1.315	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	6.377	1.823	Oct 2018	1.783	Oct 2019	1.539	Oct 2020	-		1.539	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Consolidated Support	C/CPFF	Five Stones, Yorktown, Peopletec : AL, CO, VA	20.811	6.675	Aug 2019	7.707	Aug 2020	6.764	Aug 2021	-		6.764	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	38.783	1.937	Mar 2019	0.503	Mar 2020	2.478	Mar 2021	-		2.478	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions SWDC PNT	C/CPFF	Northrup Grumman : AL, CO, VA	0.000	3.996	Mar 2019	2.900	Oct 2019	2.400	Mar 2021	-		2.400	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Civilian Travel / PCS	Allot	MDA Civilian Travel : AI, CO, VA	0.000	0.000		0.000		0.200	Oct 2020	-		0.200	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Civilian Pay	Allot	MDA Civilian Pay : AI, CO, VA	6.421	0.994	Oct 2018	2.023	Oct 2019	0.996	Oct 2020	-		0.996	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Hardware Licenses	C/CPIF	Jacobs Engineering : AL, CO, VA	1.800	0.736	Nov 2018	1.850	Nov 2019	1.392	Nov 2020	-		1.392	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	21.481	6.305	Oct 2018	3.334	Oct 2019	7.008	Oct 2020	-		7.008	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 0603890C / BMD Enabling Programs						MD30 / BMD Information Management Systems					
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Unified Communications - Unified Communications Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	10.970	1.126	Dec 2018	2.037	Oct 2019	2.671	Dec 2020	-		2.671	Continuing	Continuing	Continuing
Unified Communications - Unified Communications VTC Operations Support	C/CPIF	Network Management Resources : AL, AK, CO, NM, VA	34.413	5.814	Apr 2019	5.464	Nov 2019	8.767	Apr 2021	-		8.767	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Wireless Services	C/FFP	AT&T : AL, CO, VA	5.603	1.998	Nov 2018	1.983	Nov 2019	2.153	Oct 2020	-		2.153	Continuing	Continuing	Continuing
Unified Communications - VTC HW/Break-Fix	C/CPIF	Network Management Resources : AL, CO, VA	1.209	0.000		1.976	Nov 2019	0.000		-		0.000	0.000	3.185	0.000
Portal and Data Services - Portal and Data Services Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	5.228	0.829	Oct 2018	1.686	Oct 2019	0.831	Oct 2020	-		0.831	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	2.257	0.417	Oct 2018	0.455	Oct 2019	0.350	Oct 2020	-		0.350	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	Network Management Resources : AL, CO, VA	20.343	4.658	Apr 2019	5.801	Apr 2020	6.200	Apr 2021	-		6.200	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operations and Support	C/CPAF	Jacobs Engineering : AL, CO, VA	10.216	1.661	Jan 2019	1.800	Jan 2020	7.050	Jan 2021	-		7.050	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay	Allot	MDA Civilian Pay : AL, CO, VA	3.513	0.331	Oct 2018	0.506	Oct 2019	0.331	Oct 2020	-		0.331	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Jacobs Engineering : AL, CO, VA	5.449	0.972	Nov 2018	0.991	Nov 2019	0.000		-		0.000	0.000	7.412	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
0400 / 4				PE 0603890C / BMD Enabling Programs				MD30 / BMD Information Management Systems							
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Business Automation Services - Business Automation Operational Support	C/CPAF	Jacobs Engineering : AL, CO, VA	21.657	7.930	Jan 2019	9.018	Jan 2020	7.807	Jan 2021	-		7.807	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Services Support	MIPR	CACI : AL, CO, VA	0.102	0.022	Mar 2019	0.000		0.000		-		0.000	0.000	0.124	0.000
<b>Subtotal</b>			488.004	76.997		84.525		84.753		-		84.753	Continuing	Continuing	N/A
<b>Remarks</b>															
N/A															
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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															
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2021 Missile Defense Agency								<b>Date:</b> February 2020					
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems					
	<b>Prior Years</b>	<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	488.004	76.997		84.525		84.753		-		84.753	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 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems
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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 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025			
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Operate, Monitor and Sustain Recurring Operations for Video Conferencing for Unified Communications Follow-On				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD30 / BMD Information Management Systems

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	1	2019	4	2025
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	1	2019	4	2025
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	1	2019	4	2025
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	1	2019	4	2025
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	1	2019	4	2025
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	1	2019	4	2025
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	1	2019	4	2025
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	1	2019	4	2025
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	1	2019	4	2025
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	1	2019	4	2025
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	1	2019	4	2025
Operate, Monitor and Sustain Recurring Operations for Video Conferencing for Unified Communications Follow-On	1	2020	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MC30 / Cyber Operations			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MC30: <i>Cyber Operations</i>	62.165	97.405	117.100	64.659	-	64.659	67.264	68.130	69.815	71.257	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from FY 2020 to FY 2021 reflects the FY 2020 Congressional add for Cyber Enhancements. FY 2021 and the outyears represent the steady state Cyber profile.

Accomplishments map to the Office of Management and Budget (OMB) and Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy including 1) Preventing Malicious Activity, 2) Detect, Analyze and Mitigate Intrusions, 3) Planning, Policy Development and Workforce Management, 4) Continuous Monitoring and 5) Outside Federal Outreach, Defense Industrial Base.

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

A number of key IT strategies were identified in the DoD Information Technology Enterprise Strategy and Roadmap issued by the Deputy Secretary of Defense in 2011. The IT Roadmap specifically addresses the need to improve Cybersecurity. It states that DoD networks are under constant attack from cybersecurity threats launched from various sources. MDA must meet the National Command Authority Directives for rapid deployment of the BMDS while complying with the key principles of the Cybersecurity standards to ensure MDA remains a secure member of the DoD Information Network (DODIN).

DoD Instruction 8500.01 Cybersecurity issued in March 2014, requires continuous monitoring, data analysis, reporting and incident mitigation of DoD classified and unclassified, mission, test and administrative networks. To comply with the Instruction, MDA must implement a multi-tiered cybersecurity risk management capability to protect critical BMD data and systems from rapidly evolving internal and external threats.

The issuance of DoD Instruction 8510.01, Risk Management Framework (RMF) Information Technology in March 2014 requires additional resources to implement, manage, monitor and report as a result of a thirty-five percent increase in controls (237 controls with 817 enhancements). DoD 8510.01 also states that resources for implementing the RMF must be identified and allocated as part of the Defense planning, programming, budgeting, and execution process. The Controls must be tested on all IT supporting research, development, test and evaluation and DoD-controlled IT operated by a contractor or other entity on behalf of DoD and reported.

This project provides funds to sustain the Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Systems Security Officer (PM/ISSO) Plan of Action and Milestones (POA&M) for the MDA mission, test and administrative systems. Maintains the Certification and Accreditation (C&A) data repository, capturing the RMF documentation (artifacts, validation results, and Cybersecurity Risk Assessment results, and Authorizing Official (AO) accreditation decisions) and POA&M on all MDA information systems. Supports the monitoring and tracking of Cybersecurity mitigations detailed in IT security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA PM/ISSO and AO. Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the Project are necessary to comply with Federal Information Security Management Act (FISMA).

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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This project funds the MDA Global Network Operations Security Center(GNOSC)formerly MDA Security Operations Center (SOC), responsible for monitoring, managing, patching, and maintaining MDA network and core IT services; issuing and tracking Technical Compliance Orders; and coordinating overarching Enterprise NetOps. The GNOSC provides the network security operations centers and supporting processes to protect and defend BMDS and the MDA Enterprise information and information systems.

The MDA Computer Emergency Response Team (CERT) monitors the classified and unclassified information technology MDA administrative IT networks and reports vulnerabilities. The MDA CERT coordinates with U.S. Cyber Command to identify and implement network vulnerability updates and patches to comply with U.S. Cyber Command vulnerabilities identified for DoD networks.

The project funds Cybersecurity governance management and administrative management support, annual Agency-wide computer-based IA training and metrics reporting, implementation of Public Key Infrastructure and Enabling and Communication and Security (COMSEC) related activities.

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

	FY 2019	FY 2020	FY 2021
<p><b>Title:</b> Preventing Malicious Cybersecurity Activity</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provide: Federal Information Security Management Activity Act (FISMA)-related activities; Intrusion Prevention Systems; Trusted Internet Connections; Identity Management and Authentication; Supply Chain Management; Network &amp; Data Protection and Insider Threat Mitigation Activities. This effort includes integration and test capabilities for element interface verification and provide operations and sustainment of the deployed PNT Last Mile integration capabilities at BMDS locations.</p> <p>Recurring Activities to Preventing Malicious Cyber Attacks: -Maintain a current Information Assurance risk and residual risk assessment of the BMDS. -Coordinate all IT projects and remote sites to ensure Cybersecurity compliance. -Implement methodologies and goals to identify insecure and unauthorized vectors of access to networks or applications, analyze the threat, attempt to exploit the vectors and confirm existence and analyze the risk for exploiting an application, network or service. -Track ports, protocols, and services. -Coordinate with private partnerships to ensure the Defense Industrial Base protects MDA data.</p> <p><b>FY 2020 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>	<p>18.738</p> <p align="center">-</p>	<p>20.080</p> <p align="center">-</p>	<p>16.544</p> <p align="center">-</p>

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
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- Decrease from FY 2020 to FY 2021 reflects labor realignment to the Planning, Policy Development, Workforce Training and Force Management, and Continuous Monitoring accomplishments within this budget project for greater visibility and to align with new contract structure.

<b>Title:</b> Planning, Policy Development, Workforce Training and Force Management	3.017	3.243	4.164
<b>Articles:</b>	-	-	-

**Description:** Provide National Initiative for Cybersecurity Education (NICE); Workforce Development; Security Training for Employees with Significant Security Responsibilities; and Cybersecurity Strategic Planning, Policy, Oversight and Management.

Specific and/or unique accomplishments to each FY are as follows:

- Recurring Activities for the Planning, Policy Development, Workforce Training and Force Management Accomplishment:
- Document and maintain Standard Operating Instructions/Procedures for consistent interface with the MDA BMDS Network Operations Support Center (BNOSC) and the BMDS elements.
  - Publish MDA policies to incorporate new requirements stated in DoDI 8510.01 Risk Management Framework (RMF) to comply with 237 new controls and 817 control enhancements into controls validation testing of BMDS elements and networks.
  - Manage the Information Assurance Workforce Improvement Program to certify Cybersecurity professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and Information Assurance Workforce Improvement Program (DoD Manual 8570.1), achieving the DoD certification goal; reports IA Risk Assessments, Primary RMF artifacts.
  - Interface with United States Central Command (USCENTCOM) to provide BMDS Mission RMF package.
  - Conduct an annual IA Security review of the BMDS in accordance with DoDI 8510.01 and provide an analysis of changes in IA posture.
  - Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA CIO, MDA leadership, and U.S. Cyber Command.
  - Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs.

Specific and/or unique accomplishments to each FY are as follows:

**FY 2020 Plans:**  
-SEE ABOVE.

**FY 2021 Plans:**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
-SEE ABOVE.				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> - Increase from FY 2020 to FY 2021 reflects labor realignment from the Preventing Malicious Cybersecurity Activity within this budget project for greater visibility and to align with new contract structure.				
<b>Title:</b> Continuous Monitoring		5.134	7.495	8.230
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide IT Security Tools and Other Continuous Monitoring.  Recurring Activities for the Continuous Monitoring Accomplishment: -Manage data-at-rest encryption to ensure compliance with Global Information Grid mandated policies. -Procure/renew cybersecurity software maintenance agreements for IT Security Tools. -Procure/renew cybersecurity hardware maintenance for hardware.  Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2020 Plans:</b> -SEE ABOVE. <b>FY 2021 Plans:</b> -SEE ABOVE. <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A				
<b>Title:</b> Detect, Analyze and Mitigate Intrusions		70.350	86.115	35.550
<b>Articles:</b>		-	-	-
<b>Description:</b> Provide cybersecurity activities including: Federal Incident Response Centers; National Institute of Standards for Technology (NIST) SP 800.53 Implementation; Cyber Threat Analysis; Cyber Continuity of Operations (COOP); Incident Response and Remediation; Forensics and Damage Assessment; and Computer Emergency Response Teams. Specific and/or unique accomplishments to each FY are as follows:  Recurring Activities for the Detect, Analyze and Mitigate Intrusions Accomplishment: -Test Risk Management Framework (RMF) controls on all IT supporting research, development, test and evaluation and DoD-controlled IT operated by a contractor or other entity on behalf of DoD and reported.				



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
- Decrease from FY 2020 to FY 2021 reflects FY 2020 Congressional Plus Up for Cyber Security Enhancements and a one-time investment for the build-out of a BMDS Tier II Cyber Security Service Provider and replacement of non-compliant IT infrastructure.			
<b>Title:</b> Outside Federal Outreach - Defense Industrial Base	0.166	0.167	0.171
<b>Articles:</b>	-	-	-
<b>Description:</b> Review current Cybersecurity Policies and coordinating with MDA Ballistic Missile Defense System (BMDS) Programs to ensure all applicable Cybersecurity clauses are included into MDA contracts with MDA Industry partners in the Defense Industrial Base (DIB) to ensure protection of BMDS Controlled Unclassified Information (CUI).			
Specific and/or unique accomplishments to each FY are as follows:			
<b>FY 2020 Plans:</b> -SEE ABOVE.			
<b>FY 2021 Plans:</b> -SEE ABOVE.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	97.405	117.100	64.659

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

N/A

**Remarks**

**D. Acquisition Strategy**

The Integrated Research and Development for Enterprise Solutions (IRES) provides IT design, engineering, implementation and sustainment services.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Preventing Malicious Cybersecurity Activity - COMSEC	MIPR	National Security Agency : AL, CO, VA	0.000	0.000		0.200	Mar 2020	0.221	Apr 2021	-		0.221	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Civilian Pay	Allot	Civilian Pay : AL, CO, VA, NM	1.740	1.740	Mar 2019	1.408	Oct 2019	1.649	Oct 2020	-		1.649	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Consolidated Support CSM	C/CPFF	Booze, Allen & Hamilton : AL, CO, VA	0.570	0.904	Mar 2019	0.701	Mar 2020	0.000		-		0.000	0.000	2.175	0.000
Preventing Malicious Cybersecurity Activity - Cyber CSS	C/CPAF	Jacobs Engineering : AL, COL, VA	7.411	16.094	Jan 2019	17.771	Jan 2020	14.674	Nov 2020	-		14.674	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training and Force Management - A&AS Cyber BMDS CSM/CND	C/CPFF	Booze, Allen & Hamilton : AL, CO, VA	2.672	1.779	Mar 2019	1.815	Aug 2020	3.048	Nov 2020	-		3.048	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training and Force Management - Civilian Pay	Allot	Civilian Pay : AL, CO, NM, VA	1.212	1.238	Oct 2018	1.428	Oct 2019	1.116	Oct 2020	-		1.116	0.000	4.994	0.000
Continuous Monitoring - Continuous Monitoring - IT Security Tools	C/CPAF	Jacobs Engineering : AL, CO, VA	7.032	5.134	Jan 2019	7.495	Jan 2020	8.230	Jan 2021	-		8.230	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Detect, Analyze and Mitigate Intrusions - A&AS, BMDS CSM/CND	C/CPFF	Booze, Allen & Hamilton : AL, CO, VA	1.140	1.452	Mar 2019	1.390	Aug 2020	2.489	Aug 2021	-		2.489	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, Cyber Risk Mgmt	C/CPFF	Decisive Analytics Corporation : AL, CO, VA	2.856	3.916	Mar 2019	3.904	Mar 2020	3.985	Mar 2021	-		3.985	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Pay	Allot	Civilian Pay : AL, CO, NM,, VA	3.255	2.320	Oct 2018	2.823	Oct 2019	2.267	Oct 2020	-		2.267	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Travel / PCS	Allot	Civilian Travel : AL, CO, NM,, VA	0.000	0.000		0.000		0.200	Oct 2020	-		0.200	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber CSS	C/CPAF	Jacobs Engineering : AL, CO, VA	34.277	55.437	Jan 2019	71.998	May 2020	26.609	Jan 2021	-		26.609	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber Customer Support	C/CPAF	Network Management Resources : AL, CO, VA	0.000	6.775	Sep 2019	2.000	Mar 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Network/System assessment and authorization contract support services	C/FFP	Booze, Allen & Hamilton, : VA	0.000	0.450	Feb 2019	4.000	Feb 2020	0.000		-		0.000	Continuing	Continuing	Continuing
Outside Federal Outreach - Defense Industrial Base - Civilian Pay	Allot	MDA Civilian Pay : AL, CO, NM, VA	0.000	0.166	Oct 2018	0.167	Oct 2019	0.171	Oct 2020	-		0.171	Continuing	Continuing	Continuing
<b>Subtotal</b>			62.165	97.405		117.100		64.659		-		64.659	Continuing	Continuing	N/A

**Remarks**  
N/A

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	62.165	97.405	117.100	64.659	-	64.659	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 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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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 2019			FY 2020			FY 2021			FY 2022			FY 2023			FY 2024			FY 2025		
	◆	◆	◆																		
PNT Test Capabilities	◆	◆	◆																		
PNT Operations and Maint	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC30 / Cyber Operations
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
PNT Test Capabilities	2	2019	4	2019
PNT Operations and Maint	1	2019	4	2023
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	1	2019	4	2025
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On	1	2019	4	2025
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	1	2019	4	2025
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	1	2019	4	2025
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	1	2019	4	2025
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	1	2019	4	2025
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	1	2019	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD31 / Modeling & Simulation			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD31: <i>Modeling &amp; Simulation</i>	267.102	79.982	88.487	107.710	-	107.710	88.557	77.761	70.661	69.913	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2020 to FY 2021 provides software development and testing for the End-to-end Digital Integrated System-level Simulation Early Digital Product, and planning and requirements determination for the Full Digital Product.

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

MDA's Modeling and Simulation (M&S) program is essential to ensuring missile defense capabilities are affordable and effective. M&S develops system-level models, frameworks, truth, simulations, and operational environments as missile defense technologies continually advance and the threat changes, and evaluates performance of the Elements, Components, and overall BMD System for verification, validation and accreditation purposes. MDA's M&S program provides a cost effective means to assess and examine Missile Defense performance space beyond what can be physically tested under current test range conditions and within the Agency's fiscal constraints. M&S future concept simulation activities provide the capability to design and develop technologies to hedge against future missile threats. MDA's M&S systems and products provide analysis, decision-making, and planning capabilities for Real-World Operations to inform the National Command Authority, Joint Staff, Military Services, NATO, Combatant Commanders (CCMDs), Operational Test Authority (OTAs), Director of Operational Test & Evaluation (DOT&E), and Allies.

The strategy of MDA's M&S Program is 1) to execute a single, integrated, and synchronized program to manage M&S development and sustainment, 2) to improve System Flight and Ground Test execution, 3) to leverage MDA test activities to collect data to anchor M&S, and 4) to perform Warfighter training and tactics validation. The strategy also incorporates key elements to address DOT&E's BMDS Assessment Report: Ensure that future M&S architectures are composable and flexible, and simplify the integration process to conserve resources and improve capabilities; Ensure that future M&S architectures incorporate and require the use of consistent truth representations (phenomenology, lethality, environmental factors, threat simulations, etc.); Improve cross-organizational system engineering processes to optimize requirements generation and ensure the inclusion of all stakeholders; Develop refined M&S accreditation criteria between MDA and the OTA.

MDA's M&S Program consists of system and product planning, development, integration, and operation; threat model development, verification, and analysis; and integration and deployment of MDA's distributed real-time Hardware-in-the-Loop (HWIL) and digital M&S simulation capabilities. Models and simulations are tailored to the specific needs of the Agency's test events and to match MDS components in their various stages of development, ranging from low-to-medium fidelity analyses supporting concept definitions studies, to high-fidelity models used to support engineering level activities. MDA validates and accredits System-level models and simulations by anchoring them to ground and flight test events, per the Integrated Master Test Plan (IMTP), to enable accurate and comprehensive assessments.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> M&S Requirements, Design Support, Scenario Optimization	12.950	12.340	10.869
<b>Articles:</b>	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
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<p><b>Description:</b> This activity provides the integrated program lifecycle planning and requirements definition of all MDS M&amp;S models and capabilities to enable assessment of capability deliveries. M&amp;S capability development executes an integrated, synchronized program to manage M&amp;S development in support of MDS development, testing, and assessment. The following actions are required on a continuing basis to accomplish the M&amp;S lifecycle planning and requirements definition mission:</p> <ul style="list-style-type: none"> <li>- Maintain traceability between the M&amp;S Systems Requirements Documents and M&amp;S product development</li> <li>- Produce capability documents and specifications for M&amp;S product development to enable System flight and HWIL tests, training events, exercises, wargames, concept evaluation and development engineering</li> <li>- Support MDA response to export requests for M&amp;S software and technical data to nations or international organizations</li> <li>- Participate in Technical Interchange Meetings and provide support for bilateral agreements with allies and partners</li> <li>- Support system engineering capability trades for all BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach and Homeland Defense)</li> <li>- Continue the transition to replace the Single Stimulation Framework (SSF) with the Objective Simulation Framework (OSF) to support M&amp;S Intended Uses</li> <li>- Provide integrated program lifecycle planning and scheduling of all System-level M&amp;S models and capabilities to enable assessment of capability deliveries for Homeland and Regional Defense</li> <li>- Execute M&amp;S planning, development, framework and test integration and operation; threat model development, verification, and analysis; and integration and deployment of MDA's distributed real-time Hardware-in-the-Loop (HWIL) and digital M&amp;S simulation capabilities</li> <li>- Develop/sustain models and simulations tailored to the specific needs of the Agency's test events; match MDS components in their various stages of development or sustainment as required for the test venue</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>			
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<b>Title:</b> BMDS Simulations & Tools	11.690	12.585	13.437
<b>Articles:</b>	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MD31 / <i>Modeling &amp; Simulation</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
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**Description:** This activity funds the development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for Missile Defense performance assessments, Warfighter events, and BMD International Simulation events. The following actions are required on a continuing basis:  
 Event Integration/Support Operations:

- Deliver integrated architecture instantiations of the MDS to support Performance Assessments and integration of new capabilities into the Operational Capability Baseline
- Integrate, test, and verify the M&S enterprise supporting System-level testing, assessment, exercises, and wargaming, including testing infrastructure
- Integrate, test, functionally qualify, and deliver M&S tools and complex test architectures to provide system test capabilities to support MDA IMTP based test events, wargames, and exercises
- Continue the transition of real-time digital simulation capability to OSF to support Intended Uses
- Maintain simulations for Element M&S development laboratories used in the BMDS Integration & Development Lab and Digital M&S Integration Center (DMIC) in Huntsville, AL and in the MDIOC Simulation Center
- Conduct integration, testing and system-level verification per the digital System Requirements Document (SRD); operate the testbed to mature the OSF-based digital system simulation
- Provide Event Integration Support for non-MDA Missile Defense component and weapon system models for use in MDA test and validation events
- Provide HWIL/M&S benchmarking/integration, documentation and coordination; sustain, integrate and execute ground tests, and Exercises/Wargames
- Provide communications emulation (MTJ, STJ, and Link-16) and network analysis support via the Tactical Communications Environment Segment (TCES) for use in IMTP events, HWIL System Post Flight Reconstructions (SPFRs) and HWIL System Pre Mission Tests (SPMTs)
- Perform operational planning for planned MDS assessment events
- Conduct M&S system integration and verification to support M&S system architecture development; conduct developmental integration testing

M&S Operations:

- Provide digital representations of BMDS elements/components using MDA's BMD International Simulation (I-SIM) in support of Combatant Command and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, M&S demonstrations, and the Warfighter's Modification & Fielding Requirements List (MFRL) for exercises and training
- Implement I-SIM re-architecture requirements and emerging requirements such as IAMD/Fog of War to adapt to growing distributed event requirements
- Sustain the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS Overhead Persistent Infrared (OPIR) Architectures in support of Warfighter training and exercise events, and System development engineering

<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs		<b>Project (Number/Name)</b> MD31 / Modeling & Simulation	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	
<ul style="list-style-type: none"> <li>- Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and CCMD planning tools</li> <li>- Upgrade legacy models and develop new designs or software as required to support System simulation Re-Architecture</li> <li>- Provide threat representations (kinematic trajectories, radar cross sections, and infrared signatures data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD</li> <li>-Develop products that meet digital and test requirements and allow M&amp;S participation in these venues</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>					
<p><b>Title:</b> M&amp;S Objective Simulation Framework (OSF)</p> <p><b>Description:</b> The following actions are required on a continuing basis to accomplish the OSF mission:</p> <ul style="list-style-type: none"> <li>- Develop and implement OSF upgrades to incorporate advanced tracking, discrimination, engagement and associated upper tier debris mitigation capabilities, as well as other requirements and capabilities to meet MDA's evolving M&amp;S Enterprise needs</li> <li>- Perform testing and integration of Core Truth Model capabilities into the OSF framework</li> <li>- Sustain and enhance framework products to maintain capabilities to support stakeholders and to keep pace with the IMTP</li> <li>- Develop plans, procedures and documentation for scheduled events including Wargames and Combatant Command Exercises and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP; provide event architecture integration and checkout of Wargames for these same IMTP scheduled events</li> <li>- Provide the ground test architecture integration expertise to meet the testing requirements of the IMTP; support delivery of integrated architectures for test across all test venues using the System test framework to integrate distributed architectures</li> <li>- Develop, maintain, test, field, and operate model representations for use in IMTP events and other MDA M&amp;S stakeholder application areas; deploy hardware and software updates to distributed sites; perform regular maintenance and critical repairs of hardware and software</li> <li>- Develop a System-level integrated, high-fidelity end-to-end digital simulation, including hardware and software, data storage and transmission, and verification tools</li> </ul>		<b>Articles:</b>	14.240 -	14.661 -	12.352 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs		<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>- Maintain the M&amp;S Integration and Development Laboratories for Element M&amp;S; maintain venue for stakeholders to conduct early integration efforts and identification of issues prior to event architecture integration to support system development</li> <li>- Deploy Simulation Interface Units (SIUs) for BMDS testing - materials, licenses, SIU fleet purchasing; deploy SIUs and components to maintain and sustain SIU fleet including cybersecurity; enables Developmental and Operational testing with full MDS as required in the IMTP</li> <li>- Continue maintenance of SSF in the required venues until the transition to OSF in the venues completes</li> <li>- Develop M&amp;S products to keep pace with evolving requirements in all digital and test venues</li> <li>- Prototype, develop and deliver new OSF capabilities to support agency efforts in the Concept Evaluation and Developmental Engineering Intended Uses</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease from FY 2020 to FY 2021 reflects completion of transition from the M&amp;S Single Stimulation Framework (SSF) to the Objective Simulation Framework (OSF).</p>				
<p><b>Title:</b> M&amp;S Core Truth Modeling</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Core Truth Model (CTM) program provides consistent and common Phenomenology, Lethality, Environment, Communications, and Threat models for M&amp;S venues utilized in all digital and Ground Test events and wargaming exercises. The CTM efforts are critical in the assessment of all Missile Defense capability deliveries. The following actions are required on a continuing basis to accomplish the CTM mission:</p> <ul style="list-style-type: none"> <li>- Implement next generation truth representations for signatures and lethality to address advanced MDS capability needs for tracking, discrimination and engagement</li> <li>- Maintain legacy truth representations (e.g., Parametric Endoatmospheric-Exoatmospheric Lethality Simulation (PEELS), Kinetic Intercept Debris Distribution (KIDD) and Optical Signatures Code/Optical Signature Inline Generator (OSC/OPTISIG)) until fully transitioned</li> <li>- Support integration of all applicable CTM functions into the OSF framework</li> <li>- Provide support for scheduled events including training, exercises, Wargames, and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP</li> </ul>		11.417 -	12.166 -	11.655 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>- Deliver CTM Toolkit for integrated truth representations across the M&amp;S enterprise</li> <li>- Maintain an Environments Program that will provide consistent environment models for system and element level simulations</li> <li>- Continue development of Truth Interaction which includes infrared (IR) propagation and radio frequency (RF) propagation; this will provide consistent models and truth to system and element level simulations</li> <li>- Generate CTM Sensitivity analysis to identify the sensitivity within system simulation of Core Truth Models and boundary</li> <li>- Develop and maintain CTM design to support system and element level simulations across the entire M&amp;S portfolio</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> M&S Improvements		29.685	36.735	59.397
		<b>Articles:</b>	-	-
<p><b>Description:</b> This effort funds MDS Enterprise-wide M&amp;S improvements that will enhance digital and ground test capabilities. Planned improvements include an experimental, developmental M&amp;S prototype capability necessary to achieve a System-level integrated, high-fidelity end-to-end digital simulation. The prototype effort designs and develops a digital simulation capability that will provide assessment data, supplemental to Ground- and Flight tests, in areas that those venues cannot address. The End-to-end Digital Integrated System-level Simulation (EDISS) will eventually replace the current stand-alone approach to digital predictive pre-mission analysis. MDA is also implementing Ground Test Re-architecture to address accreditation and assessment limitations, increased Hardware-in-the-Loop (HWIL) complexity and reduced available integration times. The Ground Test Integrated System-level Simulation (GTISS) will make truth data consistent, implement standard framework interfaces, and provide common data formats to correct ground test simulation inadequacies in threat uncertainty as well as debris modeling. Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete development for the Early Digital Product initial capability (EDISS-EDP)</li> <li>-- Complete integration testing for EDISS-EDP in support of data production runs starting in FY 2021</li> <li>-- Continue to implement M&amp;S software development and execute M&amp;S integration testing across MDA Elements in support of EDISS-EDP</li> <li>- Acquire M&amp;S IT hardware infrastructure to support data production runs</li> </ul>				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<ul style="list-style-type: none"> <li>- Complete systems engineering and top-level design for next increment of all-digital capability EDISS-FDP (Full Digital Product)</li> <li>-- Conduct a System Requirements Review and System Functional Review for EDISS-FDP 1</li> <li>- Ground Test Integrated System-level Simulation (GTISS)</li> <li>-- Execute software development, testing and prototyping in support of Ground Test re-architecture</li> <li>-- Complete consistent modeling of environments and debris</li> <li>-- Execute systems engineering design and early software development in support of advanced threats and advanced Missile Defense capabilities</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue development of initial delivery of EDISS, called Early Digital Product (EDP)</li> <li>-- Create cloud-computing and Data Analytics environment</li> <li>-- Prepare M&amp;S for execution in support of Long Range Discrimination Radar (LRDR) assessment</li> <li>-- Complete requirements development</li> <li>-- Continue software development and conduct spiral In-Progress Reviews</li> <li>-- Conduct M&amp;S Integration, Test, and Verification, Increment Acceptance Reviews</li> </ul> <ul style="list-style-type: none"> <li>- Continue Software Development of EDISS Full Digital Product (FDP), Increments 1 and 2:</li> <li>-- Complete systems engineering for FDP Inc 1, initiate systems engineering for FDP Inc 2, including System Requirements Review and System Functional Review</li> <li>-- Continue software development for FDP Inc 1, including Spiral In-Progress Reviews</li> <li>-- Conduct integration and testing for FDP Inc 1</li> </ul> <ul style="list-style-type: none"> <li>- Deploy Phase 1 of GTISS (Ground Test Integrated System-level Simulation) improvements to the MDA Ground Test Architecture:</li> <li>-- Complete requirements development</li> <li>-- Continue software development</li> <li>-- Provide Threat Data Production improvements</li> <li>-- Conduct M&amp;S Integration, Test, and Verification</li> </ul> <ul style="list-style-type: none"> <li>- Continue Engineering and Development of GTISS Phase 2:</li> <li>-- Continue software development, including in-progress technical reviews</li> <li>-- Integrate and Test GTISS phase 2 M&amp;S</li> </ul> <ul style="list-style-type: none"> <li>- Perform GTISS Phase 3 Functional Analysis and System Design</li> <li>-- Conduct requirements analysis and functional analysis, develop system design</li> </ul>			

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
-- Conduct Systems Engineering Technical Reviews			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Increase from FY 2020 to FY 2021 provides concurrent Enterprise-wide ground test re-architecture improvements and digital capability development.			
<b>Accomplishments/Planned Programs Subtotals</b>	79.982	88.487	107.710

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

<b>Line Item</b>	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• 0603881C: <i>Ballistic Missile</i>	383.369	306.761	412.627	-	412.627	340.071	302.279	204.986	227.970	Continuing	Continuing
<i>Defense Terminal Defense Segment</i>											
• 0603882C: <i>Ballistic Missile Defense Midcourse</i>	790.316	1,303.716	1,004.305	-	1,004.305	776.125	726.566	767.592	1,068.536	Continuing	Continuing
• 0603892C: <i>AEGIS BMD</i>	724.731	737.269	814.936	-	814.936	674.825	553.402	478.000	449.145	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks while the Elements, using the same open competition methods, develop and deliver models of their systems. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the Element prime contractors, with additional technical standards and engineering oversight provided by FFRDCs and UARCs.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
M&S Requirements, Design Support, Scenario Optimization - 3rd generation SIU development	C/CPFF	TBE : AL	0.000	4.500	Nov 2018	0.000		0.000		-		0.000	0.000	4.500	0.000
M&S Requirements, Design Support, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	6.224	2.110	Nov 2018	1.458	Nov 2019	1.093	Nov 2020	-		1.093	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Prior Yr Requirements & Scenario Design no longer funded in FYDP	Various	Various : AL	8.532	0.000		0.000		0.000		-		0.000	0.000	8.532	0.000
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - CSS 2	C/CPFF	TEAMS : CO, AL	22.202	6.340	Nov 2018	6.838	Nov 2019	9.776	Nov 2020	-		9.776	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Science and Technology Council	Various	Various : VA, AL	0.000	0.000		0.500	Dec 2019	0.000		-		0.000	0.000	0.500	0.000
M&S Requirements, Design Support, Scenario Optimization - Threat Modeling	Various	Various : CO, AL	0.000	0.000		3.544	Dec 2019	0.000		-		0.000	0.000	3.544	0.000
BMD Simulations & Tools - Digital Framework Development	C/CPAF	Northrop Grumman : CO	27.800	6.871	Nov 2018	0.000		0.000		-		0.000	0.000	34.671	0.000
BMD Simulations & Tools - Digital Simulation Development / Support	MIPR	SMDC : AL	3.547	1.164	Nov 2018	1.108	Dec 2019	1.750	Nov 2020	-		1.750	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
BMDS Simulations & Tools - M&S / Digital Framework Development	C/CPAF	SWDC : CO	0.000	0.000		9.610	Nov 2019	7.257	Nov 2020	-		7.257	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support	Various	MDA : CO, AL	2.560	0.000		0.867	Nov 2019	0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - CSS	C/CPFF	TEAMS : CO	2.839	3.655	Nov 2018	0.000		1.963	Nov 2020	-		1.963	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - Industry	C/CPFF	TBE : AL	1.850	0.000		0.000		0.000		-		0.000	0.000	1.850	0.000
BMDS Simulations & Tools - M&S / Digital Framework Support - OGA	MIPR	AMRDEC : AL	16.459	0.000		0.000		0.000		-		0.000	0.000	16.459	0.000
BMDS Simulations & Tools - Science & Technology Council	Various	Various : VA, AL	0.000	0.000		1.000	Dec 2019	2.467	Nov 2020	-		2.467	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - Continuous Integration Requirements Development	Various	Various : CO, AL	0.000	0.000		3.294	Dec 2019	2.088	Nov 2020	-		2.088	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - CSS	C/CPFF	TEAMS / Jacobs : CO	3.000	2.626	Nov 2018	2.708	Nov 2019	6.670	Nov 2020	-		6.670	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - Industry	C/CPAF	Northrop Grumman : CO	6.540	0.000		0.000		0.000		-		0.000	0.000	6.540	0.000
M&S Objective Simulation Framework (OSF) - M&S HWIL Framework Development and Support	C/CPFF	MASC : AL, CO	29.722	9.590	Nov 2018	1.663	Nov 2019	0.000		-		0.000	0.000	40.975	0.000
M&S Objective Simulation Framework (OSF) - M&S	Various	Various : CO, AL	0.000	0.000		2.426	Dec 2019	1.144	Dec 2020	-		1.144	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency												Date: February 2020			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603890C / BMD Enabling Programs				MD31 / Modeling & Simulation					
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
HWIL Simulations / Models - Various															
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models Development	MIPR	AMRDEC : AL	23.615	1.726	Nov 2018	3.570	Nov 2019	2.450	Nov 2020	-		2.450	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Support / GT re-architecture	Various	MDA : AL, CO	8.557	0.298	Nov 2018	0.000		0.000		-		0.000	0.000	8.855	0.000
M&S Objective Simulation Framework (OSF) - Science & Technology Council	Various	Various : VA, AL	0.000	0.000		1.000	Dec 2019	0.000		-		0.000	0.000	1.000	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling - OGA	MIPR	AFRL : CO	2.700	1.400	Nov 2018	0.000		0.000		-		0.000	0.000	4.100	0.000
M&S Core Truth Modeling - Core Truth Modeling - Engineering	Various	Various : CO	0.000	0.000		4.282	Dec 2019	6.253	Nov 2020	-		6.253	Continuing	Continuing	Continuing
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	7.144	0.800	Nov 2018	2.200	Nov 2019	0.700	Nov 2020	-		0.700	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS	C/CPFF	Peopletec : AL, CO	2.507	1.990	Nov 2018	0.000		0.000		-		0.000	0.000	4.497	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS 2	C/CPFF	TEAMS : AL, CO	0.000	1.683	Nov 2018	0.000		0.000		-		0.000	0.000	1.683	0.000
M&S Core Truth Modeling - M&S Core Truth Modeling - Lethality/ Phenomenology Modeling	MIPR	AMRDEC : AL	33.712	1.110	Nov 2018	0.000		0.000		-		0.000	0.000	34.822	0.000
M&S Core Truth Modeling - M&S Core Truth	C/CPAF	Northrop Grumman : CO	46.272	4.434	Nov 2018	0.000		0.000		-		0.000	0.000	50.706	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Modeling Simulation System															
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System 2	C/CPAF	SWDC : CO	0.000	0.000		5.684	Nov 2019	4.702	Nov 2020	-		4.702	Continuing	Continuing	Continuing
M&S Improvements - Enterprise-wide ground test re-architecture improvements	Various	Various : CO, AL	0.000	10.650	Dec 2018	10.219	Dec 2019	21.198	Dec 2020	-		21.198	Continuing	Continuing	Continuing
M&S Improvements - M&S Improvement - Enterprise-wide digital capability development	Various	Various : CO, AL	11.320	19.035	Nov 2018	26.516	Nov 2019	38.199	Nov 2020	-		38.199	Continuing	Continuing	Continuing
<b>Subtotal</b>			267.102	79.982		88.487		107.710		-		107.710	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	267.102	79.982	88.487	107.710	-	107.710	Continuing	Continuing	N/A

**Remarks**  
Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation
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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 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025			
International Simulation v8.6	▲									
MDST v16.4	▲									
Release Update to OSF - FY 2019	▲									
International Simulation v8.7		▲								
Release Update to OSF - 4Q FY 2020			△							
Release Update to OSF - FY 2021			△							
International Simulation v8.8 - 1Q FY 2021			△							
MDST Update - FY 2021			△							
Initial GTISS Delivery				△						
Release Update to OSF - FY 2022					△					
International Simulation v8.9 - 1Q FY 2022					△					
MDST Update - FY 2022					△					
GTISS Update (2022)						△				
Early Digital Product						△				
International Simulation v8.10 - 1Q FY 2023							△			
Release Update to OSF - FY 2023							△			
MDST Update - FY 2023							△			
GTISS Update (2023)								△		
Release Update to OSF - FY 2024									△	
International Simulation v8.11 - 1Q FY 2024									△	
MDST Update - FY 2024									△	
Release Update to OSF - FY 2025										△
International Simulation v8.12 - 1Q FY 2025										△
MDST Update - FY 2025										△

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD31 / Modeling & Simulation

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
International Simulation v8.6	1	2019	1	2019
MDST v16.4	1	2019	1	2019
Release Update to OSF - FY 2019	2	2019	2	2019
International Simulation v8.7	1	2020	1	2020
Release Update to OSF - 4Q FY 2020	4	2020	4	2020
Release Update to OSF - FY 2021	1	2021	1	2021
International Simulation v8.8 - 1Q FY 2021	1	2021	1	2021
MDST Update - FY 2021	1	2021	1	2021
Initial GTISS Delivery	2	2021	2	2021
Release Update to OSF - FY 2022	1	2022	1	2022
International Simulation v8.9 - 1Q FY 2022	1	2022	1	2022
MDST Update - FY 2022	1	2022	1	2022
GTISS Update (2022)	2	2022	2	2022
Early Digital Product	2	2022	2	2022
International Simulation v8.10 - 1Q FY 2023	1	2023	1	2023
Release Update to OSF - FY 2023	1	2023	1	2023
MDST Update - FY 2023	1	2023	1	2023
GTISS Update (2023)	2	2023	2	2023
Release Update to OSF - FY 2024	1	2024	1	2024
International Simulation v8.11 - 1Q FY 2024	1	2024	1	2024
MDST Update - FY 2024	1	2024	1	2024
Release Update to OSF - FY 2025	1	2025	1	2025
International Simulation v8.12 - 1Q FY 2025	1	2025	1	2025

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MD31 / <i>Modeling &amp; Simulation</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
MDST Update - FY 2025	1	2025	1	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MC31 / Engineering Cyber Operations			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MC31: <i>Engineering Cyber Operations</i>	10.263	20.559	23.618	35.709	-	35.709	22.911	25.706	25.689	27.007	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Increase from FY 2020 to FY 2021 provides full funding for Cyber Assistance Teams (CATs) and additional funding for Cyber Engineering to provide System-level analysis, cyber assessments, Adversarial Assessments, and Cyber Vulnerability Penetration Assessments (CVPAs) to support cybersecurity of BMD components.

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

This project provides monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POAMs. Activities include preparation of certification and accreditation documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the Project are necessary to comply with the Federal Information Security Management Act.

This project implements Risk Management Framework (RMF) system engineering principles as specified within DOD 8510.01 to acquire, design, test, implement and field technical solutions throughout the systems architecture to ensure sufficient protections exist from a threat and risk based approach. MDA's goal is to ensure Cybersecurity engineering principles flow into system requirements and design specifications early to provide the most cost benefit and ensure security controls are aligned with the National Institute of Standards and Technology (NIST) 800-53a security controls as applicable to systems categorized as National Security Systems.

This project includes resources to conduct an MDA Insider threat program to identify, deter, and mitigate potential insider threats. This activity is Presidentially and DoD-mandated.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Information Assurance / Cyber Network Defense	20.559	23.618	35.709
<b>Articles:</b>	-	-	-
<b>Description:</b> This activity includes network defense and Information System Security Manager (ISSM) activities for MDA Engineering. Specific tasks include:			
- Conduct Cybersecurity/information assurance engineering and architecture planning for Engineering information technology systems			
- Plan and test the information assurance controls for Engineering systems			
- Implement RMF system engineering principles to ensure sufficient protections exist from a threat and risk based approach			
- Conduct Controls Validation Testing of systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies			

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**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC31 / Engineering Cyber Operations
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> <li>- Conduct annual information assurance reviews to assess compliance in implementing and maintaining information assurance controls</li> <li>- Perform cybersecurity upgrades as needed to MDA Engineering systems to be in compliance with DoD mandates</li> <li>- Continue MDA Insider Threat Mitigation Team efforts</li> <li>- Implement and conduct continuous monitoring to determine continued security clearance eligibility</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue to perform on-site visits of MDA DIB partners to detect and increase understanding of DIB cyber threats</li> <li>- Develop tailored cyber threat mitigation strategies</li> <li>- Promote cyber threat reporting and information sharing within the DIB.</li> <li>- Per the FY 2020 NDAA:</li> <li>-- Conduct Cyber Engineering to provide System-level analysis, cyber assessments, Adversarial Assessments, and Cyber Vulnerability Penetration Assessments (CVPAs) to support cybersecurity of BMD components</li> </ul> <p><b>FY 2021 Plans:</b></p> <ul style="list-style-type: none"> <li>- Provide full funding for Cyber Assistance Teams</li> <li>- Perform on-site visits of MDA Defense Industrial Base (DIB) partners to detect and increase understanding of cyber threats</li> <li>- Conduct Cyber Engineering to provide System-level analysis, cyber assessments, Adversarial Assessments, and Cyber Vulnerability Penetration Assessments (CVPAs) to support cybersecurity of BMD components</li> </ul> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase from FY 2020 to FY 2021 provides full funding for Cyber Assistance Teams (CATs) and additional funding for Cyber Engineering.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	20.559	23.618	35.709

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0305103C: Cyber Security Initiative	0.961	11.138	1.148	-	1.148	1.172	1.194	1.231	1.255	Continuing	Continuing
<b>Remarks</b>											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MC31 / <i>Engineering Cyber Operations</i>
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**D. Acquisition Strategy**

This project leverages expertise in the Engineering, intelligence/counterintelligence, and information assurance communities, including the Military Services, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution. Products and Services will be acquired by competitive means to the extent that is beneficial and practical.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC31 / Engineering Cyber Operations
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Information Assurance / Cyber Network Defense - Cyber Assistance Team Leads	MIPR	Various : VA, AL	0.000	2.769	Nov 2018	1.000	Nov 2019	2.490	Nov 2020	-		2.490	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Contractor Support	C/CPFF	TEAMS : VA, AL	0.806	7.362	Nov 2018	3.860	Nov 2019	9.240	Nov 2020	-		9.240	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Hardware	Various	Various : VA, AL	0.291	1.401	Nov 2018	1.184	Nov 2019	1.545	Nov 2020	-		1.545	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Intelligence Reporting	C/CPAF	Deloitte : AL, VA	1.018	2.160	Nov 2018	0.000		2.215	Nov 2020	-		2.215	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Assistance Teams - Software/Licenses	C/CPAF	Splunk : AL, VA	0.000	2.401	Nov 2018	0.000		2.040	Nov 2020	-		2.040	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Engineering	C/CPFF	Various : AL, VA	0.000	0.000		6.198	Feb 2020	6.028	Dec 2020	-		6.028	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Cyber Engineering - CSS	C/CPFF	TEAMS : VA, AL	0.000	0.000		2.896	Feb 2020	2.546	Nov 2020	-		2.546	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MC31 / Engineering Cyber Operations
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Information Assurance / Cyber Network Defense - Cyber Engineering - VISUM	MIPR	Various : AL	0.000	0.000		2.960	Feb 2020	2.961	Dec 2020	-		2.961	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - IT / CND Support	C/CPFF	TEAMS : CO, AL, VA	3.262	1.194	Nov 2018	2.220	Nov 2019	1.634	Nov 2020	-		1.634	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat - Continuous SSO Support	C/CPFF	TEAMS : CO, AL, VA	0.000	0.000		0.000		1.124	Dec 2020	-		1.124	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell - IT	C/CPAF	Northrop Grumman : CO	2.400	0.510	Dec 2018	0.520	Dec 2019	0.531	Dec 2020	-		0.531	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell IT Network Defense	C/CPFF	TEAMS : CO, AL, VA	1.629	0.862	Dec 2018	0.880	Dec 2019	1.398	Dec 2020	-		1.398	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Software Assurance	Various	MDA : Various	0.857	1.900	Nov 2018	1.900	Nov 2019	1.957	Nov 2020	-		1.957	Continuing	Continuing	Continuing
<b>Subtotal</b>			10.263	20.559		23.618		35.709		-		35.709	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	10.263	20.559	23.618	35.709	-	35.709	Continuing	Continuing	N/A

**Remarks**  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.



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**Exhibit R-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / <i>BMD Enabling Programs</i>	<b>Project (Number/Name)</b> MC31 / <i>Engineering Cyber Operations</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Engineering Cyber Operations	1	2019	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD32: <i>Quality, Safety, and Mission Assurance</i>	266.350	28.190	29.986	30.269	-	30.269	30.578	31.258	32.181	32.846	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

Quality, Safety, and Mission Assurance ensures that the Missile Defense System (MDS) and all of its elements are designed, tested and operated in a reliable, safe, and effective manner.

Quality and Mission Assurance: Responsible for ensuring the reliable and effective design, test and operation of the MDS and all of its elements. Develops and ensures implementation of quality and mission assurance requirements. Mitigates quality and mission assurance risks to the lowest practical level. Provides in-plant MDA Assurance Representatives (MARs) at MDA government and contractor facilities to provide quality and mission assurance oversight of contractor manufacturing and integration. Performs Quality and Mission Assurance Assessments to ensure contractual requirements, internal requirements, and industry best practices are implemented at prime contractor and lower tier suppliers. Reviews and approves all new and modified parts, materials and critical processes for MDS elements.

Safety: Responsible for ensuring the safe design, test and operation of the MDS and all of its elements. Develops and ensures implementation of safety requirements. Mitigates safety risks to the lowest practical level. Ensures a safe workplace for all MDA employees and contractors by implementing a Safety and Occupational Health program. MDS Safety Officers (BSOs) provide on-site support at the Missile Defense Integration and Operations Center (MDIOC) 24 hours a day, 7 days a week, 365 days a year to ensure operational safety of the MDS.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Quality, Safety & Mission Assurance	28.190	29.986	30.269
<b>Articles:</b>	-	-	-
<b>Description:</b> Quality, Safety, and Mission Assurance ensures that the Missile Defense System and all of its elements are designed, tested and operated in a reliable, safe, and effective manner. Specific and/or unique accomplishments to each FY are as follows:			
<b>FY 2020 Plans:</b> - SEE ABOVE.			
<b>FY 2021 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
- SEE ABOVE.				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A				
<b>Accomplishments/Planned Programs Subtotals</b>		28.190	29.986	30.269
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> The Quality, Safety and Mission Assurance program is a collaboration between subject matter expertise in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Contract Support Services (CSS), and Industry.				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance
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<b>Product Development (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>Subtotal</b>			-	-	-	-	-	-	-	-	-	-	-	-	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				<b>FY 2019</b>		<b>FY 2020</b>		<b>FY 2021 Base</b>		<b>FY 2021 OCO</b>		<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</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>			
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	25.152	2.074	Nov 2018	3.500	Nov 2019	3.925	Nov 2020	-		3.925	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - In-Plant Quality Support (MARS)	C/CPFF	Various Multi : AL, AK, AZ, CA, CO, FL, HI, NJ, MA, MO, MD, UT	14.439	2.099	Dec 2018	1.600	Nov 2019	0.000		-		0.000	0.000	18.138	0.000
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	5.559	0.235	Dec 2018	0.200	Nov 2019	0.000		-		0.000	0.000	5.994	0.000
Quality, Safety & Mission Assurance - MDS Quality Support	C/CPFF	AI Solutions : AL	10.407	0.930	Dec 2018	0.800	Nov 2019	0.000		-		0.000	0.000	12.137	0.000
Quality, Safety & Mission Assurance - MDS Safety	C/CPFF	APT, INC : AL	11.586	0.930	Jan 2019	0.600	Nov 2019	0.000		-		0.000	0.000	13.116	0.000
Quality, Safety & Mission Assurance - MDS Safety Officers	MIPR	AMRDEC : AL	4.387	0.227	Nov 2018	0.092	Nov 2019	0.000		-		0.000	0.000	4.706	0.000
Quality, Safety & Mission Assurance - Management and Operations Support	MIPR	AMRDEC : AL	2.976	0.290	Nov 2018	0.222	Nov 2019	0.639	Nov 2020	-		0.639	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission	C/CPFF	APT, INC. : AL	8.163	0.420	Jan 2019	0.500	Nov 2019	0.000		-		0.000	0.000	9.083	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Assurance Subject Matter Experts															
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	5.459	0.200	Nov 2018	0.200	Nov 2019	0.000		-		0.000	0.000	5.859	0.000
Quality, Safety & Mission Assurance - Parts, Materials and Processes (PMP) Program	MIPR	Various Multi : AL, CA, DC, IN	16.035	1.615	Nov 2018	2.300	Nov 2019	1.097	Nov 2020	-		1.097	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes - PMP - Program	C/CPFF	AI Solutions : AL	7.562	0.855	Dec 2018	1.666	Nov 2019	0.000		-		0.000	0.000	10.083	0.000
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	26.769	2.289	Nov 2018	3.000	Nov 2019	2.376	Nov 2020	-		2.376	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality and Mission Assurance Support	C/CPFF	AI Solutions : AL, AK, AZ, CA, CO, FL, HI, NJ, MA, MO, MD, UT	9.504	0.867	Dec 2018	0.750	Nov 2019	7.297	Nov 2020	-		7.297	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Safety & Occupational Health	C/CPFF	APT, Inc : AL, VA	2.804	0.210	Jan 2019	0.220	Nov 2019	0.902	Jan 2021	-		0.902	Continuing	Continuing	Continuing
<b>Subtotal</b>			150.802	13.241		15.650		16.236		-		16.236	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance
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Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance HQ & Core Management (MDA CIV)	Allot	MDA QS : AL, VA, MD, CA, AZ, HI, AK, MA, NJ, FL, AR, UT	87.829	12.019	Oct 2018	11.836	Oct 2019	12.073	Oct 2020	-		12.073	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPPF	AI and Yorktown : AL and VA	11.022	1.755	Dec 2018	1.500	Nov 2019	0.880	Dec 2020	-		0.880	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support (Travel/PCS)	Allot	MDA QS : AL, CO, AK, DC, VA	16.697	1.175	Oct 2018	1.000	Nov 2019	1.080	Oct 2020	-		1.080	Continuing	Continuing	Continuing
<b>Subtotal</b>			115.548	14.949		14.336		14.033		-		14.033	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	266.350	28.190	29.986	30.269	-	30.269	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2021 Missile Defense Agency							<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 0400 / 4			<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs			<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance				
	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	

**Remarks**  
 Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.  
 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 2021 Missile Defense Agency		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD32 / Quality, Safety, and Mission Assurance

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD32 Quality, Safety, and Mission Assurance	1	2020	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs				<b>Project (Number/Name)</b> MD40 / Program-Wide Support			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD40: <i>Program-Wide Support</i>	163.712	20.550	23.562	23.808	-	23.808	21.937	21.897	28.702	31.784	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 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Program Wide Support	20.550	23.562	23.808
<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 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			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Missile Defense Agency	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD40 / Program-Wide Support
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2019	FY 2020	FY 2021
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><i>FY 2020 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2021 Plans:</i></b> - SEE ABOVE.			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	20.550	23.562	23.808

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

N/A

**Remarks**

**D. Acquisition Strategy**

N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Missile Defense Agency** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD40 / Program-Wide Support
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<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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 Wide Support - Agency Facilities and Maintenance	MIPR	Various Multi : AL, CO, CA, VA	24.196	3.635	Mar 2019	0.000		2.157	Dec 2020	-		2.157	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Various	Various : Multi: AL, CA, CO, VA	5.845	0.311	Jul 2019	0.356	Jul 2020	0.000		-		0.000	0.000	6.512	0.000
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Various	MDA : AK, AL, CA, CO, VA	32.108	0.000		16.012	Oct 2019	16.000	Oct 2020	-		16.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK, AL, CO, CA, HI, MD, VA, NJ, NY, OCONUS	0.000	0.000		5.442	Nov 2019	3.077	Nov 2020	-		3.077	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/Various	Various : Multi: AL, CO, CA, VA	95.961	16.604	Apr 2019	0.000		2.574	Dec 2020	-		2.574	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AL, CA, AL, AK	0.000	0.000		1.752	May 2020	0.000		-		0.000	0.000	1.752	0.000
Program Wide Support - Prior year no longer funded in the FYDP	Various	Various : Various	5.602	0.000		0.000		0.000		-		0.000	0.000	5.602	0.000
<b>Subtotal</b>			163.712	20.550		23.562		23.808		-		23.808	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	163.712	20.550	23.562	23.808	-	23.808	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-4A, RDT&E Schedule Details:** PB 2021 Missile Defense Agency **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603890C / BMD Enabling Programs	<b>Project (Number/Name)</b> MD40 / Program-Wide Support
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2019	4	2025